

## **Annual medical report / Colony and Protectorate of Kenya.**

### **Contributors**

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COLONY AND PROTECTORATE OF KENYA

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MEDICAL DEPARTMENT  
ANNUAL REPORT  
1936

INCLUDING THE  
MEDICAL RESEARCH LABORATORY  
ANNUAL REPORT 1936



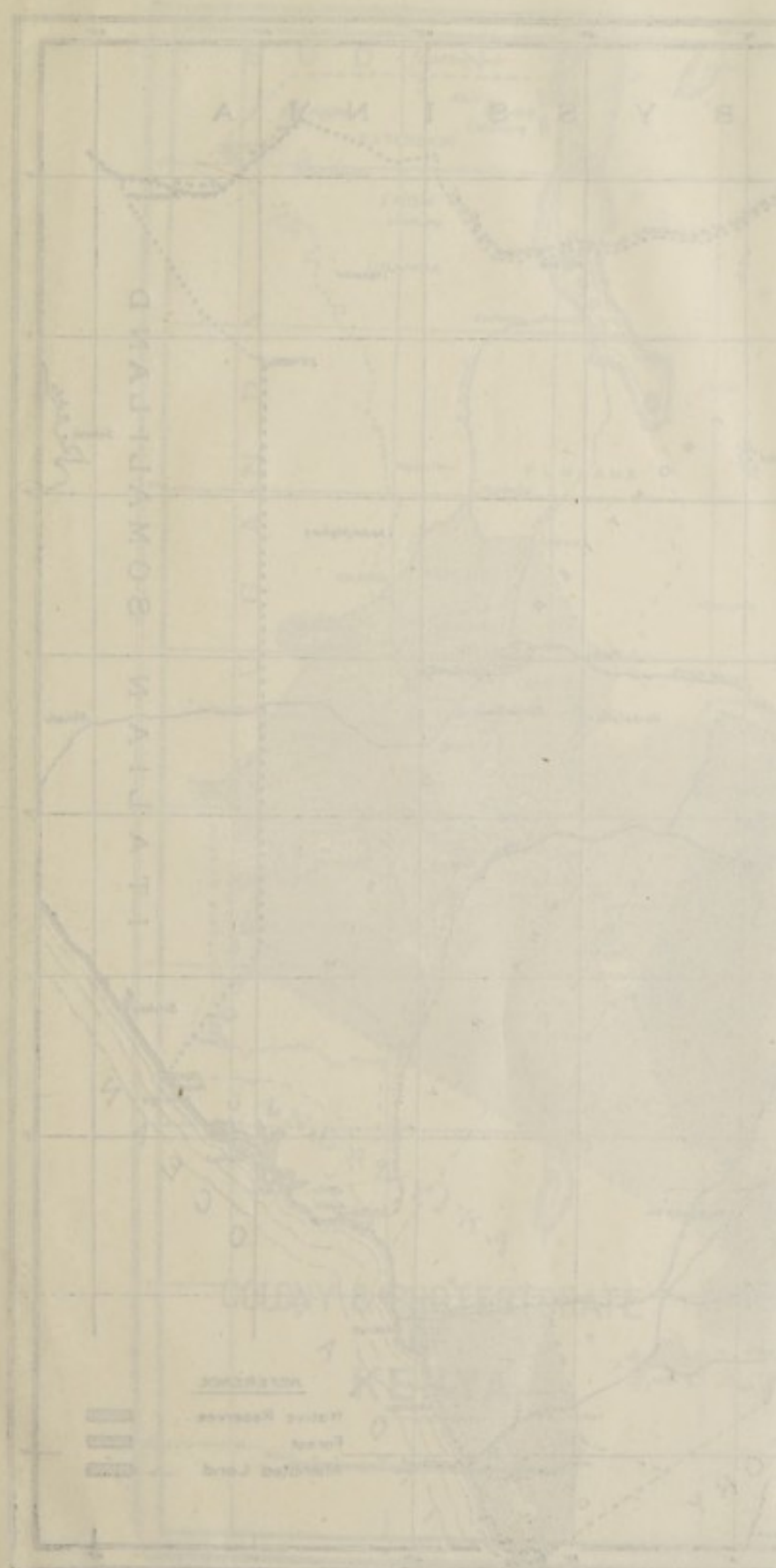
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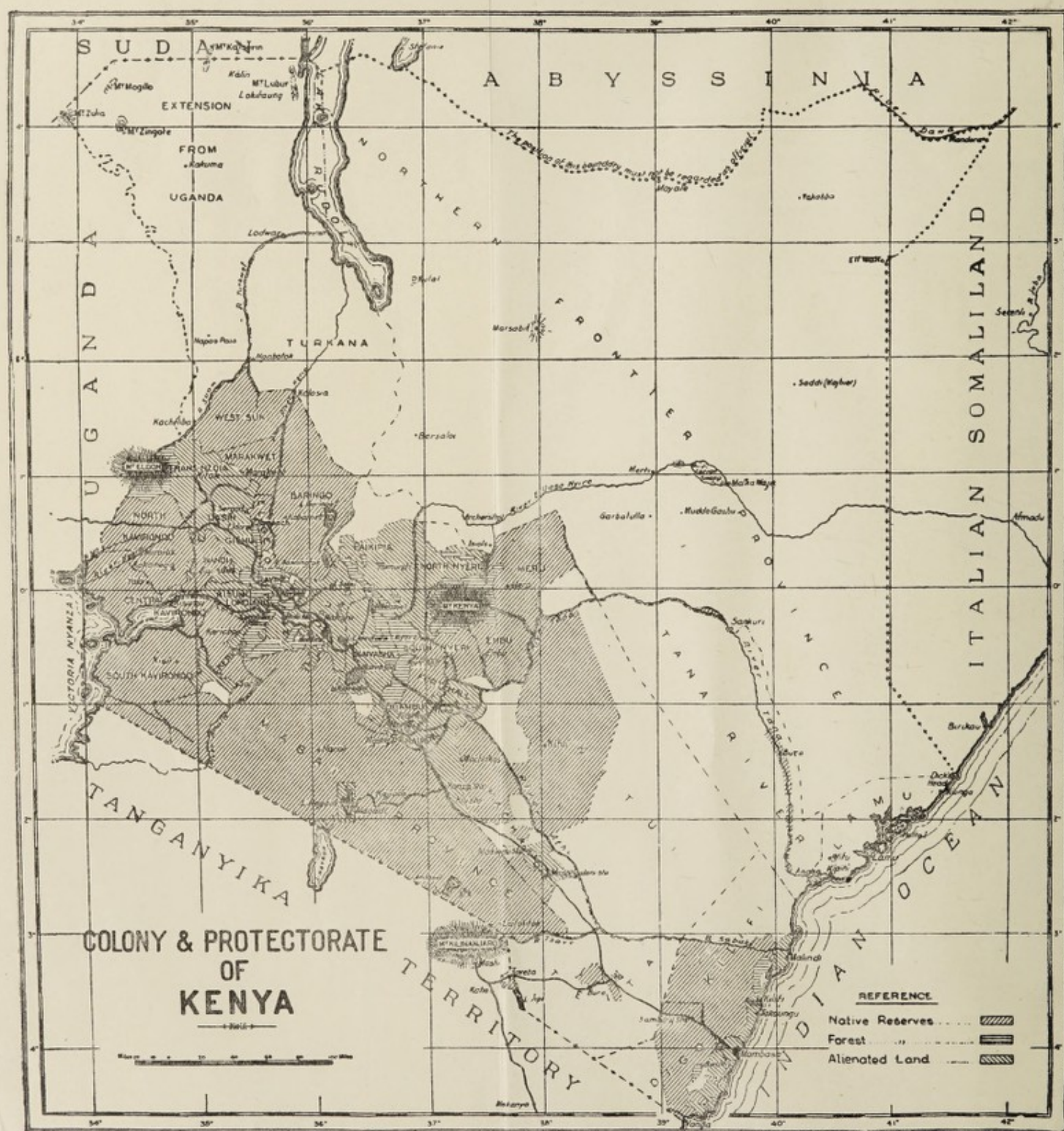
1937

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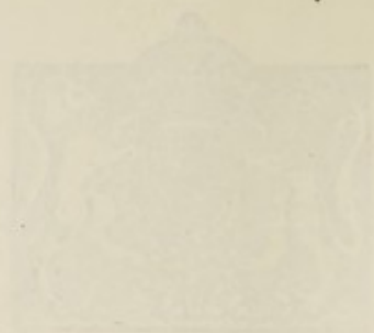
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GOVERNMENT OF THE STRAITS SETTLEMENTS AND FEDERATED MALAY STATES

# MEDICAL DEPARTMENT ANNUAL REPORT 1936

INCLUDING THE

MEDICAL RESEARCH LABORATORY  
ANNUAL REPORT 1936

PRINTED AND BOUND BY THE GOVERNMENT OF THE STRAITS SETTLEMENTS AND FEDERATED MALAY STATES  
GOVERNMENT PRINTING OFFICE  
SINGAPORE  
1937

MEDICAL DEPARTMENT HEAD OFFICES,  
NAIROBI.

Sir,

I have the honour to submit for the information of His Excellency the Governor, and for transmission to the Right Honourable the Secretary of State, the Medical Report on the Health and Sanitary Conditions of the Colony and Protectorate of Kenya for the year 1936, together with the Returns, etc., appended thereto.

I have the honour to be,

Sir,

Your obedient servant,

A. R. PATERSON,  
*Director of Medical Services.*

*The Honourable the Colonial Secretary, Nairobi.*



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# MEDICAL DEPARTMENT ANNUAL REPORT

## 1936

### I—ADMINISTRATION

The position with regard to the maintenance of the many health services, for the provision of which the Medical Department of Government is itself directly responsible, was in 1936 even more difficult than in the preceding year. The sanctioned strength of medical officers, namely, forty-eight, was two less than in the preceding year, the financial provision was no greater, while casualties among the senior staff were severe, the demands for medical relief increased as usual, and the opportunities for constructive work were greater and more evident than ever before. To some extent these increased demands were met and the opportunities used. An account of how advantage was able to be taken of one of these opportunities which occurred in connexion with an outbreak of plague is given in the section of this report dealing with Hygiene and Sanitation, and some indication of the course of events with regard to the provision of medical relief is given in the following table:—

| Year | Sanctioned Estimates | Actual Expenditure | Qualified Medical Staff | European    |              | Asiatic and African |              | Out-dispensary attendances |
|------|----------------------|--------------------|-------------------------|-------------|--------------|---------------------|--------------|----------------------------|
|      |                      |                    |                         | In-patients | Out-patients | In-patients         | Out-patients |                            |
|      | £                    | £                  |                         |             |              |                     |              |                            |
| 1931 | 252,061              | 221,202            | 66                      | 2,626       | 1,777        | 35,551              | 252,610      | 534,709                    |
| 1932 | 219,357              | 197,260            | 54                      | 2,375       | 1,595        | 31,382              | 261,795      | 646,033                    |
| 1933 | 215,116              | 199,568            | 55                      | 2,182       | 1,327        | 36,443              | 300,277      | 774,302                    |
| 1934 | 201,286              | 197,967            | 52                      | 2,271       | 1,264        | 42,938              | 331,979      | 851,370                    |
| 1935 | 199,817              | 203,451            | 50                      | 1,831       | 3,228        | 43,422              | 353,346      | 989,796                    |
| 1936 | 195,562              | 196,368            | 48                      | 1,817       | 3,609        | 46,632              | 408,788      | 976,877                    |

Departmental administration during 1936, though difficult, has therefore been satisfactory to the extent that with a smaller staff and without any notable increase of resources an even larger measure of medical relief was provided than in previous years. In this connexion, however, I would quote from a review of the Annual Medical Report for the Colony for 1935 which appeared in a local paper in the present year, when the reviewer said:—

“It appears to me important to remember that behind a mass of statistics—for instance, 989,796 out-dispensary attendances—there lie countless stories of human suffering and misery.”

That the statement of the reviewer is far from being an exaggeration every district medical officer could testify, and the measure of the amount of human suffering and misery which yearly goes unrelieved is not difficult to estimate, up to a point. It is, at the least, the difference between the amount of medical relief which can be afforded among a population of some three million people by about 50 medical officers, and the amount which could be provided by about 3,000, which is the number of physicians which would be available for the service of a population of 3,000,000 in most parts of Northern Europe, where, it may be noted, the people are healthier as a rule than the people of Africa. Such increase in the amount of medical relief as we have been able to provide in 1936 is therefore so small in comparison with what is required that it would be misleading to dwell on it as a matter for satisfaction, or to record it as important evidence of progress in the provision of medical relief. Its importance lies in another direction: as evidence of the amount that there remains to do, of the need for a prosperity that will provide very much larger means, and of the need for a will on the part of the people to achieve such measure of prosperity. And in this last direction there has, I think, been a degree of progress during the year which can very legitimately be recorded

with satisfaction, for in almost every district medical officer's report there is some record of increasing interest having been taken by the Local Native Council and by the people of his district in public health affairs. In some cases funds have been provided, in other resolutions bearing on the public health have been passed, and in almost all cases there has been discussion, and not infrequently discussion which has been well informed. In these councils the need for better health is realized in a fashion which cannot be regarded otherwise than as evidence of the evolution of what has been called a "public health conscience," and such an evolution is the first and essential step towards the solution of a problem which is very clearly insoluble without great economic advance on the part of the peasantry as a whole.

This progress towards a wider outlook on the part of African peoples of the Colony with regard to the public health would appear, to no small extent, to be the result of the development of a system of public health administration which was established in Kenya now nearly twenty years ago with this precise object in view, and to-day the chief function of public health administration is to ensure its continuance and its growth.

On various occasions in past years accounts have been given in the Annual Medical Reports of the Colony of the more important changes and advances which from time to time have taken place in the building up and development of this system of health administration, and with regard to the organization, function and aims of the Medical Department of Government, but inasmuch as these accounts are scattered through a large series of reports published over a period of years it may be of service now to summarize these changes, and to set out the position which pertains to-day with regard to public health administration within the Colony. Such a review would appear to be particularly desirable at the present time, since for over five years past public health administration has of necessity been seriously cramped and confined as a result of the general financial depression, and public health authorities, whether central or local, have been forced to relegate for consideration at some future period much work and many projects which otherwise they would have been only too willing to have undertaken. Furthermore, towards the end of 1936 the prospects brightened and in these circumstances merely to review the progress of the year against that of the preceding year would be inadequate, for the essential purpose of every health authority is to promote the public health, and its essential interest to ascertain not merely how much work has been carried out but to ascertain the relation which may exist between the work done and work required—to ascertain, in short, to what extent its administration has been effective.

Public health administration in Kenya is carried out at the present time under a number of Ordinances, of which the chief are the Public Health Ordinance of 1921, the Native Authority (Amendment) Ordinance of 1924, the Public Health (Amendment) Ordinance of 1928, and the Local Government (Municipalities) Ordinance of 1928. The first of these, namely the Public Health Ordinance of 1921, is the most important milestone so far in the development of public health administration in the Colony. It testifies to the appreciation of the Government and the Legislature of the importance of the public health. Under this Ordinance the maintenance of a Government Medical Department became statutory for the first time, and the functions of that Department were defined as follows:—

"(2) The functions of the medical department shall be, subject to the provisions of this Ordinance, to prevent and guard against the introduction of infectious disease into the Colony from outside; to promote the public health and the prevention, limitation, or suppression of infectious, communicable or preventable disease within the Colony; to advise and direct local authorities in regard to matters affecting the public health; to promote or carry out researches and investigations in connexion with the prevention or treatment of human diseases; to prepare and publish reports and statistical or other information relative to the public health; and generally to carry

out in accordance with directions the powers and duties in relation to the public health conferred or imposed by this Ordinance.

"(3) It shall be the duty of the department to obtain and publish periodically such information regarding infectious disease and other health matters in the Colony, and such procurable information regarding epidemic disease in territories adjacent to the Colony or in other countries, as the interests of the public health may require."

The Ordinance therefore gave statutory effect to the principle that one of the chief functions of the central Government of the Colony is the promotion of the public health. A second principle of great importance recognized under this Ordinance is that the promotion of the public health can best be effected by imposing certain specific duties and powers on local government authorities in such a fashion that in every part of the country there is a local authority responsible for the promotion of the health of the local inhabitants. The local authorities recognized by the Public Health Ordinance of 1928 are—

- (a) in the case of Municipalities, Municipal Councils or Boards or such person or body of persons as the Governor may appoint;
- (b) in the case of any other area, the District Commissioner or such person or body of persons or authority as the Governor may appoint.

The general duties of these local authorities, in so far as the public health is concerned, are laid down by the Ordinance to be as follows:—

"It shall be the duty of every local authority to take all lawful, necessary, and, under its special circumstances, reasonably practicable measures for preventing the occurrence or dealing with any outbreak or prevalence of any infectious, communicable or preventable disease, to safeguard and promote the public health, and to exercise the powers and perform the duties in respect of the public health conferred or imposed on it by this Ordinance or by any other law."

The next milestone in public health administration was the passing of the Native Authority (Amendment) Ordinance in 1924, under which the Governor in Council is empowered to establish a Local Native Council in any district and under which any Council so established is empowered to pass resolutions and to impose and collect rates for, among other purposes, the promotion of the public health.

A further milestone in public health administration was the passing of the Local Government (Municipalities) Ordinance of 1928. Under this Ordinance arrangements are made for the establishment of urban local authorities, the members of which may be elected, and on which rating and borrowing powers are conferred for, among other purposes, the engagement of public health staff and the promotion of the public health within the area under their jurisdiction.

This Ordinance also provides for the establishment of a central authority and organization for local government purposes in so far as municipalities are concerned. The Central Authority so established is the Commissioner for Local Government, who has, as part of the organization at his disposal, a statutory Standing Committee for Local Government which is required to advise on, among other subjects, the public health. Of this Committee the Director of Medical Services is a member.

There are therefore two chief types of local public health authorities in the Colony, as follows:—

- (a) Municipal Councils or Boards.
- (b) District Commissioners.

Of these authorities, the Councils and Boards are entitled to impose rates locally for public health purposes and under certain circumstances to receive a reimbursement of 50 per cent from the central Government in respect of

expenditure incurred on the promotion of the public health. The District Commissioners, on the other hand, have no powers to impose local rates, and are therefore dependent for the execution of their functions in relation to the safeguarding and promotion of public health on such staff and funds as the central Government or other authority may be able to place at their disposal.

The Local Native Councils to which reference has been made above are not local authorities within the meaning of the Public Health Ordinance, nor have they any administrative functions, but since they have powers to pass resolutions bearing on the public health and to impose a rate for any public health purpose they are in a position to play an important part in relation to public health administration, and to give effect in practice to one of the main principles on which the Public Health Ordinance of 1921 was based, and to an ever-increasing extent they are doing so. Their success since they were first established has in fact very amply confirmed the soundness and the applicability to the native reserves of the main principle to which I have referred, namely the principle that the public health can best be advanced by securing the interest of a local public authority, and that this can best be done by endowing some such authority with, not every power, but with sufficient power to secure such interest.

For the moment these Local Native Councils have no specific duties or responsibilities in connexion with the public health, for their capacities are still unproved; but within limits they have been given powers and they have therefore opportunities, and if they continue as they have begun it should be an easy step in the future to devolve upon them at least some duties and responsibilities with regard to the safeguarding and promotion of the public health. At present, however, an educational process is in operation, and under the arrangements which were made there is no likelihood of any serious waste of either funds or effort, or of any clash of policies, for in the case of each native district the president of the Local Native Council is the District Commissioner, who in that capacity is also, under the Public Health Ordinance, the local health authority of the area.

In the administrative machinery which has been outlined above, the Medical Department of Government has two parts to play. In the first place, it has a statutory part as the adviser of Government on all questions relating to the public health, as the adviser of the Commissioner of Local Government with regard to municipal public health affairs, and as the adviser, through the appropriate channel, of all local public health authorities in every part of the Colony. In the second place, the Department has a customary part to play in the allocation and administration of the funds which have been placed at its disposal by Government for medical research, for the training of African staff, for the provision, in those areas where they may be required and where no other provision has been made, of certain essential health staff and services, such as, for example, medical officers of health and services in connexion with the control and prevention of disease, services in connexion with public health propaganda, and service with regard to medical relief.

In addition to the work outlined above, the Department is also responsible for the collection and dissemination of intelligence with regard to infectious diseases in the Colony and abroad, while the Director, as chairman of the statutory boards set up under the Medical Practitioners and Dentists Ordinance and the Drugs and Poisons Ordinance, is intimately concerned with the administration of these Ordinances.

#### ORGANIZATION OF MEDICAL WORK WITHIN THE DEPARTMENT

##### *Objects and Aims*

The main object of the Medical Department is to promote the public health of a population which is estimated at some 18,000 Europeans, 45,000 Asians, and 3,000,000 Africans. Of these communities, the African is not only the largest but it is the poorest, its members are for the most part illiterate, their general standard of culture is low, and they live, as a rule, neither

in towns nor villages but in groups of huts widely scattered over the countryside. The main problem with which the Department is faced lies therefore among the African community and in the rural areas. Prior to 1920 this rural African problem had received but little attention, but since then its importance has received ever-increasing attention, and a very clear policy for its solution has gradually been developed. It has been recognized that sickness and ill-health among the African population are chiefly the result of poverty and ignorance, and of the poor sanitary conditions, the poor nourishment, and the ill-regulated conditions of life which result therefrom. It has been recognized also that while these conditions pertain neither an adequate measure of medical relief, nor an adequate staff of instructors in sanitation and housing construction, in maternity and child welfare, and in all matters of personal, domestic or environmental hygiene, can ever be supplied. It became clear therefore that if any great and general progress with regard to the advancement of the public health were ultimately to be attained it was necessary in the first place to instil into the people as a whole, or into as large bodies of the community as possible, a determined desire to live under more hygienic conditions, to be well nourished and to have at their disposal effective medical relief. Such desire, if it could be made sufficiently strong, might lead to effort to secure prosperity, and when and where prosperity had been achieved to the expenditure of some part of the family funds, either directly by the family or indirectly through some local authority or the state, on individual or public health measures. To this end the confidence of the people had to be obtained, and hygiene had to be made attractive, and for some years past these needs have to an ever-increasing extent governed the general policy and organization of the Medical Department in the native reserves.

In pursuance of the policy which has been adopted—that is, a policy aimed at securing the confidence of the people and at achieving a great alteration of outlook and a desire to live better—the Department has endeavoured, so far as the funds at its disposal would allow, to establish in each large native district a “health centre”, or organization, of which a hospital where the medical treatment provided is of as high a standard as possible is an important part.

To such a hospital there is posted, in addition to a medical officer and a European nursing sister, of whose functions not the least is to secure the confidence of the women. At varying distances from the central hospital there are established out-dispensaries, while for the instruction of the people in environmental hygiene, in the building of good houses and so on, there is posted to the district a European sanitary inspector. And, as efficient indoor and outdoor medical relief seems to afford the surest approach to securing the confidence of the people, the control of both medical relief and of sanitary and instructional work has been placed in the hands of the same medical officer. In addition to his executive functions, this medical officer is required to advise the local authority, that is, the District Commissioner, on all matters relating to the public health of the district, and to make every endeavour to interest the Local Native Council in public health affairs.

On the side of environmental hygiene, policy is based on the views which the experience of past years has shown to be sound. These are that there would appear to be no reason to suppose that it is impossible for the great majority of African families to achieve in the future a standard of living far in advance of that which now pertains, and not improbably equal at least to that which has been generally achieved in the rural areas of Northern Europe; that it is not impossible to inspire the African with such ambition, and that propaganda, to be effective, must aim high. While therefore no effort is spared to help even the poorest and most backward peasant to improve, even in the smallest measure, his housing or his way of living, a very special effort is also made to enlist the sympathies of as many progressive Africans as possible, and to encourage any who can afford to do so to build permanent houses of a very much higher standard. During the past few years many such houses have been built in almost all the more developed and progressive districts,

where they now stand as examples to all the countryside, and our difficulty to-day is not to get more houses established but to restrain prospective builders from embarking on building enterprises before their farming operations are on a scale sufficient to justify the expense or to ensure adequate upkeep of the house once it has been built. But the large business of teaching a people how to live in good houses once they have provided them, and how to utilize their advantages, still remains to be undertaken on an adequate scale.

For the execution of the programme which has been outlined above, for the provision of medical relief in the towns, the provision of a mental hospital service, for research and for general administration, the funds at the disposal of the Medical Department in 1936 amounted to £195,562. The staff which was retained for this sum and its organization and disposition are set out below, together with a descriptive list of the institutions which are maintained:—

#### *Administrative Division*

Director of Medical Services,  
Deputy Director of Medical Services,  
Senior Medical Officer,  
Accountant,  
Medical Storekeeper,  
Clerical Staff, etc.

#### *Medical Division*

4 Senior Medical Officers,  
Surgical Specialist,  
40 Medical Officers,  
3 District Surgeons,  
1 Visiting Physician, Mental Hospital,  
2 Assistant Surgeons,  
3 Dispensers and Wardmasters,  
1 Chief Instructor,  
1 Matron, European Hospital, Nairobi,  
1 Housekeeper, European Hospital, Nairobi,  
52 Nursing Sisters,  
1 Superintendent, Mental Hospital,  
1 Matron, Mental Hospital,  
1 Assistant Matron, Mental Hospital,  
2 Male Mental Hospital Assistants,  
2 Assistant Surgeons (Asian),  
24 Sub-assistant Surgeons (Asian),  
African staff of Compounders, Hospital Assistants, Dressers (male and female), etc.

#### *Sanitation Division*

1 Chief Sanitary Inspector,  
1 Senior Sanitary Inspector,  
10 Sanitary Inspectors,  
1 Superintendent, Infectious Diseases Hospital.

(Note.—The Sanitation Division is not effective as a “division” of the Department. The Senior Sanitary Inspectors and Inspectors are posted to out-stations, where they are on the staff of the Medical Officer of Health of the station. The Chief Sanitary Inspector is posted to headquarters, where he is on the staff of the Director, and he communicates with the remainder of the members of the division only for the Director and through the Medical Officer of Health concerned.

*Laboratory Division*

- Deputy Director of Laboratory Services (post vacant),  
 1 Senior Pathologist,  
 2 Pathologists,  
 1 Biochemist,  
 2 Entomologists,  
 1 Laboratory Superintendent,  
 10 European Laboratory Assistants,  
 1 European Laboratory Assistant (Learner Grade),  
 2 Asian Laboratory Assistants,  
 African staff, Laboratory Assistants, Attendants, etc.

The composition of the staff may be summarized as follows:—

*European.*

|                                             |     |     |     |     |     |
|---------------------------------------------|-----|-----|-----|-----|-----|
| Medical Officers                            | ... | ... | ... | ... | 48  |
| Sanitary Inspectors                         | ... | ... | ... | ... | 12  |
| Laboratory Assistants, etc.                 | ... | ... | ... | ... | 13  |
| Nursing Sisters, etc.                       | ... | ... | ... | ... | 57  |
| Hospital Superintendents, Wardmasters, etc. | ... | ... | ... | ... | 13  |
| Clerks, etc.                                | ... | ... | ... | ... | 10  |
| Total                                       |     |     |     |     | 153 |

*Asian.*

|                        |     |     |     |     |    |
|------------------------|-----|-----|-----|-----|----|
| Assistant Surgeons     | ... | ... | ... | ... | 2  |
| Sub-assistant Surgeons | ... | ... | ... | ... | 24 |
| Compounders            | ... | ... | ... | ... | 5  |
| Clerks                 | ... | ... | ... | ... | 15 |
| Total                  |     |     |     |     | 46 |

*African.*

|                                                          |     |     |     |     |       |
|----------------------------------------------------------|-----|-----|-----|-----|-------|
| Hospital Assistants (systematically trained male nurses) | ... | ... | ... | ... | 33    |
| Compounders (systematically trained)                     | ... | ... | ... | ... | 12    |
| Health Workers (systematically trained)                  | ... | ... | ... | ... | 30    |
| Laboratory Assistants (many highly trained)              | ... | ... | ... | ... | 92    |
| Dressers (including about 130 women)                     | ... | ... | ... | ... | 648   |
| Ambulance Drivers                                        | ... | ... | ... | ... | 11    |
| Cooks                                                    | ... | ... | ... | ... | 36    |
| Office Boys, Garden Boys, Sweepers, etc.                 | ... | ... | ... | ... | 342   |
| Total                                                    |     |     |     |     | 1,204 |

DISTRIBUTION OF STAFF  
TABLE I.—AT MEDICAL HEADQUARTERS AND IN THE CAPITAL  
TOWN OF NAIROBI

|                                                        | At Medical Head-<br>quarters and Dis-<br>trict Health Offices | Medical Stores. | Mathari Mental Hos-<br>pital | European Hospital,<br>Nairobi | Native Hospital, Nai-<br>robi, Prison, Gene-<br>ral Dispensary, and<br>I. D. H., Railway<br>Dispensary and<br>Training Depot | Medical Research<br>Laboratory |
|--------------------------------------------------------|---------------------------------------------------------------|-----------------|------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Director of Medical Services                           | 1                                                             | ..              | ..                           | ..                            | ..                                                                                                                           | ..                             |
| Deputy Director of M. Services                         | 1                                                             | ..              | ..                           | ..                            | ..                                                                                                                           | ..                             |
| Senior Medical Officer ..                              | 1                                                             | ..              | ..                           | ..                            | ..                                                                                                                           | ..                             |
| Accountant .. ..                                       | 1                                                             | ..              | ..                           | ..                            | ..                                                                                                                           | ..                             |
| Medical Storekeeper .. ..                              | ..                                                            | 1               | ..                           | ..                            | ..                                                                                                                           | ..                             |
| Clerks (European) .. ..                                | 4                                                             | 2               | ..                           | 1                             | ..                                                                                                                           | 1                              |
| Surgical Specialist .. ..                              | ..                                                            | ..              | ..                           | ..                            | 1                                                                                                                            | ..                             |
| Medical Officers .. ..                                 | ..                                                            | ..              | ..                           | 1                             | 4                                                                                                                            | ..                             |
| Visiting Physician, M.M.H. ..                          | ..                                                            | ..              | 1                            | ..                            | ..                                                                                                                           | ..                             |
| Assistant Surgeons (European)                          | ..                                                            | ..              | ..                           | ..                            | 1                                                                                                                            | ..                             |
| Wardmaster and Dispensers ..                           | ..                                                            | ..              | ..                           | ..                            | 3                                                                                                                            | ..                             |
| Matron, European Hospital ..                           | ..                                                            | ..              | ..                           | 1                             | ..                                                                                                                           | ..                             |
| Nursing Sisters .. ..                                  | ..                                                            | ..              | ..                           | 9                             | 6                                                                                                                            | ..                             |
| Housekeeper .. ..                                      | ..                                                            | ..              | ..                           | 1                             | ..                                                                                                                           | ..                             |
| Superintendent .. ..                                   | ..                                                            | ..              | 1                            | ..                            | ..                                                                                                                           | ..                             |
| Matron .. ..                                           | ..                                                            | ..              | 1                            | ..                            | ..                                                                                                                           | ..                             |
| Assistant Matron .. ..                                 | ..                                                            | ..              | 1                            | ..                            | ..                                                                                                                           | ..                             |
| Male Mental Nurses .. ..                               | ..                                                            | ..              | 2                            | ..                            | ..                                                                                                                           | ..                             |
| Female Mental Nurses .. ..                             | ..                                                            | ..              | 1                            | ..                            | ..                                                                                                                           | ..                             |
| Chief Sanitary Inspector ..                            | 1                                                             | ..              | ..                           | ..                            | ..                                                                                                                           | ..                             |
| Superintendent .. ..                                   | ..                                                            | ..              | ..                           | ..                            | 1                                                                                                                            | ..                             |
| Senior Pathologist .. ..                               | ..                                                            | ..              | ..                           | ..                            | ..                                                                                                                           | 1                              |
| Assistant Pathologists .. ..                           | ..                                                            | ..              | ..                           | ..                            | ..                                                                                                                           | 2                              |
| Biochemist .. ..                                       | ..                                                            | ..              | ..                           | ..                            | ..                                                                                                                           | 1                              |
| Entomologists .. ..                                    | ..                                                            | ..              | ..                           | ..                            | ..                                                                                                                           | 2                              |
| Laboratory Superintendent ..                           | ..                                                            | ..              | ..                           | ..                            | ..                                                                                                                           | 1                              |
| Lab. Assistants (European) ..                          | ..                                                            | ..              | ..                           | ..                            | ..                                                                                                                           | 8                              |
| Assistant Surgeon (Asiatic) ..                         | ..                                                            | ..              | ..                           | ..                            | 1                                                                                                                            | ..                             |
| Sub-Asst. Surgeons (Asiatic) ..                        | ..                                                            | ..              | ..                           | ..                            | 2                                                                                                                            | ..                             |
| Laboratory Assistants (Asiatic)                        | ..                                                            | ..              | ..                           | ..                            | ..                                                                                                                           | 2                              |
| Issuers .. ..                                          | ..                                                            | 2               | ..                           | ..                            | ..                                                                                                                           | ..                             |
| Compounders (Asiatic) .. ..                            | ..                                                            | ..              | ..                           | ..                            | 2                                                                                                                            | ..                             |
| Clarks (Asian) .. ..                                   | 3                                                             | 1               | ..                           | ..                            | 1                                                                                                                            | 1                              |
| Hospital Assistants .. ..                              | ..                                                            | ..              | ..                           | ..                            | 14                                                                                                                           | ..                             |
| Hospital Compounders (African)                         | ..                                                            | ..              | ..                           | ..                            | 3                                                                                                                            | ..                             |
| Clerks (African) .. ..                                 | 1                                                             | ..              | 1                            | ..                            | 4                                                                                                                            | ..                             |
| African Laboratory Assistants                          | ..                                                            | ..              | ..                           | ..                            | 1                                                                                                                            | 21                             |
| Other African Staff (excluding<br>five learners) .. .. | 4                                                             | 15              | 63                           | 28                            | 101                                                                                                                          | 22                             |

TABLE II.—IN THE LARGER TOWNS

|                                  | Mom-<br>basa | Kisumu | Nakuru | Eldoret | Kitale |
|----------------------------------|--------------|--------|--------|---------|--------|
| Senior Medical Officers .. ..    | 1            | 1      | ..     | ..      | ..     |
| Medical Officers .. ..           | 3            | 2      | ..     | ..      | ..     |
| District Surgeons .. ..          | ..           | ..     | 1      | 1       | ..     |
| Assistant Surgeon (European) ..  | 1            | ..     | ..     | ..      | ..     |
| Wardmasters .. ..                | 1            | ..     | ..     | ..      | ..     |
| Nursing Sisters .. ..            | 7            | 5      | 1      | 2       | 1      |
| Senior Sanitary Inspectors .. .. | ..           | 1      | 1      | ..      | ..     |
| Sanitary Inspectors .. ..        | ..           | ..     | ..     | ..      | 1      |
| Laboratory Assistant (European)  | 1            | 1      | ..     | ..      | ..     |
| Assistant Surgeons (Asiatic) ..  | ..           | ..     | ..     | ..      | 1      |
| Sub-Assistant Surgeons (Asiatic) | 3            | 1      | 1      | 2       | ..     |
| Compounders (Asiatic) .. ..      | 1            | 1      | ..     | ..      | ..     |
| Clerks (Asiatic) .. ..           | 2            | 1      | 1      | ..      | ..     |
| Clerks (African) .. ..           | 1            | 1      | 1      | 1       | 1      |
| Hospital Assistants .. ..        | 1            | 3      | ..     | ..      | ..     |
| Hospital Compounders (African)   | 1            | ..     | 1      | ..      | ..     |
| African Laboratory Assistants .. | 4            | 7      | ..     | 1       | ..     |
| Other African Staff .. ..        | 89           | 92     | 33     | 20      | 19     |

DISTRIBUTION OF STAFF  
TABLE III.—IN THE NATIVE RESERVES, THE TURKANA DISTRICT AND NORTHERN FRONTIER DISTRICT

|                               | Kiambu | Fort Hall | Nyeri | Kerugoya | Meru | Machakos | Kitui | Kilifi | Malindi | Digo | Wesu | Kapsabet | Kabarnet | Tambach | Rumuruti | Maseno | Kakamega | Kisii | Kericho | Narok | Murranjua | Kapenguria | Lodwar | Lokitaung | Lamu | Wajir | Moyale | Internment Camp, Isiolo | Totals |
|-------------------------------|--------|-----------|-------|----------|------|----------|-------|--------|---------|------|------|----------|----------|---------|----------|--------|----------|-------|---------|-------|-----------|------------|--------|-----------|------|-------|--------|-------------------------|--------|
| Medical Officers              | 1      | 1         | —     | 1        | 1    | 2        | 1     | 1      | —       | 1    | 1    | —        | —        | —       | —        | 1      | 2        | 2     | 1       | —     | —         | —          | 1      | —         | —    | 1     | —      | —                       | 18     |
| Nursing Sisters               | 2      | —         | —     | 2        | —    | 1        | —     | —      | —       | 1    | 1    | —        | —        | —       | —        | —      | 1        | 1     | 1       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 12     |
| Sanitary Inspectors           | 1      | —         | —     | 1        | —    | 1        | —     | —      | —       | —    | —    | —        | —        | —       | —        | 1      | 1        | 1     | —       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 6      |
| European Laboratory Assistant | —      | —         | —     | —        | —    | —        | —     | —      | —       | —    | —    | —        | —        | —       | —        | —      | —        | —     | —       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 1      |
| Sanitary Overseers            | —      | —         | —     | —        | —    | —        | —     | —      | —       | —    | —    | —        | —        | —       | —        | —      | —        | —     | —       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 2      |
| S.A.S. (Asiatic)              | —      | 1         | 1     | —        | 1    | —        | 1     | —      | 1       | —    | —    | 1        | 1        | 1       | 1        | —      | —        | —     | —       | 1     | —         | —          | —      | 1         | —    | —     | —      | —                       | 14     |
| Compounders (Asiatic)         | —      | —         | —     | —        | —    | —        | —     | —      | —       | —    | —    | —        | —        | —       | —        | —      | —        | —     | —       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 1      |
| Clerks (Asiatic)              | —      | —         | —     | —        | —    | —        | —     | —      | —       | —    | —    | —        | —        | —       | —        | —      | —        | —     | —       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 3      |
| Hospital Assistants           | 2      | 1         | 1     | 2        | 1    | 1        | 1     | 1      | —       | 2    | 1    | —        | —        | —       | —        | —      | 1        | 1     | 1       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 19     |
| Compounder (African)          | 1      | 2         | —     | 1        | 3    | 1        | —     | —      | —       | 1    | 1    | —        | —        | —       | —        | —      | 1        | 3     | 1       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 8      |
| African Laboratory Assistants | 1      | —         | —     | 1        | 1    | 1        | 1     | —      | —       | 1    | 1    | —        | —        | —       | —        | —      | 1        | 1     | 1       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 13     |
| Clerks (African)              | 1      | —         | —     | 1        | 1    | —        | 1     | —      | —       | —    | 1    | —        | —        | —       | —        | —      | 1        | —     | —       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 9      |
| Health Workers                | 3      | 2         | —     | 3        | —    | 3        | 1     | 2      | —       | 2    | 1    | —        | —        | —       | —        | 3      | 3        | 1     | 1       | —     | —         | —          | —      | —         | —    | —     | —      | —                       | 26     |
| Other African Staff           | 31     | 28        | 15    | 36       | 33   | 54       | 22    | 20     | 13      | 35   | 28   | 12       | 12       | 5       | 3        | 30     | 69       | 56    | 18      | 8     | 6         | 5          | 8      | 19        | 14   | 1     | —      | —                       | 581    |

*Institutions Maintained*

Medical Research Laboratory, Nairobi,  
 Medical Stores, Nairobi,  
 Medical Training Depot.

*Health Offices and Hospitals in the Larger Towns*

| <i>Nairobi—</i>                                         |     |     |     |     | <i>Beds.</i> |                                             |
|---------------------------------------------------------|-----|-----|-----|-----|--------------|---------------------------------------------|
| Native Hospital                                         | ... | ... | ... | ... | 216          | (Asian 21)                                  |
| European Hospital                                       | ... | ... | ... | ... | 32           |                                             |
| Mental Hospital (European, Asian, African)              | ... | ... | ... | ... | 247          | (European 14)<br>(Asian 7)<br>(African 226) |
| Infectious Diseases Hospital (European, Asian, African) | ... | ... | ... | ... | 176          | (European 6)                                |
| General Dispensary                                      | ... | ... | ... | ... | —            |                                             |
| Railway Dispensary                                      | ... | ... | ... | ... | —            |                                             |
| Prison Hospital                                         | ... | ... | ... | ... | 74           |                                             |
| Police Depot Dispensary                                 | ... | ... | ... | ... | —            |                                             |
| <i>Mombasa—</i>                                         |     |     |     |     |              |                                             |
| European Hospital                                       | ... | ... | ... | ... | 11           |                                             |
| Native Hospital                                         | ... | ... | ... | ... | 98           | (Asian 12)                                  |
| Infectious Diseases Hospital                            | ... | ... | ... | ... | 63           |                                             |
| Child Welfare Centres                                   | ... | ... | ... | ... | —            |                                             |
| <i>Kisumu—</i>                                          |     |     |     |     |              |                                             |
| European Hospital                                       | ... | ... | ... | ... | 10           |                                             |
| Native Hospital                                         | ... | ... | ... | ... | 165          | (Asian 6)                                   |
| <i>Nakuru—</i>                                          |     |     |     |     |              |                                             |
| Native Hospital                                         | ... | ... | ... | ... | 72           |                                             |
| <i>Eldoret—</i>                                         |     |     |     |     |              |                                             |
| Native Hospital                                         | ... | ... | ... | ... | 52           | (Asian 6)                                   |
| <i>Kitale—</i>                                          |     |     |     |     |              |                                             |
| Railway Dispensary                                      | ... | ... | ... | ... | —            |                                             |
| Native Hospital                                         | ... | ... | ... | ... | 30           |                                             |

*Health Offices and Hospitals in the Native Reserves*

26 Hospitals\* with a total of 807 beds.  
 123 Out-dispensaries.

\* Wherever there is a hospital there is also a health office, and the two together, with the Medical, Nursing and Sanitary staff, comprise a "health centre".

*Summary of Hospital Accommodation*

|               |     |     |     |     |            |
|---------------|-----|-----|-----|-----|------------|
| For Europeans | ... | ... | ... | ... | 73 beds    |
| For Asians    | ... | ... | ... | ... | 52 beds    |
| For Africans  | ... | ... | ... | ... | 1,928 beds |

## STAFF CHANGES DURING THE YEAR

The following are the principal appointments, promotions and changes made during the year:—

Dr. F. W. Vint, Assistant Bacteriologist, to be Senior Pathologist, with effect from the 19th December, 1936.

Dr. H. D. Tonking, Assistant Bacteriologist, transferred to Mauritius with effect from the 19th December, 1936, on promotion to post of Senior Pathologist.

Mr. F. Hewitt, Sanitary Inspector, to be Senior Sanitary Inspector, with effect from the 1st January, 1936.

*Resignations—*

|                 |     |     |     |     |   |
|-----------------|-----|-----|-----|-----|---|
| Nursing Sisters | ... | ... | ... | ... | 4 |
|-----------------|-----|-----|-----|-----|---|

*Retirements—*

|                  |     |     |     |     |   |
|------------------|-----|-----|-----|-----|---|
| Medical Officers | ... | ... | ... | ... | 2 |
| Nursing Sisters  | ... | ... | ... | ... | 2 |

*Invalidings—*

|                       |     |     |     |     |   |
|-----------------------|-----|-----|-----|-----|---|
| Nursing Sister        | ... | ... | ... | ... | 1 |
| Sub-assistant Surgeon | ... | ... | ... | ... | 1 |

*Appointments Terminated—*

|                       |     |     |     |     |   |
|-----------------------|-----|-----|-----|-----|---|
| Sub-assistant Surgeon | ... | ... | ... | ... | 1 |
|-----------------------|-----|-----|-----|-----|---|

*Transfers—*

|                                         |     |     |     |     |   |
|-----------------------------------------|-----|-----|-----|-----|---|
| Assistant Bacteriologist (To Mauritius) | ... | ... | ... | ... | 1 |
|-----------------------------------------|-----|-----|-----|-----|---|

## LEGISLATION

No Ordinances primarily affecting the public health were enacted during the year.

## FINANCIAL

The total of the sanctioned estimates for the Medical Department for the year 1936 was £197,062, a decrease of £3,505 on the previous year, and the actual expenditure during the year amounted to £197,050, viz. £12 less than the sanctioned estimates.

The comparative table of the sanctioned estimates and expenditure of the Medical Department for the past three years is as follows:—

| YEAR    | Sanctioned Estimates | Sanctioned Extraordinary Estimates | Total Sanctioned | Actual Recurrent Expenditure | Actual Extraordinary Expenditure |
|---------|----------------------|------------------------------------|------------------|------------------------------|----------------------------------|
|         | £                    | £                                  | £                | £                            | £                                |
| 1934 .. | 201,286              | 590                                | 201,876          | 197,967                      | 648                              |
| 1935 .. | 199,817              | 750                                | 200,567          | 203,451                      | 1,250                            |
| 1936 .. | 195,562              | 1,500                              | 197,062          | 196,368                      | 682                              |

The revenue collected amounted to £23,392, against £22,732 in 1935.

Of the total estimated expenditure in 1936 of £3,318,176 for the Colony and Protectorate, £197,062 represented expenditure on public health and medical relief, a ratio of 1 to 16.84, or 5.94 per cent.

Detailed returns of the revenue and expenditure are given in Table II at the end of the report.

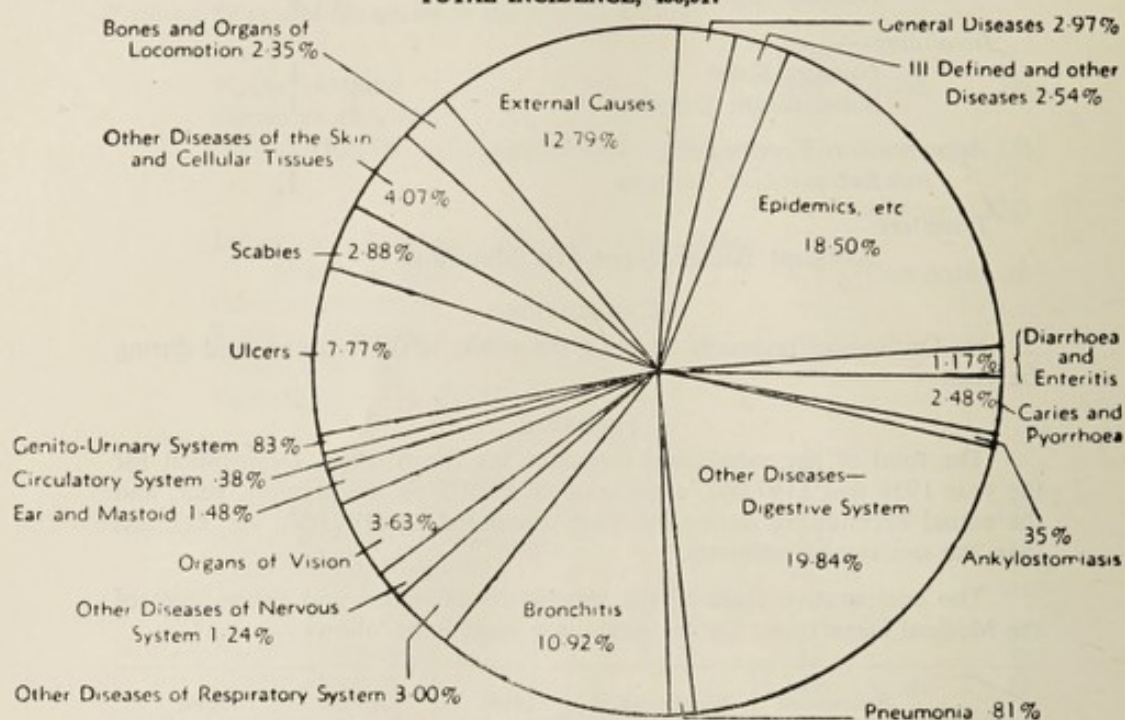
**II—PUBLIC HEALTH****(1) General Diseases**

In the Annual Medical Report for last year I stated, as had been stated on many previous occasions in these reports, that in the absence of any general system for the notification or registration of births and deaths, and in the absence of any system whereby changes in the incidence of invalidity might be accurately estimated for the Colony as a whole, it was impossible to state with certainty the extent to which the standard of the public health might have altered either for better or for worse in any particular year, and I emphasized the fact that the directions in which change might be taking place were so many and the nature and extent of many of these changes so difficult to estimate, that it would be unwise to assume with regard to any particular year that, because any particular diseases had been, or had appeared to be, more or less prevalent than in the preceding year, the general standard of health had necessarily been worse or better than before.

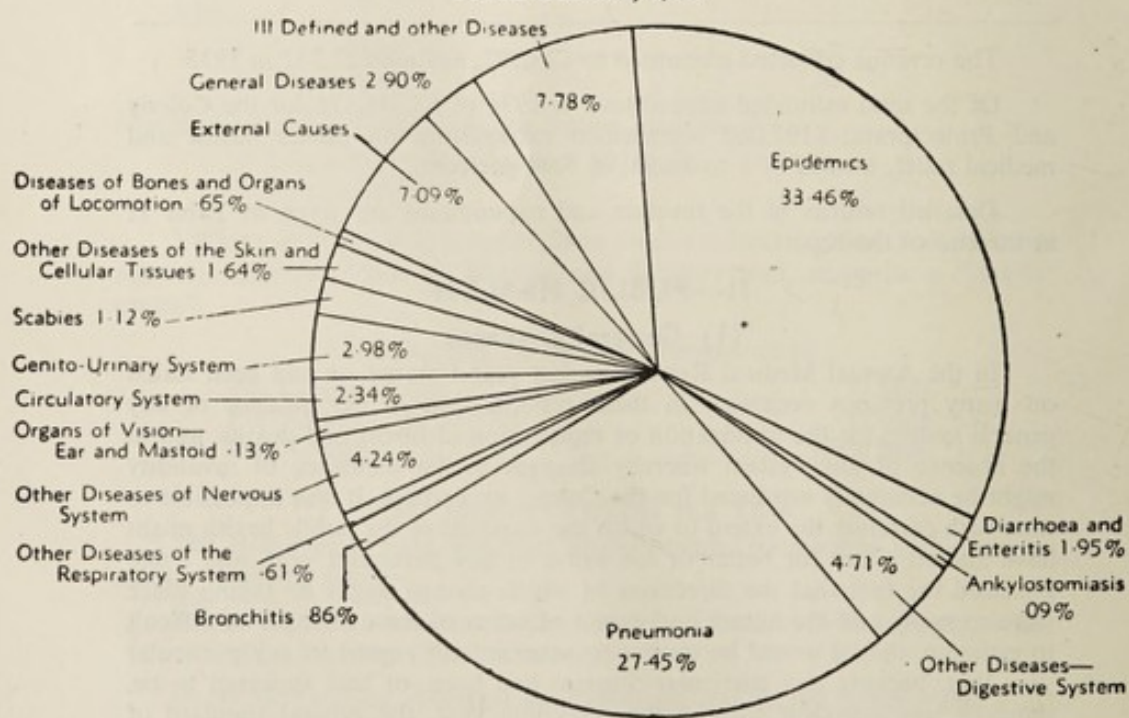
In these circumstances, no more can be done than recount such observations as have been made by medical officers during the year and to endeavour to indicate with due reserve what their significance may possibly be.

**Proportion of Epidemic, Endemic, Infectious, Systemic and other Diseases shown  
as Percentages of Total Cases Treated at Hospitals and Dispensaries**

**TOTAL INCIDENCE, 458,917**

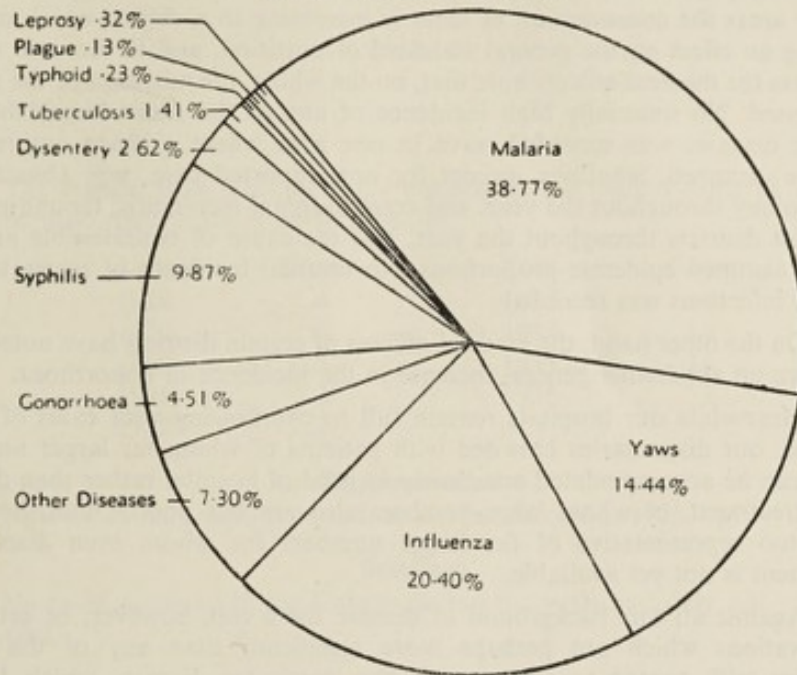


**TOTAL DEATHS, 2,313**

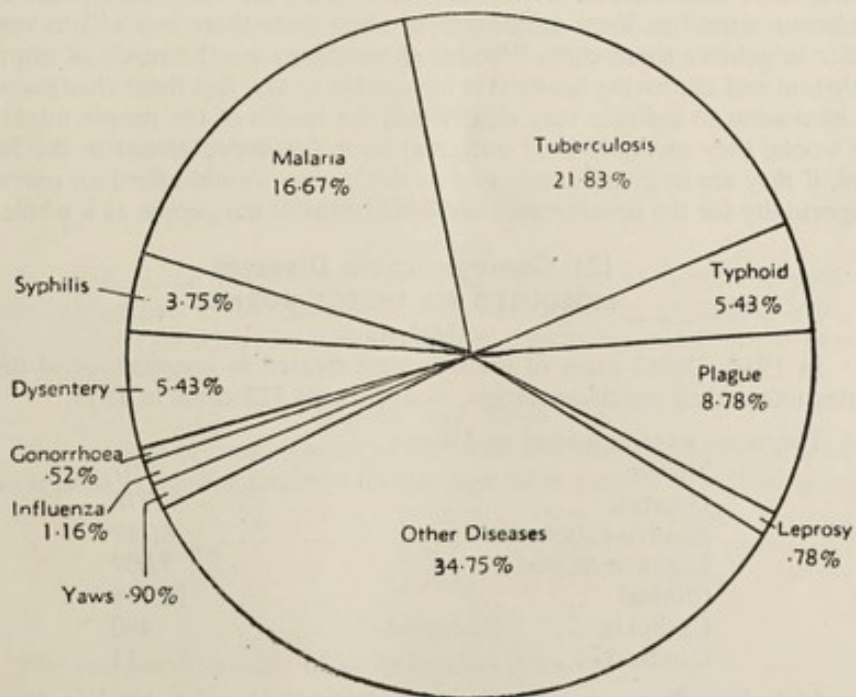


**Proportion in Percentages of Epidemic, Endemic and Infectious Diseases, In-patients and Out-patients, treated at Hospitals and Dispensaries**

**TOTAL INCIDENCE, 84,896**



**TOTAL DEATHS, 774**



The general impression which is given by a perusal of the forty-seven annual district and institutional reports, submitted by medical officers from all parts of the Colony for the year 1936, is that there is no evidence that the health of the people was less satisfactory than in 1935, and that there is perhaps some reason to believe that it may have been better. In most areas good crops were obtained while, as a result of better trade conditions and increased production, money was more plentiful. It would appear that in many areas the consumption of meat is increasing to a degree which may be having an effect on the general standard of nutrition, and in the case of two districts the medical officers note that, on the whole, the nutrition of the people was good. No unusually high incidence of any of the more formidable epidemic diseases was recorded, save in one area where a sharp outbreak of plague occurred. Smallpox, except for one imported case, was absent from the Colony throughout the year, and cerebro-spinal meningitis, though present in most districts throughout the year, and the cause of considerable anxiety, never assumed epidemic proportions. No unusual incidence of respiratory or bowel infections was recorded.

On the other hand, the medical officers of certain districts have noted with concern an apparently general increase in the incidence of gonorrhoea.

Meanwhile our hospitals remain full to overflowing with cases of acute disease, our dispensaries crowded with patients of whom far larger numbers than can be accommodated are clearly in need of hospital rather than dispensary treatment, of whom large numbers also are but poorly nourished and only too representative of far larger numbers for whom even dispensary treatment is not yet available.

Against all this background of disease there can, however, be set some observations which are perhaps more significant than any of the small changes with regard to any one or two particular diseases which I have mentioned. There is much evidence to suggest that in recent years there has been a great change in the outlook of many thousands of Africans, more particularly in the highlands and in the lake areas of the Colony, and that this change is continuing. There is a will to progress and to adopt new methods, and there is a will that the women should progress and that the children should be better cared for. Very certainly over large areas there is a will to work in order to achieve these ends. Whether these things are the result of improved nutrition and improving health it is impossible to say. But these changes would at least seem to indicate very clearly that the health of the people might well be worse; they certainly hold out great hope for improvement in the future, and, if they are as great as many of us think, they should afford an unrivalled opportunity for the development and betterment of the people as a whole.

## (2) Communicable Diseases

### MOSQUITO OR INSECT BORNE

#### Malaria

In 1936, 32,882 cases of malaria were treated in hospitals or at dispensaries (other than out-dispensaries), as against 34,322 cases in 1935.

The cases were classified as follows:—

|                  |     |     |     |     |        |
|------------------|-----|-----|-----|-----|--------|
| Tertian          | ... | ... | ... | ... | 707    |
| Quartan          | ... | ... | ... | ... | 778    |
| Aestivo-autumnal | ... | ... | ... | ... | 8,789  |
| Undifferentiated | ... | ... | ... | ... | 7,009  |
| Clinical         | ... | ... | ... | ... | 15,108 |
| Cachexia         | ... | ... | ... | ... | 480    |
| Cerebral         | ... | ... | ... | ... | 11     |

Malaria in Kenya is endemic in all the warmer and lower lying areas of the Colony, and in these areas there is, so far as is known, but little change from year to year. Over large areas in the highlands, however, the incidence of the disease is normally low, and it only assumes importance from time to time. The year 1936 was not an epidemic year in any part of the Colony, and in Nairobi the incidence was less than a third of that which prevailed in 1935.

**Blackwater**

The comparative table of cases treated by the Government medical staff for the past eight years is as follows:—

| <i>Year.</i> |     |     | <i>Cases.</i> |     | <i>Deaths.</i> |
|--------------|-----|-----|---------------|-----|----------------|
| 1929         | ... | ... | 28            | ... | 11             |
| 1930         | ... | ... | 50            | ... | 8              |
| 1931         | ... | ... | 41            | ... | 10             |
| 1932         | ... | ... | 52            | ... | 2              |
| 1933         | ... | ... | 28            | ... | 9              |
| 1934         | ... | ... | 45            | ... | 11             |
| 1935         | ... | ... | 37            | ... | 8              |
| 1936         | ... | ... | 24            | ... | 5              |

The comparative table of cases notified in the capital town of Nairobi for the past nine years is as follows:—

| <i>Year</i> | <i>Cases.</i> | <i>Year.</i> | <i>Cases.</i> |
|-------------|---------------|--------------|---------------|
| 1928        | ...           | 1933         | ...           |
| 1929        | ...           | 1934         | ...           |
| 1930        | ...           | 1935         | ...           |
| 1931        | ...           | 1936         | ...           |
| 1932        | ...           |              |               |

**Trypanosomiasis**

Nine cases only were reported, as against fifteen in 1935.

**Smallpox**

No cases occurred in the Colony during the year, and only one case was imported.

**Plague**

Two hundred and thirty-nine cases of plague were verified during 1936, as against 139 in 1935. Of these cases, 67 occurred in the European farming district of Nakuru, 7 in Nairobi, 6 in the Teita Hills, 2 in the Nyanza Province, and the remainder in the endemic districts of Keruguya, Fort Hall and South Nyeri of the Central Province. In addition to the cases which were actually verified in the Central Province, many others were reported, and it is probable that the true incidence for the year in that Province was much higher.

**Typhus**

Nine cases were reported.

**INFECTIOUS DISEASES****Pneumonia**

In 1936, 3,728 cases were treated in Government hospitals, with 635 deaths, as against 2,264 cases with 638 deaths in the preceding year, the hospital death-rate for 1936 being 17.03 per cent as against 28.4 per cent for the preceding year.

**Syphilis and Yaws**

The number of cases treated at hospitals and dispensaries, as apart from cases treated at out-dispensaries, for the past three years was as follows:—

|              | 1934.  | 1935.  | 1936.  |
|--------------|--------|--------|--------|
| Syphilis ... | 6,367  | 7,633  | 8,383  |
| Yaws ...     | 12,992 | 11,378 | 12,258 |

**Tuberculosis**

The comparative table of cases treated is as follows:—

| <i>Year.</i> | <i>Cases.</i> | <i>Year.</i> | <i>Cases.</i> |
|--------------|---------------|--------------|---------------|
| 1929         | ...           | 1933         | ...           |
| 1930         | ...           | 1934         | ...           |
| 1931         | ...           | 1935         | ...           |
| 1932         | ...           | 1936         | ...           |

**Leprosy**

Five hundred and twenty-eight cases received treatment during the year.

**Enteric**

One hundred and ninety-five cases were treated, as against two hundred and twenty cases in 1935.

**Dysentery**

The classification of cases treated was as follows:—

|           |     | 1934. | 1935. | 1936. |
|-----------|-----|-------|-------|-------|
| Amœbic    | ... | 752   | 1,358 | 1,225 |
| Bacillary | ... | 279   | 146   | 89    |
| Undefined | ... | 759   | 951   | 897   |

**Diphtheria**

Six cases were treated, as against seven in 1935.

**Cerebro-spinal Fever**

Three hundred and nineteen cases were treated, as against three hundred and sixty-two cases in 1935. The disease occurred sporadically throughout the year in almost every part of the Colony, but no major outbreak occurred.

**Helminthic Diseases**

The comparative table of cases treated during the past four years is as follows:—

| DISEASES                     | 1933   | 1934   | 1935   | 1936   |
|------------------------------|--------|--------|--------|--------|
| <i>Ankylostomiasis</i> .. .. | 1,606  | 1,845  | 1,897  | 1,592  |
| <i>Ascariasis</i> .. ..      | 7,515  | 8,158  | 7,777  | 9,318  |
| <i>Teniasis</i> .. ..        | 19,007 | 23,712 | 34,321 | 40,496 |
| <i>Schistosomiasis</i> .. .. | 351    | 453    | 571    | 623    |
| TOTAL ..                     | 28,479 | 34,168 | 44,566 | 51,029 |

**VITAL STATISTICS**

In a Note on "The Contents of Colonial Medical Reports" which appeared in a Supplement to the *Tropical Diseases Bulletin* of October, 1936, where these reports were extracted and reviewed, the following remarks are made by the reviewer:—

"Then again, since census inquiries are carried out only at infrequent intervals, such operations need to be supplemented by systems in *constant* operation for the regular collection of certain prescribed facts which need to be studied by public health authorities, both as they occur and as records of past events. In other words, *registration* is necessary for the assembly of facts calculated to throw light upon the physiological and economic aspects of births, race fertility, diseases, deaths, and other items of importance which provide bases for investigation and remedy in all well-ordered public health schemes. Changes in the direction and rate of population trend as influenced by births, migration, deaths, economic circumstances, or other factors will demand changes—possibly such startling changes as may revolutionize existing schemes of work—in the organization of public health administrations if progress is to be made."

The point which the reviewer makes has frequently been made and emphasized in the Annual Medical Reports for this Colony, and year by year it has been noted that in the absence of any effective system for the regular collection of certain prescribed facts it is impossible to measure with accuracy

the progress of the public health, or to determine whether any changes of importance may be taking place with regard to the growth or constitution of the population. The point has also been made that changes—"possibly such startling changes as may revolutionize existing schemes of work"—may be in operation, and that it is of the greatest importance that knowledge of such changes, if they are occurring, should be at the disposal of Government. With regard to this issue, it is satisfactory to be able to record that the question of the institution of a satisfactory system of registration of births and deaths has been under review by Government during the year, and that the matter has also received attention from at least one Local Native Council.

Till, however, much greater accuracy in the recording of data has been achieved, it would be unwise to reproduce in these reports any analyses of any figures which are now available, since to do so, even with the most careful reservations, would almost inevitably be misleading. Of this fact one illustration may perhaps be given. In the annual report of the health of the population of one of the larger towns of Kenya it is recorded that the infantile mortality rate among Asians in 1936 was 518 per 1,000, as against 187 for British India. An infantile mortality figure of such startling proportions led naturally to inquiry, when it was found that the total number of Asian births which had been notified was less than a number which could be accounted for as having occurred in one very well-conducted maternity hospital plus those which had been attended by two trained midwives in good practice.

As it is also known, however, that in the town in question there were not only qualified but unqualified midwives, for whose registration proposals are in fact at present under consideration, it becomes clear that the data from which the infantile mortality rate was calculated were inaccurate. How inaccurate these figures may be is not, however, known, and until further information is available the local health authority concerned is in a very unsatisfactory position, since it is impossible to say with certainty that the position is not serious and equally impossible to justify proposals for large expenditure. What can, however, very clearly be justified is expenditure on determining what the position may really be!

The example which I have given is illustrative, however, of a general situation, for if we are ignorant of what is happening in our towns, we are equally ignorant of what may be happening with regard to the population of the Colony as a whole. In these circumstances, little more can be done at the moment than to reproduce the figures of the last census.

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST EUROPEAN AND NON-EUROPEAN OFFICIALS IN THE COLONY AND PROTECTORATE OF KENYA

|                                                               | European |       |       | Non-European |        |        |
|---------------------------------------------------------------|----------|-------|-------|--------------|--------|--------|
|                                                               | 1934     | 1935  | 1936  | 1934         | 1935   | 1936   |
| Total number of officials resident ..                         | 1,846    | 1,819 | 1,796 | 2,448        | 2,432  | 2,491  |
| Average number resident .. ..                                 | 1,380    | 1,367 | 1,412 | 2,068        | 2,059  | 2,126  |
| Total number on sick list .. ..                               | 971      | 738   | 821   | 2,114        | 1,891  | 1,920  |
| Total number of days on sick list ..                          | 7,054    | 5,658 | 6,795 | 14,847       | 12,266 | 13,493 |
| Average daily number on sick list ..                          | 19.33    | 15.50 | 18.56 | 40.67        | 33.60  | 36.87  |
| Percentage of sick to average number resident .. ..           | 1.40     | 1.13  | 1.31  | 1.96         | 1.63   | 1.73   |
| Average number of days on sick list to each patient .. ..     | 7.26     | 7.67  | 8.28  | 7.02         | 6.49   | 7.03   |
| Average sick time to each resident ..                         | 5.11     | 4.14  | 4.81  | 7.18         | 5.96   | 6.35   |
| Total number invalided .. ..                                  | 9        | 8     | 9     | 8            | 8      | 12     |
| Percentage of invaliding to total residents .. ..             | 0.48     | 0.44  | 0.50  | 0.32         | 0.33   | 0.48   |
| Total deaths .. ..                                            | 4        | 2     | 6     | 3            | 2      | 3      |
| Percentage of deaths to total residents ..                    | 0.21     | 0.11  | 0.33  | 0.12         | 0.08   | 0.12   |
| Percentage of deaths to average number resident .. ..         | 0.29     | 0.15  | 0.42  | 0.14         | 0.10   | 0.14   |
| Number of cases of sickness contracted away from residence .. | —        | —     | —     | —            | —      | —      |

### III—HYGIENE AND SANITATION

#### A—General Review of Work Done and Progress Made

##### (1) PREVENTIVE MEASURES

##### MOSQUITO AND INSECT BORNE DISEASES

##### Malaria

*Nairobi.*—Routine observations continued to be carried out by the staff of the Medical Research Laboratory. The results of these observations were regularly communicated to the Medical Officer of Health of the Municipality.

*Kisumu.*—Temporary control measures were maintained as usual.

From funds provided by a grant from the Colonial Development Fund the following works were undertaken:—

- (i) A survey of the whole of the lake shore of the township and of the streams flowing into the lake;
- (ii) The abolition of a large area of papyrus growth in the vicinity of the aerodrome;
- (iii) The drainage of a number of seepage areas;
- (iv) The raising and levelling of certain low-lying land;
- (v) The filling, levelling, or drainage of numerous pits and depressions;
- (vi) Tree planting.

*Kakamega.*—Routine township control was carried out under the supervision of a European malaria overseer, and the mining areas in the neighbourhood were regularly visited.

*Mombasa.*—An intensive entomological survey was commenced.

*Smaller Townships and Administrative Stations.*—At Kitui, Fort Hall, Meru, Isiolo, Malindi, and Kilifi, trained Africans continued to carry out surveys on the result of which the medical officers of these stations based control work.

##### Yellow Fever

So far as we are aware, yellow fever has never occurred in the Colony, while up to the present no mouse protection test has been definitely positive. Such tests have, however, given positive results in the neighbouring territories of Uganda and the Sudan. It is therefore considered desirable to take such steps as may be necessary to make it as unlikely as possible that yellow fever should be introduced into Kenya as a result of the development of aerial travel. Towards this end an essential preliminary measure was the determination of the *Aedes* index in towns on the projected routes. Such surveys have been carried out and have shown that the *Aedes* index of Kisumu, which is our northern port of entry for air traffic, is free from *Aedes* mosquitoes, that Nairobi is all but free, and that Mombasa is seriously infested. It is hoped to institute effective control measures in Mombasa during 1937.

##### Trypanosomiasis

In South and Central Kavirondo work on an experiment in clearing riverine and lacustrine areas by means of trapping was continued throughout the year.

##### Plague

Towards the middle of the year the administrative authority of a native district in the Central Province, where plague was at one time epidemic, inquired of the Medical Department whether some more radical measure than anti-plague vaccination might not now be adopted. The authority was advised that if village clearing and cleansing could be undertaken on an extensive scale and if the village grain-stores could be improved, there might be some diminution of the rat population of the district, and that in any case such measures would be to the general benefit of the community. Campaigns aimed at the clearing and cleansing of villages and the improvement of grain stores were

thereupon instituted in a number of districts, and these campaigns have, up to the present, met with a remarkable degree of success. In one district alone over 26,000 grain-stores were reconditioned within a period of a few months, while almost every village was cleared of long grass and bush, and the environs planted up with a short fodder grass. As a result there is now not only less cover for rats but a great increase in the pasture available for milch cattle. The movement was still in its early stages at the end of the year, but it appears to have become popular, and it is probable that during 1937 a great step will be taken, not only towards the elimination of food and cover for rats, but towards the conservation of grain and the provision of pasture for cattle where it is most required, that is in the immediate neighbourhood of the individual native holding.

#### **Smallpox and Vaccination**

The number of vaccinations performed was 15,859.

#### **Dysentery and the Enteric Fevers**

No special preventive measures were carried out.

#### **Tuberculosis**

No *ad hoc* preventive measures are in operation against tuberculosis.

#### **Helminthic Diseases**

The pit latrine campaign continues to be part of the general sanitary programme of the Department in all districts where staff is available.

### **(2) GENERAL MEASURES OF SANITATION**

During the latter part of the year an experiment was instituted in one of the smaller townships with regard to the disposal of all household refuse and night soil by means of the Indore composting method. The experiment so far has been successful.

### **(3) SCHOOL HYGIENE**

There is still no school medical service, but in most native reserves a very considerable amount of work has been carried out by the district medical officers and sanitary inspectors.

### **(4) LABOUR CONDITIONS**

No notable developments have taken place during the year, as even though there has been a considerable degree of economic recovery few, if any, of the larger employers of labour were yet in a position to embark on housing schemes involving large capital expenditure. Conditions on the gold fields have been on the whole very satisfactory.

### **(5) HOUSING AND TOWN PLANNING**

A considerable scheme for the improvement of one of the sium areas of Nairobi was prepared during the year.

In the native reserves a large amount of work was carried out by the European Sanitary Inspectors of the Department in the way of propaganda for better houses, and it may confidently be expected that with any general increase of prosperity their work will soon show very notable results.

### **(6) FOOD IN RELATION TO HEALTH AND DISEASE**

#### **Inspection and Control**

Routine inspection has been carried out as usual wherever possible.

#### **Markets, Dairies and Slaughterhouses**

A very large amount of work indeed has been carried out during the year in the way of re-planning and improving the markets in the native reserves.

#### **Food Supplies**

In the native reserves, food supplies on the whole were probably better than in the preceding year, and it would seem that in some of the more progressive reserves there was a considerable increase in the consumption of meat.

It is still the case, however, that over the Colony as a whole the dietaries of the people are far from satisfactory. The use of milk among the agricultural tribes is still far from being properly appreciated, while mixed farming will require to make great strides before the supplies are everywhere adequate. The supply of green foods is also still inadequate and irregular. The position may be summarized in the statement that until there has been a great advance in the agricultural skill of the men, and a great advance in the knowledge of the women with regard to the use of many foods and the preparation of all, the standard of nourishment of the people will remain unsatisfactory.

### **B—Measures Taken to Spread the Knowledge of Hygiene and Sanitation**

A large and comprehensive health exhibit was staged at the show of the Royal Agricultural and Horticultural Society of Kenya at Nakuru, when an especial point was made of the relationship of measles in beef cattle to tapeworm in man, and of the means of breaking the cycle. A health exhibit was also staged at a trade show in Mombasa.

Health exhibits were also staged at a number of smaller shows in the native reserves organized by individual missions, and on one occasion by an African headman.

Apart from these shows, the teaching of hygiene was carried out as far as possible by all medical officers and sanitary inspectors in the native reserves.

### **C—Training of Sanitary Personnel**

The systematic training of Africans to be dispensary health workers which for some years has been carried out at the Jeanes School was discontinued during 1936, partly for financial reasons and partly because we are not entirely satisfied that better results cannot be obtained, for the present at least, by training likely Africans, and more particularly Africans who have had some training as artisans, in the field, and under the immediate supervision of a European sanitary inspector from the beginning.

### **D—Recommendations for Future Work**

For some years past the only recommendations which have been made in this section of these reports have been with regard to the need for the prosecution of medical research into the nature and needs of African man and of his reactions to disease. Such limitation was in fact enforced by the financial position of the Government and of all local authorities. The need for research is still as great as ever, but to-day, when after six years of financial depression there is again a prospect of prosperity, it is once again a matter of practical politics to consider in what other directions work is most desirable if the sanitary circumstances of the people are to be improved. In a territory such as the Colony of Kenya, where the great mass of the people are only on the threshold of development, it would be an easy matter to fill pages with lists of recommendations for future work in connexion with hygiene and sanitation, but without many further pages of explanation such lists would be of little value. It may, however, be of value to indicate two major lines along which much work is required. In the native reserves the outstanding sanitary problem is probably that of how to improve the nutritional standard of the people, and, as I have observed elsewhere, that problem can only be solved by the education of the adult males in agriculture and animal husbandry, and by the education of the women in housewifery, and also by the education of the rising generation along many lines.

In the towns also the sanitary advancement of the people will in the long run depend on their efficiency—on what they can earn—and it is again an educational problem. For the solution of this problem the local authorities have at least some responsibility—a responsibility to press for progress. But progress along that line will of necessity be slow, and in the meantime much could be done by the improvement of housing conditions, and to this question the attention of almost every local authority might now well be directed.

## IV—PORT HEALTH AND ADMINISTRATION

### A—SEA PORTS

The number of vessels which entered Kilindini or Mombasa Harbours during the past three years was as follows:—

|                    | 1934  | 1935  | 1937  |
|--------------------|-------|-------|-------|
| Steamships .. .. . | 584   | 663   | 701   |
| Dhows .. .. .      | 1,633 | 1,391 | 1,489 |

|                                                                                                | 1935      | 1936      |
|------------------------------------------------------------------------------------------------|-----------|-----------|
| Steamship tonnage .. .. .                                                                      | 2,090,134 | 2,192,588 |
| Steamships medically inspected on arrival .. .. .                                              | ..        | 159       |
| Sailing ships, including native vessels, medically inspected on arrival ..                     | ..        | 95        |
| Vessels arriving in port infected .. .. .                                                      | ..        | Nil*      |
| Vessels placed under quarantine restrictions or subjected to special sanitary measures .. .. . | ..        | Nil       |
| Passengers medically inspected under special small-pox regulations ..                          | ..        | 10,109    |
| Passengers landed subject to surveillance .. .. .                                              | ..        | 473       |
| Bills of health issued .. .. .                                                                 | ..        | 940       |

\*Note—A passenger from one vessel who was suspected as being suffering from chickenpox was diagnosed as smallpox three days later.

### PORT HEALTH STAFF

- (a) Port Health Officer (a Government Medical Officer, who is employed also as Medical Officer of Health to the Municipality of Mombasa).
- (b) Sub-assistant Surgeon (part time).
- (c) Clerk.
- (d) Two Orderlies (African).
- (e) Mosquito Searcher (African).
- (f) Labourers, Rat-catchers, etc.

### INTELLIGENCE

The weekly epidemiological bulletin broadcasted by the Eastern Bureau of the League of Nations at Singapore was received regularly, and no serious defects in transmission were experienced.

### EXAMINATION OF SHIPS ON ARRIVAL

Owing to the regularity with which information is now received from the Eastern Bureau of the League of Nations at Singapore and from other sources, it is not now necessary for the Port Health Officer to board more than a small percentage of the ships arriving at Kilindini or Mombasa.

### INFECTIOUS DISEASES IN VESSELS

*Steamers.*—One vessel from India arrived with a case of what was at first thought to be chicken-pox on board. The case was isolated, and three days later was diagnosed as smallpox.

*Dhows.*—No infected dhows arrived.

### INFECTIOUS DISEASES IN THE PORT

No cases of smallpox occurred, save the one imported case already mentioned. No cases of plague occurred, and no plague-infected rats were found.

### SPECIAL PREVENTIVE MEASURES AGAINST THE INTRODUCTION OF INFECTIOUS DISEASES

Regulations in reference to the landing of passengers whose condition as regards protection from smallpox might be unsatisfactory continued in force throughout the year.

### SANITARY CONDITIONS OF THE PORT

The port area, wharves, sheds, etc., were maintained in a highly satisfactory condition throughout the year. The port area at Kilindini is, so far as sanitary conditions and general cleanliness are concerned, a model of what a

port area should be, and I have again, as in preceding years, the very greatest pleasure in acknowledging the debt which is due to the Railway and Harbours Administration in this respect, and for its very hearty co-operation at all times in all matters affecting the sanitation of the port.

#### RAT DESTRUCTION

The structural and sanitary conditions of the wharves and sheds remains excellent, and are not such as to allow of serious rat infestation.

Rats trapped, 4,833; rats examined for plague, 634; rats found infected, nil.

#### MOSQUITO BREEDING

The port area and small craft are regularly searched for mosquito breeding. The whole area is well drained, and mosquito breeding is exceptional.

#### IMPORTATION OF USED CLOTHING

Five hundred and ninety consignments were passed on their accompanying certificates of disinfection.

#### INSPECTION OF IMPORTED FOOD

Routine inspection of foodstuffs has been impossible owing to the lack of staff, but a number of consignments have been examined at the request of the agents or owners of the consignments concerned, or of the Agricultural Department and other interested parties. The following is a list of the foodstuffs examined and condemned during the year 1936:—

| Date     | Foodstuff             | Quantity    | Destroyed under supervision of |
|----------|-----------------------|-------------|--------------------------------|
|          |                       | <i>lb.</i>  |                                |
| 6-2-36   | Melons .. ..          | 1,056       | Port Authority.                |
| 13-2-36  | Fruit Pulp .. ..      | 293         | " "                            |
| 7-4-36   | Melons .. ..          | 72          | " "                            |
| 12-5-36  | Garlic .. ..          | 174         | Mombasa Municipality.          |
| 9-9-36   | Flour .. ..           | 398         | Port Authority.                |
|          |                       | <i>Tins</i> |                                |
| 15-9-36  | Condensed Milk .. ..  | 840         | Mombasa Municipality.          |
| 19-9-36  | Sardines .. ..        | 7,000       | " "                            |
| 19-9-36  | Sardines .. ..        | 12,144      | " "                            |
|          |                       | <i>lb.</i>  |                                |
| 25-9-36  | Peaches .. ..         | 1,704       | " "                            |
| 25-9-36  | Apricots .. ..        | 84          | Port Authority.                |
| 20-11-36 | Fish .. ..            | 55          | " "                            |
| 2-12-36  | Strawberry Pulp .. .. | 140         | " "                            |
| 8-12-36  | Tinned Fish .. ..     | 408         | " "                            |
| 8-12-36  | Curry Powder .. ..    | 72          | " "                            |

#### TREATMENT OF VENEREAL DISEASES IN SEAMEN

In the past little in the way of facilities of this nature has been available in Mombasa, for though free treatment for seamen has been available both at the European Hospital and the Infectious Diseases Hospital, the remoteness of these treatment centres from Kilindini has rendered them of little use. During 1936 the total number of seamen treated for venereal disease was 17. Considering the amount of shipping activity at Kilindini this figure appears to be very small. It is obvious that what is required is a clinic within the port area, and with this end in view the Port Administration have been approached with regard to accommodation and a small room has been placed at the Health Officer's disposal. While this is inadequate for the establishment of a proper clinic, it is hoped that at least a commencement can be made in January, 1937. Meanwhile, a complete scheme is in course of preparation.

#### B—AIR PORTS

The "authorized" aerodromes in Kenya, that is the aerodromes at which aircraft arriving from outside the Colony may make a first landing, are as follows:—

Kisumu,  
Nairobi,  
Mombasa.

It is to be noted that no aerodrome has so far been designated as a "Sanitary Aerodrome," only because no permanent facilities of an entirely adequate nature exist at any of the airports for the isolation of contacts separately from the sick, though temporary facilities could be improvised at all airports for this purpose. The question of improving these particular facilities where necessary is at present under consideration. Apart from this point all the authorized aerodromes in Kenya comply in all essentials with the requirements of the Convention for designation as sanitary aerodromes. The existing provision at each aerodrome is as follows:—

*At Kisumu*

- (a) *Medical Service*.—Three Government Medical Officers; qualified Government European Sanitary Inspector.
- (b) *Place for Medical Inspection*.—Could be immediately improvised.
- (c) *Laboratory Facilities*.—Branch Clinical Laboratory at Native Hospital; most examinations can be made on the spot.
- (d) (i) *Facilities for Isolation, Transport and Care of Sick*.—There is an excellent European hospital, where isolation could be effected if necessary, though at some inconvenience; improvement under consideration.
- (ii) *Facilities for Isolation of Contacts*.—Could be improvised if necessary. Improvement under consideration.
- (e) *Apparatus for Disinfection*.—Available.

*Water Supply; Disposal of Excreta and Refuse; Disposal of Waste Water.*  
—Adequate for present purposes.

*Protection from Rats*.—A large native village in the neighbourhood of the aerodrome is about to be removed; when this has been done the danger from rats should be minimal.

*At Nairobi*

- (a) *Medical Service*.—Several Government Medical Officers; qualified Government European Sanitary Inspector.
- (b) *Place for Medical Inspection*.—Could be immediately improvised.
- (c) *Laboratory Facilities*.—Central Research Laboratory within a mile of aerodrome.
- (d) (i) *Facilities for Isolation, Transport and Care of Sick*.—European General and Infectious Diseases Hospitals within easy reach of aerodrome.
- (ii) *Facilities for Isolation of Contacts Separately from the Sick*.—Could be improvised if necessary.
- (e) *Apparatus for Disinfection, etc.*—Available.

*Water Supply; Disposal of Excreta and Refuse; Disposal of Waste Water.*  
—Adequate for present purposes.

*Protection from Rats*.—Adequate.

*At Mombasa*

- (a) *Medical Service*.—Three Government Medical Officers; the services of a qualified European Sanitary Inspector could be obtained if necessary.
- (b) *Place for Medical Inspection*.—Could be immediately improvised.
- (c) *Laboratory Facilities*.—Branch Clinical Laboratory at Native Hospital; most examinations can be made on the spot.
- (d) (i) *Facilities for the Isolation, Transport, and Care of the Sick*.—European General and Infectious Diseases Hospitals within easy reach of aerodrome.
- (ii) *Facilities for Isolation of Contacts Separately from the Sick*.—Could be improvised if necessary.

(e) *Apparatus for Disinfection, etc.*—Available.

*Water Supply; Disposal of Excreta and Refuse; Disposal of Waste Water.*  
—Adequate for present purposes.

*Protection from Rats.*—Adequate for present purposes.

#### MOSQUITOES AT AIRPORTS

##### *Aedes ægypti*

Surveys carried out during the year have given the following results:—

|                                                                                                                              |     |     |     | <i>Index.</i><br><i>Per cent.</i> |
|------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----------------------------------|
| <i>Kisumu</i> —                                                                                                              |     |     |     |                                   |
| (a) Breeding in houses and compounds. An average of 400 houses and compounds searched monthly. No <i>Aedes ægypti</i> found. |     |     |     |                                   |
| Breeding in native villages (130 searches)                                                                                   | ... | ... |     | 1.6                               |
| (b) <i>Adults</i> —                                                                                                          |     |     |     |                                   |
| Township houses (400 monthly searches)                                                                                       | ... | ... |     | None.                             |
| Native villages (130 searches)                                                                                               | ... | ... | ... | None.                             |
| <i>Nairobi</i> —                                                                                                             |     |     |     |                                   |
| (a) Breeding in houses (1,033 searches)                                                                                      | ... | ... | ... | 0.39                              |
| Breeding in trees* (127 searches)                                                                                            | ... | ... | ... | 22.0                              |
| (b) <i>Adults</i> in houses (1,033 searches)                                                                                 | ... | ... | ... | 0.19                              |
| <i>Mombasa</i> —                                                                                                             |     |     |     |                                   |
| Breeding—                                                                                                                    |     |     |     |                                   |
| Houses on Island (1,347 searches)                                                                                            | ... | ... | ... | 11.0                              |
| Houses on Mainland (398 searches)                                                                                            | ... | ... | ... | 14.8                              |
| In wells (195 searches)                                                                                                      | ... | ... | ... | 0.5                               |
| In trees (4,500 searches)                                                                                                    | ... | ... | ... | 1.7                               |

\* The town is, however, but lightly wooded, and the neighbourhood of the aerodrome is almost devoid of trees for about a mile in all directions.

##### *Anopheles Mosquitoes*

A sum of £18,000 has been made available for anti-malaria and anti-mosquito measures at Kisumu, and it is hoped that by the end of 1937 mosquito breeding in the neighbourhood of the aerodrome will have been reduced to a minimum.

Anopheline breeding in the neighbourhood of the Nairobi aerodrome is rare except during the rainy season, and arrangements have been made for the improvement of the anti-malaria service during 1937.

Anopheline breeding on Mombasa Island is exceptional.

So far as aerial traffic is concerned, the Colony of Kenya holds in many respects an important position. To the north and west there lie countries in which yellow fever is or has within recent years been actually present, or in which the mouse protection test has been found to be positive. So far as is known at present, yellow fever has never occurred in Kenya, and on our present knowledge it would appear that in many parts of the Colony conditions would be unfavourable for its establishment or spread. On the eastern seaboard, however, the conditions are different; there the climate is hot and moist, and the incidence of *Aedes ægypti* is high. The position appears to be, therefore, that the northern, western and central areas of the Colony lie as a barrier between the infected or suspected areas of Central Africa and the vulnerable eastern coast. With these conditions in view, a proclamation was promulgated during the year which requires that all aircraft arriving from

west of longitude 32.5° East must make their first landings at either Kisumu or Nairobi, where the Aedes index is low. All aircraft so landing from west of longitude 32.5° East are disinfected on arrival.

During the year careful investigations have been in progress at Mombasa with regard to the breeding habits of Aedes there, and it is intended during 1937 to take all practicable measures to reduce the Aedes index in that town to the lowest possible point, in order that Mombasa itself may become part of the barrier between the infected areas of the interior and the vulnerable eastern coast to the north and south.

## V—MATERNITY AND CHILD WELFARE

Maternity and child welfare is carried out by four main agencies, as follows:—

- (a) The Government Medical Department,
- (b) The Missionary Societies,
- (c) The Lady Grigg Welfare League,
- (d) The Municipal Council of Nairobi.

Government expenditure is not, however, limited to that directly incurred by its own Medical Department. Five Missionary Societies receive Government grants amounting in all to a sum of £3,700 for general medical work, and these grants are doubtless of assistance to these societies in providing maternity relief.

The African Maternity Centre at Pumwani in Nairobi, the Indian Maternity Home, Nairobi, and the African Maternity Centre at Mombasa, which are branches of the Lady Grigg Welfare League, received respectively £1,350, £250 and £700 per annum from Government funds.

The Municipal Council of Nairobi receives a reimbursement of 50 per cent of all expenditure incurred by it on the promotion of child welfare.

### (1) Ante-natal and Child Welfare Work in the Larger Towns

#### A—WORK CARRIED OUT BY THE MEDICAL DEPARTMENT

##### STAFF RETAINED BY GOVERNMENT

*Mombasa.*—One woman medical officer, two European health visitors, and African staff.

*Eldoret.*—One European health visitor, and African staff.

At Mombasa, ante-natal and child welfare work is carried out at five centres. The total number of attendances was 33,203, and 16,317 home visits were made by the staff.

At Eldoret there is only one centre; the total number of attendances was 3,669 and the number of home visits paid was 4,410. In addition, the Indian and African schools were visited weekly.

#### B—WORK CARRIED OUT BY THE MUNICIPAL COUNCIL OF NAIROBI

The Municipal Council of Nairobi took over the responsibility for ante-natal and child welfare work within the Municipality from the Government Medical Department in 1935, and now employs a full-time woman medical officer and four European health visitors, three of whom are employed among the African community and one among the Asian community. The total attendances for the year were 37,548, and the total number of home visits paid was 12,532.

### (2) Maternity Work in the Larger Towns

African maternity hospitals are maintained in Nairobi and Mombasa by the Lady Grigg Welfare League, and 379 and 169 deliveries were conducted at these centres respectively. In Nairobi an Indian Maternity Hospital is carried on by the same organization, and at that centre 210 deliveries were

conducted. Sixty-five cases were also taken at the Government Native Hospital in Nairobi. Eighteen African midwives were in training at Nairobi during the year, of whom five qualified. At the Indian centre, four midwives were in training and one qualified. At Eldoret, Nakuru and Kisumu, African maternity cases are admitted to the Government hospitals, the figures for the year being as follows: Eldoret, 51; Nakuru, 60; Kisumu, 218.

### (3) Ante-natal, Maternity and Child Welfare Work in the Rural Areas

In no branch of work carried out by the Medical Department has there been greater or more significant progress during recent years than with regard to maternity and child welfare. Up till a few years ago it was unusual even for a case of an accident of pregnancy to be brought to hospital, while to-day our only difficulty is to find accommodation for all the African women who are only too anxious to be delivered in hospital. It is not, of course, surprising that in the past our hospitals presented no attraction to African women, for they were then poor places at the best, and devoid, or almost devoid, of female staff. It is, however, remarkable how with the provision of female staff the confidence of the African woman has been obtained; and the confidence of the African husband and of the members of the Local Native Councils. In 1928 a European nursing sister was posted for the first time to a Government hospital in an out-station or a small town, while to-day the number of hospitals so staffed is ten. In 1928 there was no special provision for maternity cases at any of these centres, while to-day there are special maternity wards at five hospitals which have been erected by the Local Native Councils, and at almost all other native hospitals medical officers have found it necessary to devote some part of the accommodation at their disposal to maternity work. The figures for maternity work for 1936 are as follows:—

*At Centres established with the help of Local Native Council funds in connexion with Government Hospitals—*

|                                   | Cases. |
|-----------------------------------|--------|
| Kapsabet ... ..                   | 42     |
| Kiambu ... ..                     | 240    |
| Kisii ... ..                      | 282    |
| Keruguya ... ..                   | 66     |
| Kisumu (already mentioned) ... .. | 218    |
| Kisumu (out centre) ... ..        | 102    |
| Kakamega ... ..                   | 8      |

*At Government Hospitals—*

|                  | Cases. |
|------------------|--------|
| Kericho ... ..   | 12     |
| Wesu ... ..      | 66     |
| Kitui ... ..     | 2      |
| Eldoret ... ..   | 51     |
| Nairobi ... ..   | 65     |
| Nakuru ... ..    | 60     |
| Kilifi ... ..    | 10     |
| Machakos ... ..  | 37     |
| Fort Hall ... .. | 17     |

*At the Lady Grigg Maternity Centres—*

|                                    | Cases. |
|------------------------------------|--------|
| Nairobi (already mentioned) ... .. | 379    |
| Mombasa ... ..                     | 169    |

*At Mission Hospitals ... ..* 1,009

The comparative figures for the years 1935 and 1936 are as follows:—

|                                                                                                                                         | 1935.         | 1936  |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|-------|
| At centres established in connexion with Government Hospitals with the help of Local Native Councils funds, and at Government Hospitals | 900 ...       | 1,278 |
| At the Lady Grigg Maternity Centres, Nairobi and Mombasa                                                                                | ... 449 ...   | 548   |
| At Mission Hospitals                                                                                                                    | ... 928 ...   | 1,009 |
| Totals                                                                                                                                  | ... 2,277 ... | 2,835 |

# **VI—HOSPITALS, DISPENSARIES, OUT-DISPENSARIES, VENEREAL CLINICS, THE MENTAL HOSPITAL, MEDICAL WORK CARRIED OUT BY MISSIONARY SOCIETIES, ETC.**

The number of patients treated at hospitals and dispensaries during the year was as follows:—

| European In-patients | European Out-patients | Asiatic and African In-patients | Asiatic and African Out-patients |
|----------------------|-----------------------|---------------------------------|----------------------------------|
| 1,817                | 3,609                 | 46,632                          | 408,788                          |

In addition, 640,261 first attendances were recorded at out-dispensaries in the native reserves.

## **IN- AND OUT-PATIENTS TREATED AT GOVERNMENT HOSPITALS, DISPENSARIES AND OUT-DISPENSARIES IN 1936**

| HOSPITALS IN TOWNSHIPS                        | In-patients | Out-patients |
|-----------------------------------------------|-------------|--------------|
| European Hospital, Nairobi .. .. .            | 814         | —            |
| Native Hospital, Nairobi .. .. .              | 6,425       | 3,020        |
| Mathari Mental Hospital, Nairobi .. .. .      | 254         | —            |
| Infectious Diseases Hospital, Nairobi .. .. . | 1,631       | —            |
| Prison, Nairobi .. .. .                       | 1,691       | 7,257        |
| General Dispensary, Nairobi .. .. .           | 1,230       | 46,560       |
| Loco. Dispensary, Nairobi .. .. .             | 64          | 18,945       |
| Police Dispensary, Nairobi .. .. .            | —           | 2,244        |
| European Hospital, Mombasa .. .. .            | 228         | 372          |
| Native Hospital, Mombasa .. .. .              | 2,821       | 31,107       |
| Infectious Diseases Hospital, Mombasa .. .. . | 610         | 1,151        |
| Child Welfare Centre, Mombasa .. .. .         | —           | 21,524       |
| European Hospital, Kisumu .. .. .             | 180         | 579          |
| Native Hospital, Kisumu .. .. .               | 3,636       | 23,670       |
| Prison, Kisumu .. .. .                        | 217         | 915          |
| Native Hospital, Nakuru .. .. .               | 2,659       | 9,383        |
| Native Hospital, Eldoret .. .. .              | 1,514       | 4,031        |
| Railway Dispensary, Eldoret .. .. .           | 1,053       | 3,456        |
| Native Hospital, Kitale .. .. .               | 961         | 4,885        |
| TOTAL ..                                      | 25,988      | 179,099      |

## **HOSPITALS IN TURKANA AND NORTHERN FRONTIER PROVINCE AND LAMU**

| DISTRICTS         | In-patients | Out-patients | Out-dispensaries |
|-------------------|-------------|--------------|------------------|
| Lodwar .. .. .    | 163         | 3,660        | —                |
| Lokitaung .. .. . | 148         | 3,072        | —                |
| Wajir .. .. .     | 312         | 5,117        | —                |
| Mandera .. .. .   | 87          | 1,864        | —                |
| Moyale .. .. .    | 313         | 8,300        | —                |
| Lamu .. .. .      | 198         | 19,446       | 13,260           |
| TOTAL ..          | 1,221       | 41,459       | 13,260           |

## HOSPITALS IN NATIVE RESERVES

| DISTRICTS                          | In-patients | Out-patients | Out-dispensaries |
|------------------------------------|-------------|--------------|------------------|
| Wesu .. .. .                       | 822         | 6,554        | 23,080           |
| Kabarnet .. .. .                   | 398         | 3,819        | 10,301           |
| Kitui .. .. .                      | 1,301       | 19,018       | 18,704           |
| Kapenguria .. .. .                 | 295         | 4,211        | —                |
| Narok .. .. .                      | 447         | 5,812        | 12,225           |
| Malindi .. .. .                    | 221         | 8,671        | 7,972            |
| Kakamega .. .. .                   | 1,661       | 10,037       | 75,932           |
| Kilifi .. .. .                     | 1,361       | 4,325        | 27,156           |
| Kericho .. .. .                    | 1,139       | 5,000        | 10,182           |
| Machakos .. .. .                   | 2,066       | 19,611       | 88,973           |
| Muriranjias .. .. .                | 633         | 9,555        | —                |
| Kisii .. .. .                      | 1,479       | 11,970       | 57,900           |
| Nyeri .. .. .                      | 931         | 25,756       | —                |
| Fort Hall .. .. .                  | 2,304       | 13,669       | 31,569           |
| Meru .. .. .                       | 1,324       | 21,086       | 46,412           |
| Kiambu .. .. .                     | 2,099       | 14,687       | 22,644           |
| Central Kavirondo District .. .. . | —           | —            | 66,901           |
| Kisumu .. .. .                     | —           | —            | 37,426           |
| Msambweni, Digo .. .. .            | 664         | 2,985        | 7,642            |
| Kapsabet .. .. .                   | 333         | 4,764        | 11,060           |
| Keruguya .. .. .                   | 1,406       | 13,602       | 49,407           |
| Tambach .. .. .                    | 194         | 5,325        | —                |
| Rumuruti .. .. .                   | 142         | 2,806        | —                |
| TOTAL .. .. .                      | 21,240      | 203,263      | 605,477          |

## SURGERY

The numbers of surgical operations returned as having been performed in Government hospitals during the years 1935 and 1936 were as follows:—

|                 | 1935  |       | 1936  |        | Totals |        |
|-----------------|-------|-------|-------|--------|--------|--------|
|                 | Major | Minor | Major | Minor  | 1935   | 1936   |
| On Europeans .. | 229   | 296   | 342   | 463    | 525    | 805    |
| On Asians ..    | 140   | 122   | 202   | 173    | 262    | 375    |
| On Africans ..  | 1,954 | 7,343 | 1,890 | 12,745 | 9,297  | 14,635 |
| TOTALS ..       | 2,323 | 7,761 | 2,434 | 13,381 | 10,084 | 15,815 |

These returns reflect the continued increasing popularity of surgical treatment among the African population. The slight decrease in the number of major operations returned as performed on Africans is probably more apparent than real, as it is impossible to lay down any hard and fast rule as to what should be regarded as a major operation.

In Nairobi the volume of surgical work increased during the year to such a degree that it became impossible for one surgeon to bear the burden of it, and during the latter part of the year an extra medical officer had to be detailed to act as Assistant Surgeon.

As illustrative of the type of work which is performed the following table of operations performed on Africans is provided:—

| Nature of Operation                             | Number Performed |       |
|-------------------------------------------------|------------------|-------|
|                                                 | Major            | Minor |
| <b>1.—Stomach and Duodenum—</b>                 |                  |       |
| (a) For Perforated Ulcer .. .. .                | 4                | —     |
| (b) Gastro-Enterostomy .. .. .                  | 1                | —     |
| (c) Gastrectomy .. .. .                         | —                | —     |
| (d) Others (Specify) .. .. .                    | —                | —     |
| <b>2.—Intestines—</b>                           |                  |       |
| (a) Laparotomy .. .. .                          | 51               | —     |
| (b) Closure of Wounds .. .. .                   | 9                | —     |
| (c) Resection and Anastomosis .. .. .           | 3                | —     |
| (d) Formation of Artificial Anus .. .. .        | 7                | —     |
| (e) For Obstruction .. .. .                     | 18               | —     |
| (f) Appendicectomy .. .. .                      | 15               | —     |
| (g) For Volvulus .. .. .                        | 3                | —     |
| (h) For Intussusception .. .. .                 | 2                | —     |
| (i) For Perforated Ulcer .. .. .                | 1                | —     |
| (j) Drainage of Peritoneal Abscess .. .. .      | 11               | 2     |
| (k) Others (Specify) .. .. .                    | —                | —     |
| Paracentesis Abdominis .. .. .                  | —                | 7     |
| Omentopexy .. .. .                              | 3                | —     |
| For Abdominal Growth .. .. .                    | 1                | —     |
| <b>3.—Rectum and Anus—</b>                      |                  |       |
| (a) Excision of Rectum .. .. .                  | 1                | —     |
| (b) For Fissure and Fistula .. .. .             | 6                | 6     |
| (c) Ligature of Haemorrhoids .. .. .            | 7                | —     |
| (d) Injection of Haemorrhoids .. .. .           | —                | —     |
| (e) Sigmoidoscopy .. .. .                       | 2                | 41    |
| (f) Others (Specify) : .. .. .                  | —                | —     |
| For Prolapse .. .. .                            | 2                | —     |
| <b>4.—Hernia—</b>                               |                  |       |
| (a) Inguinal .. .. .                            | 143              | —     |
| (b) Femoral .. .. .                             | 2                | —     |
| (c) Umbilical .. .. .                           | 5                | —     |
| (d) Scar .. .. .                                | 1                | —     |
| (e) Others (Specify) : .. .. .                  | —                | —     |
| <b>5.—Liver, Spleen and Pancreas—</b>           |                  |       |
| (a) Hepatotomy .. .. .                          | 16               | 2     |
| (b) Upon Gall Bladder and Bile Ducts .. .. .    | 4                | —     |
| (c) Splenectomy .. .. .                         | 1                | 1     |
| (d) For Pancreatitis .. .. .                    | —                | —     |
| (e) Others (Specify) : .. .. .                  | —                | —     |
| <b>6.—Urinary System—</b>                       |                  |       |
| (a) For Renal Abscess .. .. .                   | 1                | —     |
| (b) Nephrotomy .. .. .                          | —                | —     |
| (c) Nephrectomy .. .. .                         | —                | —     |
| (d) Upon Ureters .. .. .                        | 9                | —     |
| (e) Cystotomy .. .. .                           | 12               | 2     |
| (f) Prostatectomy .. .. .                       | 3                | 1     |
| (g) Urethrotomy .. .. .                         | 13               | 1     |
| (h) For Urethral Abscess and Fistula .. .. .    | 9                | 6     |
| (i) Cystoscopy .. .. .                          | —                | 12    |
| (j) Passage of Sounds .. .. .                   | —                | 72    |
| (k) Others (Specify) : .. .. .                  | —                | —     |
| <b>7.—Male Organs of Generation—</b>            |                  |       |
| (a) Circumcision .. .. .                        | 20               | 368   |
| (b) Amputation of Penis .. .. .                 | 2                | 1     |
| (c) For Hydrocele .. .. .                       | 82               | 32    |
| (d) For Varicocele .. .. .                      | 3                | —     |
| (e) Orchidectomy .. .. .                        | 13               | —     |
| (f) Others (Specify) : .. .. .                  | —                | —     |
| Elephantiasis of Scrotum (Fauntleroy's) .. .. . | 3                | —     |

| Nature of Operation                                   | Number Performed |       |
|-------------------------------------------------------|------------------|-------|
|                                                       | Major            | Minor |
| <b>8.—Female Organs of Generation—</b>                |                  |       |
| Breech presentation .. .. .                           | 2                | —     |
| (a) Ovariectomy .. .. .                               | 14               | —     |
| (b) Salpingectomy .. .. .                             | 29               | —     |
| (c) Myomectomy .. .. .                                | 4                | —     |
| (d) Hysterectomy .. .. .                              | 13               | —     |
| (e) Hysteropexy .. .. .                               | 6                | —     |
| (f) Caesarian Section .. .. .                         | 12               | —     |
| (g) For Extra-Uterine Gestation .. .. .               | 11               | —     |
| (h) For Pelvic Abscess .. .. .                        | 1                | —     |
| (i) For Vesico-Vaginal Fistula .. .. .                | 21               | 8     |
| (j) Colporrhaphy and Perineorrhaphy .. .. .           | 6                | 6     |
| (k) Forceps Delivery .. .. .                          | 42               | 29    |
| (l) Removal of Uterine Contents and Curettage .. .. . | 50               | 71    |
| (m) Induction of Labour or Abortion .. .. .           | 7                | —     |
| (n) Insufflation of Fallopian Tubes .. .. .           | —                | 3     |
| (o) Examination and Manipulation .. .. .              | 11               | 37    |
| (p) Others (Specify) :                                |                  |       |
| For Haematocolpus .. .. .                             | 4                | —     |
| Craniotomy .. .. .                                    | 4                | —     |
| For Rupture of Uterus .. .. .                         | 3                | —     |
| For Cyst of Broad Ligament .. .. .                    | 1                | —     |
| For Epithelioma of Vulva .. .. .                      | —                | 1     |
| <b>9.—Eye—</b>                                        |                  |       |
| (a) Removal of Foreign Bodies .. .. .                 | —                | 83    |
| (b) Upon Lids .. .. .                                 | 4                | 57    |
| (c) Evisceration and Enucleation .. .. .              | 32               | 4     |
| (d) For Cataract .. .. .                              | 43               | 6     |
| (e) Others (Specify) : .. .. .                        | 22               | 5     |
| For Pterygium .. .. .                                 | —                | 5     |
| Staphyloma enucleation .. .. .                        | 1                | —     |
| <b>10.—Ear and Nose—</b>                              |                  |       |
| (a) Myringotomy .. .. .                               | —                | —     |
| (b) Mastoidectomy .. .. .                             | 8                | 2     |
| (c) Removal of Tumours .. .. .                        | 4                | 14    |
| (d) Turbinatectomy .. .. .                            | 11               | 3     |
| (e) Resection of Septum .. .. .                       | —                | —     |
| (f) Drainage of Sinuses .. .. .                       | 1                | —     |
| (g) Others (Specify) :                                |                  |       |
| Extraction of Foreign Bodies .. .. .                  | —                | 3     |
| <b>11.—Mouth, Throat and Neck—</b>                    |                  |       |
| (a) Extraction of Teeth .. .. .                       | —                | 5,902 |
| (b) Upon Jaws .. .. .                                 | 8                | 21    |
| (c) Upon Tongue and Lips .. .. .                      | 2                | 2     |
| (d) Tonsillotomy, by guillotine .. .. .               | 1                | 19    |
| (e) Tonsillectomy, by dissection .. .. .              | 67               | 1     |
| (Both including adenoidectomy)                        | 6                | —     |
| (f) Tracheotomy .. .. .                               | 3                | —     |
| (g) Thyroidectomy .. .. .                             | 10               | —     |
| (h) For Tuberculous Glands .. .. .                    | 62               | 15    |
| (i) Oesophagoscopy .. .. .                            | —                | 1     |
| (j) Bronchoscopy .. .. .                              | —                | 3     |
| (k) Others (Specify) :                                |                  |       |
| For Quinsy .. .. .                                    | —                | 3     |
| For Thyroglossal Cyst .. .. .                         | 1                | —     |
| For Paratid tumour .. .. .                            | 1                | —     |
| For Uvula .. .. .                                     | —                | 10    |
| <b>12.—Chest—</b>                                     |                  |       |
| (a) Paracentesis .. .. .                              | 1                | 19    |
| (b) For Empyema .. .. .                               | 28               | 6     |
| (c) Lobectomy .. .. .                                 | —                | —     |
| (d) Others (Specify).                                 |                  |       |
| <b>13.—Mammary Glands—</b>                            |                  |       |
| (a) For Abscess .. .. .                               | 1                | 16    |
| (b) Excision of Tumour .. .. .                        | 4                | 1     |
| (c) Mastectomy .. .. .                                | 4                | —     |
| (d) Others (Specify).                                 |                  |       |
| <b>14.—Arteries, Veins and Nerves—</b>                |                  |       |
| (a) For Aneurysm .. .. .                              | 1                | —     |
| (b) Injection of Varicose Veins .. .. .               | —                | 1     |
| (c) Nerve Suture .. .. .                              | 1                | —     |
| (d) Others (Specify) :                                |                  |       |
| Ligature .. .. .                                      | —                | 1     |
| Cav. angioma .. .. .                                  | 1                | —     |

| Nature of Operation                                        | Number Performed |               |
|------------------------------------------------------------|------------------|---------------|
|                                                            | Major            | Minor         |
| <b>15.—Cranium—</b>                                        |                  |               |
| (a) Decompression .. .. .                                  | 9                | —             |
| (b) Exploration .. .. .                                    | 6                | 1             |
| (c) For Fracture .. .. .                                   | 19               | 1             |
| (d) Drainage of Intracranial Abscess .. .. .               | —                | —             |
| (e) Removal of Intracranial Tumour .. .. .                 | 1                | —             |
| (f) Others (Specify).                                      |                  |               |
| <b>16.—Spinal Column—</b>                                  |                  |               |
| (a) Lumbar Puncture .. .. .                                | —                | 496           |
| (b) Laminectomy .. .. .                                    | 1                | —             |
| (c) For Tuberculosis .. .. .                               | 1                | 14            |
| (d) Others (Specify):                                      |                  |               |
| Injection .. .. .                                          | —                | 1             |
| <b>17.—Bones—</b>                                          |                  |               |
| (a) For Fracture: Open Methods .. .. .                     | 36               | 104           |
| Closed Methods .. .. .                                     | 30               | 209           |
| (b) For Osteomyelitis .. .. .                              | 150              | 136           |
| (c) Removal of Tumour .. .. .                              | 11               | 5             |
| (d) Others (Specify).                                      |                  |               |
| <b>18.—Joints—</b>                                         |                  |               |
| (a) For Dislocation: Open Methods .. .. .                  | 8                | 3             |
| Closed Methods .. .. .                                     | 4                | 42            |
| (b) Aspiration .. .. .                                     | 8                | 49            |
| (c) Arthrotomy: For Sepsis .. .. .                         | 26               | 19            |
| For Removal of Loose Body .. .. .                          | 2                | —             |
| (d) Excision of Joint .. .. .                              | 10               | 1             |
| (e) Manipulation .. .. .                                   | 8                | 29            |
| (f) External Fixation .. .. .                              | 2                | 40            |
| (g) Others (Specify).                                      |                  |               |
| <b>19.—Amputations—</b>                                    |                  |               |
| (a) Of fingers .. .. .                                     | 24               | 95            |
| (b) Of Hand and Forearm .. .. .                            | 9                | 2             |
| (c) Of Arm .. .. .                                         | 14               | 1             |
| (d) Of Toes .. .. .                                        | 3                | 64            |
| (e) Of Foot and Leg .. .. .                                | 69               | 10            |
| (f) Of Thigh .. .. .                                       | 22               | —             |
| <b>20.—Plastic Operations—</b>                             |                  |               |
| (a) Skin Graft .. .. .                                     | 21               | 716           |
| (b) For Hare Lip and Cleft Palate .. .. .                  | 2                | —             |
| (c) Upon Vagina and Vulva .. .. .                          | 3                | 9             |
| (d) For Contractures .. .. .                               | 11               | 13            |
| (e) Others (Specify):                                      |                  |               |
| Upon Gangrenous Scrotum .. .. .                            | 1                | —             |
| Upon Ears .. .. .                                          | —                | 304           |
| For Elephantiasis .. .. .                                  | —                | 6             |
| <b>21.—Orthopaedic Operations Not Otherwise Mentioned—</b> |                  |               |
| (a) Osteotomy .. .. .                                      | 3                | 1             |
| (b) Tenotomy .. .. .                                       | 1                | 2             |
| (c) Others (Specify).                                      |                  |               |
| <b>22.—Conditions Unclassified Regionally—</b>             |                  |               |
| (a) For Ulcers .. .. .                                     | 132              | 1,613         |
| (b) For Other Septic Conditions .. .. .                    | 54               | 905           |
| (c) Suture and Treatment of Wounds .. .. .                 | 42               | 432           |
| (d) Excision of Superficial Tumours .. .. .                | 32               | 169           |
| (e) Extraction of Foreign Bodies .. .. .                   | 10               | 88            |
| (f) Removal of Glands .. .. .                              | 7                | 37            |
| (g) For Bursitis and Ganglion .. .. .                      | 11               | 53            |
| (h) Others (Specify):                                      |                  |               |
| For Burns .. .. .                                          | —                | 4             |
| <b>23.—Operations Otherwise Unclassified</b>               |                  |               |
| Biopsy .. .. .                                             | 29               | 157           |
|                                                            | —                | 2             |
| <b>TOTAL ..</b>                                            | <b>1,890</b>     | <b>12,745</b> |

### ANÆSTHETICS

Anæsthetics in African hospitals are administered either by a medical officer, a European nursing sister, a sub-assistant surgeon, or by an experienced African hospital assistant or dresser; they are never administered, however, by an unqualified person except under the immediate personal supervision of a medical officer or a sub-assistant surgeon.

In the course of the year over six thousand general anæsthetics were administered, and in connexion with these cases four deaths were recorded. In one of these cases the patient was suffering from severe septicæmia, in another pyonephrosis was found post-mortem, in the third the operation was for the excision of diseased bone in a chronic septic arthritis of the knee joint, and in the fourth case, where the operation was for the radical cure of an inguinal hernia, the patient was obese and post-mortem revealed cardiac hypertrophy and diffuse atheroma of the aorta.

In no case did the administration of the anæsthetic appear to have been unsatisfactory, nor any precaution to have been omitted.

### TRAINING OF AFRICANS

#### HOSPITAL ASSISTANTS

The systematic training of Africans as hospital assistants or male general nurses was carried on as usual at the Medical Training Depot in connexion with the Native Hospital, Nairobi. Twenty-one learners were enrolled at the beginning of the year, and twelve others finished their course of training.

Numerous improvements in the course of training were made during the course of the year. The hospital assistants who have passed out from the Depot continue to give very great satisfaction in the hospitals to which they have been posted.

#### COMPOUNDERS

Three learner compounders commenced training during the year, and three others sat for the final examination at the end of the year, of whom two passed.

#### TRAINING OF AFRICAN WOMEN

Up till the present no arrangements have been made for the systematic training of African women in general nursing at a centre organized for the purpose, for the reason that up till very recently the number of women with an adequate elementary education has been too small to justify the establishment of such a training centre.

The supply of girls who have received some elementary education is, however, increasing, and that many such girls are willing to work in hospitals is evidenced by the fact that there are now 139 African girls employed in the hospitals of the Department, of whom no less than 87 are reported to be able to write Swahili. The time would therefore appear to have arrived when arrangements could with advantage be made for the provision of systematic training, and it is hoped that when the proposed new native hospital at Nairobi has come into being such facilities may be provided there.

### VENEREAL CLINICS

Special clinics for the treatment of venereal disease in women were held weekly at five centres in Mombasa and at one in Nairobi, and for men at three centres in Nairobi and at one in Mombasa. Elsewhere in the Colony cases of venereal disease are treated at all hospitals and dispensaries.

The chief difficulty at all centres is to persuade patients to continue treatment after their more distressing symptoms have been relieved. In this respect change is, however, gradually taking place, though it will be many years before more than a small proportion of the numbers attending complete anything in the nature of a full course of treatment.

# THE MATHARI MENTAL HOSPITAL

## THE CARE AND TREATMENT OF AMENTS AND OF PATIENTS SUFFERING FROM MENTAL DISORDERS

During the year new wards to accommodate about sixty patients were completed.

The following note summarizes the work for the year:—

### DEATHS

#### PERCENTAGE OF DEATHS TO TOTAL OF PATIENTS, 1928 TO 1936

| YEAR         | Patients | Deaths | Percentage |
|--------------|----------|--------|------------|
| 1928 .. .. . | 225      | 23     | 10.2       |
| 1929 .. .. . | 250      | 25     | 10         |
| 1930 .. .. . | 278      | 34     | 13.6       |
| 1931 .. .. . | 236      | 38     | 16         |
| 1932 .. .. . | 167      | 10     | 6          |
| 1933 .. .. . | 153      | 5      | 3.26       |
| 1934 .. .. . | 199      | 14     | 7.03       |
| 1935 .. .. . | 225      | 8      | 3.55       |
| 1936 .. .. . | 254      | 7      | 2.75       |

### DISCHARGES, 1936

|                  |           |            |
|------------------|-----------|------------|
| European .. .. . | Nil Males | 2 Females  |
| Indian .. .. .   | 1 Males   | 2 Females  |
| African .. .. .  | 38 Males  | 14 Females |

### GENERAL STATISTICS

The following table shows the number of admissions, discharges and deaths for the past three years—1934, 1935 and 1936:—

|                 | ADMISSIONS |      |      | DISCHARGES |      |      | DEATHS |      |      |
|-----------------|------------|------|------|------------|------|------|--------|------|------|
|                 | 1934       | 1935 | 1936 | 1934       | 1935 | 1936 | 1934   | 1935 | 1936 |
| Males .. .. .   | 55         | 50   | 51   | 34         | 32   | 39   | 12     | 6    | 4    |
| Females .. .. . | 16         | 39   | 31   | 15         | 13   | 18   | 2      | 2    | 3    |
| TOTAL .. .. .   | 71         | 89   | 82   | 49         | 45   | 57   | 14     | 8    | 7    |

The total number of patients treated during the year was 254 (164 males and 90 females).

The total number of patient-days in hospital were:—

|                                  | 1933   | 1934   | 1935   |
|----------------------------------|--------|--------|--------|
| European—Male and Female .. .. . | 1,974  | 1,244  | 1,488  |
| Native—Male .. .. .              | 33,468 | 37,329 | 40,536 |
| Native—Female .. .. .            | 12,435 | 17,708 | 21,616 |
| TOTAL .. .. .                    | 47,877 | 56,281 | 63,640 |

|                                      | 1934                       | 1935   | 1936   |
|--------------------------------------|----------------------------|--------|--------|
| The average daily number was .. .. . | 131.16                     | 154.19 | 173.87 |
| Remaining at the end of 1934 .. .. . | 136—Males 101, Females 35. |        |        |
| Remaining at the end of 1935 .. .. . | 172—Males 113, Females 59. |        |        |
| Remaining at the end of 1936 .. .. . | 190—Males 121, Females 69. |        |        |

## EUROPEAN SECTION

The total number treated during 1936 was eight, of whom three were males and five females. The details are:—

|                                | Males | Females |
|--------------------------------|-------|---------|
| Remaining from 1935 .. ..      | 1     | 2       |
| Admitted during 1936 .. ..     | 2     | 3       |
| Discharged during 1936 .. ..   | —     | 2       |
| Deaths during 1936 .. ..       | 1     | —       |
| Remaining at end of 1936 .. .. | 2     | 3       |

## TOTAL NUMBER OF DAYS RESIDENCE IN HOSPITAL:—

|                           | 1935  |
|---------------------------|-------|
| Of those discharged .. .. | 24    |
| Of those died .. ..       | 6     |
| Of those remaining .. ..  | 3,399 |
| TOTAL ..                  | 3,429 |

## ASIATIC SECTION

The total number treated during the year 1936 was ten, of whom four were males and six females (including one criminal patient). The details are:—

|                                | Males | Females |
|--------------------------------|-------|---------|
| Remaining from 1935 .. ..      | 3     | 3       |
| Admitted during 1936 .. ..     | 1     | 3       |
| Discharged during 1936 .. ..   | —     | 1       |
| Died during 1936 .. ..         | 1     | 2       |
| Remaining at end of 1936 .. .. | 3     | 3       |
| Male Indian .. ..              | 3     |         |
| Female Indian .. ..            | 2     |         |
| Female Seychelle .. ..         | 1     |         |
| Total .. ..                    | 6     |         |

## Total number of days residence in hospital of:—

|                                      |        |
|--------------------------------------|--------|
| Those discharged during 1936.. ..    | 169    |
| Those remaining at end of 1936 .. .. | 16,106 |
| Those who died during 1936 .. ..     | 12     |
| Total ..                             | 16,287 |

## AFRICAN SECTION

The total number treated during the year was 236, including 21 male and 6 female criminal patients. The details are:—

|                                | Males | Females |
|--------------------------------|-------|---------|
| Remaining from 1935 .. ..      | 109   | 54      |
| Admitted during 1936 .. ..     | 48    | 25      |
| Discharged during 1936 .. ..   | 38    | 14      |
| Died during 1936 .. ..         | 3     | 2       |
| Remaining at end of 1936 .. .. | 116   | 63      |

The total number of days of these were:—

|                                      | Males   | Females |
|--------------------------------------|---------|---------|
| Those discharged during 1936.. ..    | 15,224  | 3,138   |
| Those remaining at end of 1936 .. .. | 156,436 | 78,358  |
| Those who died in 1936 .. ..         | 598     | 4,188   |
| Total .. ..                          | 172,258 | 85,684  |

Patients were admitted during the year from the following places:—

|                   | Males | Females |
|-------------------|-------|---------|
| Nairobi .. .. .   | 11    | 11      |
| Machakos .. .. .  | 3     | 1       |
| Meru .. .. .      | 4     | 2       |
| Kiambu .. .. .    | 5     | 1       |
| Fort Hall .. .. . | 3     | 5       |
| Eldoret .. .. .   | 2     | 1       |
| Kisii .. .. .     | 2     | —       |
| Mombasa .. .. .   | 6     | 1       |
| Nyeri .. .. .     | 3     | 3       |
| Kisumu .. .. .    | 4     | 1       |
| Kitale .. .. .    | 2     | —       |
| Nakuru .. .. .    | 2     | 2       |
| Voi .. .. .       | 1     | —       |
| Kericho .. .. .   | 1     | 1       |
| Kabarnet .. .. .  | 1     | —       |
| Narok .. .. .     | 1     | —       |
| Embu .. .. .      | —     | 1       |
| Thika .. .. .     | —     | 1       |
| Total .. .. .     | 51    | 31      |

#### MEDICAL WORK CARRIED OUT BY MISSIONARY SOCIETIES

The number of hospital beds maintained by the missionary societies receiving medical grants from Government, the number of patients treated in these institutions, and the amounts of the grants given are shown in the following table:—

| MISSIONS | Place          | No. of Beds | In-patients | Out-patients | Out-dis-pensary Patients | Con-finements | Amount of Grant |
|----------|----------------|-------------|-------------|--------------|--------------------------|---------------|-----------------|
| C.S.M. . | Kikuyu .. ..   | 90          | 1,590       | 17,472       | Nil                      | 222           | £ 450           |
| " .      | Chogoria .. .. | 59          | 772         | 11,606       | 11,000*                  | 19            | 240             |
| " .      | Tumutumu .. .. | 98          | 1,963       | 19,384       | 39,911                   | 440           | 1,050           |
| C.M.S. . | Kaloleni .. .. | 84          | 777         | 39,484       | —                        | 6             | 940             |
| " .      | Maseno .. ..   | 67          | 1,851       | 9,710        | 25,942                   | 186           | 420             |
| S.D.A. . | Kendu .. ..    | 42          | 934         | 28,563       | 3,130                    | 108           | 400             |
| M.M.S. . | Meru .. ..     | 20          | 555         | 10,253       | —                        | 4             | 100             |
| N.M.S. . | Ngao .. ..     | 18          | 94          | 1,330        | 968                      | 24            | 100             |

\*Approximately.

C.S.M.—Church of Scotland Mission.

C.M.S.—Church Missionary Society.

S.D.A.—Seventh Day Adventists.

M.M.S.—Methodist Missionary Society.

N.M.S.—Neukirchen Mission Society.

At all the above-mentioned hospitals a qualified medical practitioner and one or more European sisters are employed.

### VII—PRISONS AND ASYLUMS

The vital statistics for the prisons of the Colony for 1936 and for the last five years are as follows:—

| YEAR       | Daily Average in Prison | Admissions to Hospital | Daily Average on Sick List | Percentage of Total Inmates | Deaths |
|------------|-------------------------|------------------------|----------------------------|-----------------------------|--------|
|            |                         |                        |                            | <i>Per cent</i>             |        |
| 1936 .. .. | 2,758                   | 3,958                  | 127                        | 4.6                         | 58     |
| 1935 .. .. | 2,751                   | 2,817                  | 120                        | 4.4                         | 60     |
| 1934 .. .. | 3,439                   | 4,180                  | 152                        | 4.4                         | 95     |
| 1933 .. .. | 2,893                   | 2,967                  | 112                        | 3.9                         | 41     |
| 1932 .. .. | 2,642                   | 1,882                  | 93                         | 3.5                         | 33     |

The fifty-eight deaths were from natural causes, and were due to the following diseases:—

| DISEASES                    | Nairobi Prison | All Other Prisons | Total     |
|-----------------------------|----------------|-------------------|-----------|
| Pneumonia .. ..             | 25             | 13                | 38        |
| Dysentery .. ..             | 2              | —                 | 2         |
| Debility .. ..              | —              | 1                 | 1         |
| Diseases of the Liver .. .. | 1              | 2                 | 3         |
| Malaria .. ..               | 1              | —                 | 1         |
| Meningitis .. ..            | 1              | 1                 | 2         |
| Various .. ..               | 2              | 9                 | 11        |
| <b>TOTAL ..</b>             | <b>32</b>      | <b>26</b>         | <b>58</b> |

Of the above, five were lunatics and one vagrant.

### VIII—METEOROLOGY

The statistics supplied by the Director of the British East African Meteorological Service are contained in Table IV appended to this report.

A. R. PATERSON,  
*Director of Medical Services.*

### RETURNS

#### TABLE I—MEDICAL STAFF

A. R. Paterson, Director of Medical Services.  
F. J. Carlyle Johnstone, Deputy Director of Medical Services.  
Senior Medical Officer, Administration (1),  
Senior Medical Officers (4),  
Surgical Specialist (1),  
Medical Officers (36),  
Senior Bacteriologist (1),  
Assistant Bacteriologists (3),  
Matron (1),  
Housekeeper (1),  
Nursing Sisters and Health Visitors (51),  
Sanitary Inspectors (12),  
Assistant Surgeons (European) (2),  
Assistant Surgeons (Asiatic) (2),  
Sub-assistant Surgeons (24).

#### *Principal Changes*

- (1) Dr. F. W. Vint promoted to Senior Pathologist, with effect from the 19th December, 1936.
- (2) Dr. H. D. Tonking transferred to Mauritius on promotion to post of Senior Pathologist, with effect from the 19th December, 1936.
- (3) Mr. F. Hewitt promoted to Senior Sanitary Inspector, with effect from the 1st January, 1936.

*Resignations.*—Four Nursing Sisters.

*Appointments Terminated.*—One Sub-assistant Surgeon.

*Retirements.*—Two Medical Officers; two Nursing Sisters.

TABLE II—FINANCIAL

The sanctioned medical budget for the year 1936 was a total of £197,062, as compared with £200,567 for the preceding twelve months.

The headings under which the vote was arranged were as follows:—

## MEDICAL DEPARTMENT

|                                                | Estimates | Actual Expenditure |
|------------------------------------------------|-----------|--------------------|
|                                                | £         | £                  |
| ADMINISTRATIVE DIVISION—Personal Emoluments .. | 9,320     | 8,832              |
| MEDICAL DIVISION—Personal Emoluments .. ..     | 29,026    | 30,396             |
| SANITATION DIVISION—Personal Emoluments .. ..  | 5,008     | 4,650              |
| LABORATORY DIVISION—Personal Emoluments .. ..  | 13,786    | 13,364             |
| "    "    Other Charges .. ..                  | 24,434    | 25,739             |
|                                                | £ 81,574  | 82,981             |
| NATIVE SERVICES—Personal Emoluments .. ..      | 71,510    | 68,644             |
| "    "    Other Charges .. ..                  | 42,478    | 44,743             |
|                                                | £ 113,988 | 113,387            |
| EXTRAORDINARY EXPENDITURE .. ..                | 1,500     | 682                |

The total amount of revenue collected was as follows:—

|                                                                                                | £     | £        |
|------------------------------------------------------------------------------------------------|-------|----------|
| Hospital Fees .. .. .                                                                          | 8,465 |          |
| Bills of Health .. .. .                                                                        | 811   |          |
| Infectious Diseases Hospital, Fees, Nairobi Municipality                                       | 617   |          |
| Infectious Diseases Hospital, Fees, Mombasa Municipality                                       | 267   |          |
| Fees from Medical Research Laboratory .. .. .                                                  | 3,601 |          |
| Registration Fees .. .. .                                                                      | 58    |          |
| Sales of Medicines, etc. .. .. .                                                               | 2,099 |          |
| Hire of Government Motor Vehicles (Ambulances) ..                                              | 62    |          |
|                                                                                                |       | 15,980   |
| Reimbursement from Uganda Government on Account of Zanzibar Sanitary Station .. .. .           | 412   |          |
| Reimbursement from Kenya and Uganda Railways and Harbours on Account of Medical Services .. .. | 5,650 |          |
| Reimbursement Mombasa Municipality on Account of Public Health Staff .. .. .                   | 917   |          |
| Reimbursement on Account of Messing Expenses, European Hospital, Nairobi .. .. .               | 433   |          |
|                                                                                                |       | 7,412    |
|                                                                                                |       | £ 23,392 |

Last year the total revenue collected amounted to £22,732.

TABLE III—RETURN OF STATISTICS OF POPULATION FOR THE YEAR 1936

| COLONY AND PROTECTORATE OF KENYA                                | Europeans and Whites | Africans and Others                                    | Asiatics                        |
|-----------------------------------------------------------------|----------------------|--------------------------------------------------------|---------------------------------|
| Number of inhabitants in 1935 ..                                | *16,812              | Africans—<br>‡3,012,421<br>Arabs and Others<br>‡13,512 | Indians—‡39,644<br>Goans—‡3,979 |
| Number of births registered in 1936                             | 295                  | 48                                                     | Indians—435<br>Goans—107        |
| Number of deaths registered in 1936                             | 144                  | 1,500                                                  | Indians—448<br>Goans—19         |
| Number of immigrants during 1936                                | 5,630                | 2,342                                                  | Indians—8,855<br>Goans—786      |
| Number of emigrants during 1936                                 | 5,582                | 2,060                                                  | Indians—7,517<br>Goans—773      |
| Estimated Number of inhabitants at the end of December, 1936 .. | 18,192               | Africans<br>§3,186,976<br>Arabs and Others<br>14,458   | Indians—38,653<br>Goans—3,577   |

\*1931 Census. †Estimated 31-12-35. ‡1931 Census. §Estimated 31-12-36

TABLE IV—METEOROLOGICAL RETURN FOR THE YEAR 1936

| MONTH                 | MEAN TEMPERATURE (°F) |                  |               |                             |               | RAINFALL         |                                | WINDS             |                     |
|-----------------------|-----------------------|------------------|---------------|-----------------------------|---------------|------------------|--------------------------------|-------------------|---------------------|
|                       | Solar Maxim           | Minimum on grass | Shade Maximum | Max. and Min. mean combined | Shade Minimum | Amount in Inches | Degree of Humidity<br>Per cent | General Direction | Average force, 1-10 |
| NAIROBI—              |                       |                  |               |                             |               |                  | 8.30 14.30                     |                   |                     |
| January ..            | ..                    | ..               | 77.0          | 66.9                        | 56.9          | 2.47             | 78 54                          | E                 | 1                   |
| February ..           | ..                    | ..               | 80.4          | 70.3                        | 60.2          | 4.29             | 81 47                          | E                 | 1                   |
| March ..              | ..                    | ..               | 77.6          | 68.1                        | 58.7          | 3.66             | 82 55                          | E                 | 1                   |
| April ..              | ..                    | ..               | 76.1          | 67.7                        | 59.4          | 7.22             | 86 57                          | ESE               | 1                   |
| May ..                | ..                    | ..               | 77.1          | 67.5                        | 57.9          | 1.25             | 84 53                          | ESE               | 1                   |
| June ..               | ..                    | ..               | 72.1          | 63.6                        | 55.1          | 3.46             | 83 57                          | ESE               | 1                   |
| July ..               | ..                    | ..               | 73.2          | 62.8                        | 52.4          | 0.15             | 82 50                          | ESE               | 1                   |
| August ..             | ..                    | ..               | 73.6          | 62.7                        | 51.8          | 0.34             | 81 51                          | E                 | 1                   |
| September ..          | ..                    | ..               | 76.7          | 65.3                        | 54.0          | 0.40             | 78 45                          | E                 | 1                   |
| October ..            | ..                    | ..               | 79.9          | 68.7                        | 57.5          | 0.39             | 77 42                          | ENE               | 2                   |
| November..            | ..                    | ..               | 76.7          | 67.1                        | 57.6          | 2.37             | 84 54                          | ENE               | 2                   |
| December..            | ..                    | ..               | 79.0          | 68.1                        | 57.1          | 0.40             | 72 42                          | ENE               | 2                   |
| MOMBASA—              |                       |                  |               |                             |               |                  |                                |                   |                     |
| January ..            | ..                    | ..               | 87.5          | 81.4                        | 75.3          | 4.00             | 79 71                          | NNW               | 2                   |
| February ..           | ..                    | ..               | 90.1          | 83.3                        | 76.6          | 0.46             | 77 68                          | N                 | 1                   |
| March ..              | ..                    | ..               | 91.7          | 84.8                        | 77.9          | 0.75             | 73 64                          | NE                | 2                   |
| April ..              | ..                    | ..               | 86.0          | 80.9                        | 75.7          | 10.55            | 81 76                          | SW                | 3                   |
| May ..                | ..                    | ..               | 84.5          | 79.5                        | 74.5          | 7.48             | 83 78                          | SW                | 2                   |
| June ..               | ..                    | ..               | 81.4          | 76.7                        | 72.0          | 13.64            | 85 78                          | WSW               | 2                   |
| July ..               | ..                    | ..               | 82.6          | 77.3                        | 71.9          | 1.26             | 80 72                          | WSW               | 2                   |
| August ..             | ..                    | ..               | 82.6          | 76.6                        | 70.6          | 2.33             | 79 73                          | SSW               | 2                   |
| September ..          | ..                    | ..               | 83.2          | 77.1                        | 71.1          | 3.59             | 78 72                          | SSW               | 2                   |
| October ..            | ..                    | ..               | 85.9          | 79.7                        | 73.6          | 2.73             | 76 70                          | S                 | 2                   |
| November..            | ..                    | ..               | 88.9          | 82.4                        | 75.9          | 1.86             | 73 68                          | SSE               | 1                   |
| December..            | ..                    | ..               | 89.9          | 82.9                        | 75.9          | 10.31            | 72 67                          | N                 | 2                   |
| KISUMU—               |                       |                  |               |                             |               |                  |                                |                   |                     |
| January ..            | ..                    | ..               | 80.4          | 72.3                        | 64.2          | 3.37             | 70 65                          | ESE               | 2                   |
| February ..           | ..                    | ..               | 80.4          | 72.7                        | 65.0          | 5.77             | 77 71                          | ESE               | 2                   |
| March ..              | ..                    | ..               | 81.0          | 72.7                        | 64.3          | 3.82             | 73 69                          | E                 | 2                   |
| April ..              | ..                    | ..               | 79.4          | 72.0                        | 64.6          | 4.21             | 76 69                          | ESE               | 2                   |
| May ..                | ..                    | ..               | 80.6          | 72.4                        | 64.2          | 3.05             | 74 71                          | ESE               | 2                   |
| June ..               | ..                    | ..               | 78.5          | 70.6                        | 62.7          | 3.68             | 72 67                          | SE                | 2                   |
| July ..               | ..                    | ..               | 77.6          | 69.7                        | 61.9          | 2.52             | 75 68                          | SE                | 2                   |
| August ..             | ..                    | ..               | 79.2          | 70.3                        | 61.5          | 2.59             | 67 66                          | SE                | 2                   |
| September ..          | ..                    | ..               | 80.4          | 71.3                        | 62.3          | 2.74             | 67 63                          | ENE               | 2                   |
| October ..            | ..                    | ..               | 82.9          | 73.1                        | 63.2          | 1.82             | 64 57                          | ENE               | 2                   |
| November..            | ..                    | ..               | 84.7          | 74.5                        | 64.4          | 1.54             | 60 55                          | E                 | 2                   |
| December..            | ..                    | ..               | 81.0          | 72.5                        | 64.0          | 7.24             | 65 65                          | E                 | 2                   |
| KABETE<br>OBSERVATORY |                       |                  |               |                             |               |                  |                                |                   |                     |
| January ..            | ..                    | 52.8             | 72.3          | 63.7                        | 55.2          | 5.09             | 80 56                          | ENE               | 2                   |
| February ..           | ..                    | 54.9             | 74.7          | 66.3                        | 57.9          | 5.81             | 81 52                          | NE                | 2                   |
| March ..              | ..                    | 52.8             | 73.8          | 65.4                        | 57.0          | 4.99             | 82 58                          | ENE               | 2                   |
| April ..              | ..                    | 55.4             | 72.0          | 64.9                        | 57.9          | 7.80             | 76 62                          | NE                | 2                   |
| May ..                | ..                    | 53.5             | 72.3          | 64.5                        | 56.7          | 1.87             | 85 60                          | ESE               | 1                   |
| June ..               | ..                    | 49.9             | 68.5          | 61.1                        | 53.8          | 3.14             | 85 64                          | SE                | 1                   |
| July ..               | ..                    | 45.3             | 68.5          | 59.9                        | 51.3          | 0.16             | 86 55                          | SE                | 1                   |
| August ..             | ..                    | 45.8             | 69.1          | 60.0                        | 50.9          | 0.41             | 82 56                          | E                 | 1                   |
| September ..          | ..                    | 46.7             | 72.7          | 62.8                        | 52.9          | 0.47             | 77 44                          | E                 | 2                   |
| October ..            | ..                    | 51.3             | 74.3          | 65.1                        | 55.9          | 3.87             | 80 46                          | ENE               | 2                   |
| November..            | ..                    | 51.7             | 71.4          | 63.9                        | 56.3          | 3.63             | 85 58                          | NE                | 3                   |
| December..            | ..                    | 49.4             | 73.4          | 64.4                        | 55.4          | 3.28             | 76 49                          | NE                | 3                   |

TABLE SHOWING TOTAL ANNUAL RAINFALL AT VARIOUS  
POINTS IN THE DIFFERENT AREAS FOR THE  
YEAR 1936  
COAST AREA

| Station                                                 | 1936          |
|---------------------------------------------------------|---------------|
|                                                         | <i>Inches</i> |
| Malindi, District Commissioner's Office .. .. .         | 40-65         |
| Mombasa, Meteorological Observatory .. .. .             | 58-96         |
| Mazeras, K.U.R. & H. .. .. .                            | 46-30         |
| Mackinnon Road .. .. .                                  | 25-39         |
| Voi, District Commissioner's Office .. .. .             | 34-16         |
| Taveta, Capt. Homer .. .. .                             | 38-02         |
| MOUNTAINOUS AREA                                        |               |
| Station                                                 | 1936          |
|                                                         | <i>Inches</i> |
| Masongaleni, K.U.R. & H. .. .. .                        | 36-39         |
| Makindu, K.U.R. & H. .. .. .                            | 13-85         |
| Athi River, K.U.R. & H. .. .. .                         | 24-84         |
| Kiu, K.U.R. & H. .. .. .                                | 29-41         |
| Nairobi, K.U.R. & H. .. .. .                            | 26-40         |
| Kabete, Approved School .. .. .                         | 44-99         |
| Naivasha, K.U.R. & H... .. .                            | 24-52         |
| Nakuru, District Commissioner's Office .. .. .          | 37-52         |
| Molo, K.U.R. & H. .. .. .                               | 53-37         |
| Eldama Ravine, Ettrick Estate .. .. .                   | 55-21         |
| NYANZA AND KENYA PROVINCE                               |               |
| Station                                                 | 1936          |
|                                                         | <i>Inches</i> |
| Lumbwa, Mtaragon .. .. .                                | 55-72         |
| Muhuroni, K.U.R. & H. .. .. .                           | 60-01         |
| Kisumu, Marine Superintendent .. .. .                   | 42-35         |
| Kakamega, District Commissioner's Office .. .. .        | 75-84         |
| Kerich, District Commissioner's Office .. .. .          | 75-49         |
| Nandi, District Commissioner's Office, Kapsabet .. .. . | 69-24         |
| Fort Hall, District Commissioner's Office .. .. .       | 46-01         |
| Nyeri, District Commissioner's Office .. .. .           | 36-27         |
| Naro Moru, Kenya Park .. .. .                           | 27-19         |

TABLE V.  
COLONY AND PROTECTORATE OF KENYA  
RETURN OF DISEASES (In-Patients)  
For the Year 1936

| DISEASES                                      | EUROPEAN OFFICIALS                             |                   |              |                     |                                      | EUROPEAN GENERAL POPULATION (NON-OFFICIAL)     |                   |              |                     |                                      | NON-EUROPEAN OFFICIALS (including ASIATICS)    |                   |              |                     |                                                | NATIVE GENERAL POPULATION (including ASIATICS) |              |                     |                                      |  |
|-----------------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|------------------------------------------------|------------------------------------------------|--------------|---------------------|--------------------------------------|--|
|                                               | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Cases remaining in Hospital from previous year | Total Admis- sion                              | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |  |
| 1.—EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES. |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                                |                                                |              |                     |                                      |  |
| 1. Enteric Group—                             |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                                |                                                |              |                     |                                      |  |
| (a) Typhoid Fever                             | ..                                             | 6                 | ..           | 6                   | ..                                   | 4                                              | 5                 | ..           | 9                   | ..                                   | ..                                             | 4                 | ..           | 4                   | 7                                              | 148                                            | 35           | 155                 | 10                                   |  |
| (b) Paratyphoid A.                            | ..                                             | 2                 | ..           | 2                   | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | 2                                              | 1            | 2                   | ..                                   |  |
| (c) Paratyphoid B.                            | ..                                             | 2                 | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | 1                                              | 3                                              | 2            | 4                   | ..                                   |  |
| (d) Type not defined                          | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | 4            | 22                  | ..                                   |  |
| T. A. B. reaction                             | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| 2. Typhus                                     | ..                                             | 4                 | ..           | 4                   | ..                                   | ..                                             | 5                 | ..           | 5                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| 3. Relapsing Fever                            | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | 2                                              | 201                                            | 16           | 203                 | 2                                    |  |
| 4. Undulant Fever                             | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | 8                                              | ..           | 8                   | ..                                   |  |
| 5. Malaria—Clinical                           | ..                                             | 26                | ..           | 26                  | ..                                   | ..                                             | 22                | ..           | 22                  | 1                                    | 1                                              | 219               | ..           | 219                 | 28                                             | 1,456                                          | 15           | 1,484               | 30                                   |  |
| (a) Tertian                                   | ..                                             | 15                | ..           | 15                  | ..                                   | ..                                             | 15                | ..           | 15                  | ..                                   | ..                                             | 3                 | ..           | 3                   | 7                                              | 264                                            | 9            | 271                 | 12                                   |  |
| (b) Quartan                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 8                 | ..           | 8                   | ..                                   | ..                                             | 5                 | ..           | 5                   | 5                                              | 204                                            | 4            | 209                 | 4                                    |  |
| (c) Aestivo-autumnal                          | ..                                             | 66                | ..           | 66                  | ..                                   | ..                                             | 88                | ..           | 88                  | 2                                    | 2                                              | 112               | ..           | 114                 | 32                                             | 2,832                                          | 76           | 2,864               | 26                                   |  |
| (d) Undifferentiated                          | ..                                             | 31                | ..           | 31                  | ..                                   | ..                                             | 4                 | ..           | 4                   | ..                                   | ..                                             | 136               | ..           | 136                 | ..                                             | 289                                            | 9            | 289                 | 3                                    |  |
| (e) Cachexia                                  | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | 43                                             | 3            | 48                  | 3                                    |  |
| (f) Blackwater                                | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 8                 | 3            | 8                   | ..                                   | ..                                             | 1                 | ..           | 1                   | 1                                              | 10                                             | 2            | 11                  | ..                                   |  |
| Cerebral                                      | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | 18                                             | 8            | 18                  | ..                                   |  |
| 6. Smallpox                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | 1                                              | ..           | 1                   | ..                                   |  |
| Vaccinia                                      | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | 6                                              | ..           | 6                   | ..                                   |  |
| Alastrim                                      | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | 1                                              | ..           | 1                   | ..                                   |  |
| 7. Measles                                    | ..                                             | 2                 | ..           | 2                   | ..                                   | ..                                             | 6                 | ..           | 6                   | ..                                   | ..                                             | 1                 | ..           | 1                   | 19                                             | 323                                            | 8            | 342                 | 7                                    |  |
| 8. Scarlet Fever                              | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| 9. Whooping Cough                             | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 3                 | ..           | 3                   | ..                                   | ..                                             | 1                 | ..           | 1                   | 6                                              | 149                                            | 10           | 155                 | 3                                    |  |
| 10. Diphtheria                                | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                             | 4                                              | 4            | 4                   | ..                                   |  |
| 11. Influenza                                 | 2                                              | 101               | ..           | 103                 | 1                                    | ..                                             | 27                | ..           | 27                  | 1                                    | 2                                              | 545               | ..           | 545                 | 25                                             | 1,298                                          | 9            | 1,323               | 37                                   |  |
| 12. Miliary Fever                             | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | 3                                              | 2            | 3                   | 1                                    |  |
| 13. Mumps                                     | ..                                             | 2                 | ..           | 2                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | 2                                              | 276                                            | ..           | 278                 | 17                                   |  |
| 14. Cholera                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| 15. Epidemic Diarrhoea                        | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | 5                                              | ..           | 5                   | ..                                   |  |
| 16. Dysentery—                                | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| (a) Amoebic                                   | 1                                              | 43                | ..           | 44                  | 1                                    | 2                                              | 49                | ..           | 51                  | 1                                    | ..                                             | 7                 | ..           | 7                   | 12                                             | 561                                            | 18           | 573                 | 32                                   |  |
| (b) Bacillary                                 | ..                                             | 3                 | ..           | 3                   | ..                                   | ..                                             | 4                 | ..           | 4                   | ..                                   | ..                                             | ..                | ..           | ..                  | 2                                              | 41                                             | 1            | 43                  | ..                                   |  |
| (c) Undefined or due to other causes          | ..                                             | 3                 | ..           | 3                   | ..                                   | ..                                             | 9                 | ..           | 9                   | ..                                   | ..                                             | 5                 | ..           | 5                   | 6                                              | 321                                            | 23           | 327                 | 25                                   |  |

## RETURN OF DISEASES—IN-PATIENTS—(Contd.)

| DISEASES                                                      | EUROPEAN OFFICIALS                             |                   |              |                     | EUROPEAN GENERAL POPULATION (NON-OFFICIAL) |                                                |                   |              | NON-EUROPEAN OFFICIALS (including ASIATICS) |                                      |                                                |                   | NATIVE GENERAL POPULATION (including ASIATICS) |                     |                                      |    |
|---------------------------------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------------|------------------------------------------------|-------------------|--------------|---------------------------------------------|--------------------------------------|------------------------------------------------|-------------------|------------------------------------------------|---------------------|--------------------------------------|----|
|                                                               | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year       | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated                         | Remaining in Hospital at end of year | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths                                   | Total Cases Treated | Remaining in Hospital at end of year |    |
| I.—EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES—(Contd.)         |                                                |                   |              |                     |                                            |                                                |                   |              |                                             |                                      |                                                |                   |                                                |                     |                                      |    |
| 17. Plague—                                                   |                                                |                   |              |                     |                                            |                                                |                   |              |                                             |                                      |                                                |                   |                                                |                     |                                      |    |
| (a) Bubonic ..                                                | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 1                                              | 85                | 47                                             | 86                  | 1                                    | .. |
| (b) Pneumonic ..                                              | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 12                | 11                                             | 12                  | ..                                   | .. |
| (c) Septicemic ..                                             | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 10                | 8                                              | 10                  | ..                                   | .. |
| (d) Undefined ..                                              | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 3                 | 2                                              | 3                   | ..                                   | .. |
| 18. Yellow Fever ..                                           | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   | .. |
| 19. Spirochaetosis ictero-haemorrhagica ..                    | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   | .. |
| 20. Leprosy ..                                                | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 44                                             | 85                | 6                                              | 129                 | 29                                   | .. |
| 21. Erysipelas ..                                             | ..                                             | 1                 | ..           | 1                   | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 2                                              | 6                 | 1                                              | 6                   | ..                                   | .. |
| 22. Acute Poliomyelitis ..                                    | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 7                 | 1                                              | 9                   | ..                                   | .. |
| 23. Encephalitis Lethargica ..                                | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 1                 | 1                                              | 1                   | ..                                   | .. |
| 24. Epidemic Cerebro-spinal Fever..                           | ..                                             | 1                 | ..           | 1                   | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 9                                              | 285               | 162                                            | 294                 | 4                                    | .. |
| 25. Other Epidemic Diseases—                                  |                                                |                   |              |                     |                                            |                                                |                   |              |                                             |                                      |                                                |                   |                                                |                     |                                      |    |
| (a) Rubella (German Measles)                                  | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 1                 | ..           | 1                                           | ..                                   | 1                                              | 928               | 2                                              | 950                 | 38                                   | .. |
| (b) Varicella (Chicken-pox) ..                                | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 22                                             | ..                | ..                                             | ..                  | ..                                   | .. |
| (c) Kala-azar ..                                              | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   | .. |
| (d) Phlebotomus Fever ..                                      | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   | .. |
| (e) Dengue ..                                                 | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   | .. |
| (f) Epidemic Dropsy ..                                        | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 26                                             | 472               | 7                                              | 498                 | 43                                   | .. |
| (g) Yaws ..                                                   | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 3                                              | 6                 | 2                                              | 9                   | 1                                    | .. |
| (h) Trypanosomiasis ..                                        | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   | .. |
| 26. Glanders ..                                               | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   | .. |
| 27. Anthrax ..                                                | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 4                                              | 67                | 4                                              | 71                  | 4                                    | .. |
| 28. Rabies ..                                                 | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 1                 | ..                                             | 1                   | ..                                   | .. |
| 29. Tetanus ..                                                | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 1                 | 1            | 1                                           | ..                                   | ..                                             | 40                | 25                                             | 40                  | 3                                    | .. |
| 30. Mycosis ..                                                | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 2                 | ..                                             | 2                   | 1                                    | .. |
| 31. Tuberculosis, Pulmonary and Laryngeal ..                  | ..                                             | ..                | ..           | ..                  | ..                                         | 1                                              | 3                 | 1            | 4                                           | ..                                   | 39                                             | 508               | 145                                            | 547                 | 50                                   | .. |
| 32. Tuberculosis of the Meninges or Central Nervous System .. | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 6                 | 4                                              | 6                   | ..                                   | .. |
| 33. Tuberculosis of the Intestines or Peritoneum ..           | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 21                | 5                                              | 21                  | ..                                   | .. |





[illegible]

# RETURN OF DISEASES—IN-PATIENTS—(Contd.)

45

MED

| DISEASES                                                                | EUROPEAN OFFICIALS                             |                   |              |                     |                                      | EUROPEAN GENERAL POPULATION (Non-Official)     |                   |              |                     |                                      | NON-EUROPEAN OFFICIALS (including ASIATICS)    |                   |              |                     |                                                | NATIVE GENERAL POPULATION (including ASIATICS) |              |                     |                                      |  |
|-------------------------------------------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|------------------------------------------------|------------------------------------------------|--------------|---------------------|--------------------------------------|--|
|                                                                         | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Cases remaining in Hospital from previous year | Total Admis- sion                              | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |  |
| III.—AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES—(Contd.) |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                                |                                                |              |                     |                                      |  |
| 75. Paralysis—                                                          |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                                |                                                |              |                     |                                      |  |
| (a) Hemiplegia ..                                                       | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 34                | 3            | 36                  | 2                                              | 34                                             | 3            | 36                  | 1                                    |  |
| (b) Other Paralysis ..                                                  | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | 1                                              | 41                | 3            | 42                  | 1                                              | 41                                             | 3            | 42                  | 4                                    |  |
| 76. General Paralysis of the Insane ..                                  | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| 77. Other forms of Mental Alienation                                    | ..                                             | 2                 | ..           | 2                   | ..                                   | 3                                              | 6                 | 1            | 9                   | 5                                    | ..                                             | 203               | 7            | 397                 | 194                                            | 203                                            | 7            | 397                 | 216                                  |  |
| 78. Epilepsy ..                                                         | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | 2                                              | 62                | 4            | 64                  | 2                                              | 62                                             | 4            | 64                  | 1                                    |  |
| 79. Eclampsia .. (non-puerperal) 5 years or over                        | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | 1            | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| 80. Infantile Convulsions ..                                            | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 5                 | 4            | 5                   | ..                                             | 5                                              | 4            | 5                   | 1                                    |  |
| 81. Chorea ..                                                           | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 22                | ..           | 22                  | ..                                             | 22                                             | ..           | 22                  | ..                                   |  |
| 82. A.—Hysteria ..                                                      | ..                                             | 3                 | ..           | 3                   | ..                                   | ..                                             | 2                 | ..           | 2                   | ..                                   | ..                                             | 15                | ..           | 15                  | 2                                              | 15                                             | ..           | 15                  | 1                                    |  |
| B.—Neuritis ..                                                          | ..                                             | 3                 | ..           | 3                   | ..                                   | ..                                             | 4                 | ..           | 4                   | 1                                    | ..                                             | 17                | ..           | 17                  | ..                                             | 17                                             | ..           | 17                  | ..                                   |  |
| C.—Neurasthenia ..                                                      | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | 1                                              | 40                | ..           | 41                  | ..                                             | 40                                             | ..           | 41                  | 2                                    |  |
| D.—Neuralgia ..                                                         | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| E.—Headache ..                                                          | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 8                 | ..           | 8                   | ..                                             | 8                                              | ..           | 8                   | ..                                   |  |
| F.—Neurosis ..                                                          | 1                                              | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| 83. Cerebral Softening ..                                               | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| " Abscess ..                                                            | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| 84. Other affections of the Nervous System, such as Paralysis           | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 2                 | ..           | 2                   | ..                                   | ..                                             | 1                 | ..           | 1                   | 1                                              | 39                                             | 3            | 40                  | 2                                    |  |
| Agitans ..                                                              | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| 85. Affections of the Organs of Vision                                  | ..                                             | 4                 | ..           | 4                   | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 20                | ..           | 20                  | 5                                              | 348                                            | ..           | 353                 | 11                                   |  |
| (a) Conjunctivitis ..                                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 5                 | ..           | 5                   | 3                                              | 48                                             | 1            | 51                  | 5                                    |  |
| (b) Trachoma ..                                                         | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 3                 | ..           | 3                   | 2                                              | 8                                              | ..           | 10                  | ..                                   |  |
| (c) Tumours of the Eye ..                                               | ..                                             | 3                 | ..           | 3                   | ..                                   | ..                                             | 4                 | ..           | 4                   | ..                                   | ..                                             | 21                | ..           | 21                  | 15                                             | 363                                            | ..           | 378                 | 26                                   |  |
| (d) Other affections of the Eye                                         | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| 86. Affections of the Ear or Mastoid                                    | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 9                 | ..           | 9                   | ..                                   | ..                                             | 4                 | ..           | 4                   | 4                                              | 169                                            | 2            | 173                 | 6                                    |  |
| Sinus ..                                                                | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 3                 | ..           | 3                   | ..                                             | 3                                              | ..           | 3                   | ..                                   |  |
| Concussion ..                                                           | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 4                 | ..           | 4                   | ..                                             | 14                                             | ..           | 14                  | 1                                    |  |
| Sciatica ..                                                             | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| Insomnia ..                                                             | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| Cerebral Haemorrhage                                                    | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |
| " Laceration ..                                                         | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | 1                                              | 1            | 1                   | ..                                   |  |
| " Abscess ..                                                            | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 2                 | ..           | 2                   | ..                                             | 2                                              | 2            | 2                   | ..                                   |  |
| IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM.                               |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                                |                                                |              |                     |                                      |  |
| 87. Pericarditis ..                                                     | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | 1                                              | 6                 | 4            | 7                   | 1                                              | 6                                              | 4            | 7                   | ..                                   |  |
| 88. Acute Endocarditis or Myocarditis ..                                | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | 1            | 1                   | ..                                   | 1                                              | 15                | 1            | 16                  | 1                                              | 15                                             | 1            | 16                  | 1                                    |  |
| 89. Angina Pectoris ..                                                  | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                             | ..                                             | ..           | ..                  | ..                                   |  |

# RETURN OF DISEASES—IN-PATIENTS—(Contd.)

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| DISEASES                                          | EUROPEAN OFFICIALS                             |                 |              |                     | EUROPEAN GENERAL POPULATION (NON-OFFICIAL) |                                                |                 |              | NON-EUROPEAN OFFICIALS (including ASIATICS) |                                      |                                                |                 | NATIVE GENERAL POPULATION (including ASIATICS) |                     |                                      |    |
|---------------------------------------------------|------------------------------------------------|-----------------|--------------|---------------------|--------------------------------------------|------------------------------------------------|-----------------|--------------|---------------------------------------------|--------------------------------------|------------------------------------------------|-----------------|------------------------------------------------|---------------------|--------------------------------------|----|
|                                                   | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year       | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated                         | Remaining in Hospital at end of year | Cases remaining in Hospital from previous year | Total Admission | Total Deaths                                   | Total Cases Treated | Remaining in Hospital at end of year |    |
| IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM—(Contd.) |                                                |                 |              |                     |                                            |                                                |                 |              |                                             |                                      |                                                |                 |                                                |                     |                                      |    |
| 90. Other Diseases of the Heart—                  |                                                |                 |              |                     |                                            |                                                |                 |              |                                             |                                      |                                                |                 |                                                |                     |                                      |    |
| (a) Valvular—                                     |                                                |                 |              |                     |                                            |                                                |                 |              |                                             |                                      |                                                |                 |                                                |                     |                                      |    |
| Mitral ..                                         | 2                                              | 1               | ..           | 2                   | 1                                          | 1                                              | 3               | ..           | 4                                           | ..                                   | ..                                             | 1               | 8                                              | 27                  | ..                                   | .. |
| Aortic ..                                         | 1                                              | 1               | ..           | 1                   | ..                                         | 1                                              | 2               | ..           | 1                                           | ..                                   | ..                                             | 3               | 10                                             | 41                  | ..                                   | 1  |
| Tricuspid ..                                      | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | 7                                              | 36                  | ..                                   | .. |
| Pulmonary ..                                      | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | 3                                              | 12                  | ..                                   | .. |
| (b) Myocarditis ..                                | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | 6               | 3            | 6                                           | ..                                   | ..                                             | ..              | ..                                             | ..                  | 1                                    | .. |
| 91. Diseases of the Arteries—                     | 1                                              | 3               | ..           | 4                   | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | 10              | 6                                              | 10                  | ..                                   | .. |
| (a) Aneurism ..                                   | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | 4                                              | 4                   | ..                                   | .. |
| (b) Arterio-sclerosis ..                          | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | 1               | ..           | 1                                           | ..                                   | ..                                             | 1               | 1                                              | 2                   | ..                                   | .. |
| (c) Other Diseases ..                             | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | ..                                             | 1                   | ..                                   | .. |
| 92. Embolism or Thrombosis (non-cerebral) ..      | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | 2               | ..           | 2                                           | 1                                    | ..                                             | ..              | 3                                              | 2                   | 3                                    | .. |
| 93. Diseases of the Veins—                        | 9                                              | 9               | ..           | 9                   | 1                                          | ..                                             | ..              | 1            | 9                                           | ..                                   | ..                                             | 11              | ..                                             | ..                  | 21                                   | .. |
| Hæmorrhoids ..                                    | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | 9               | 1            | ..                                          | ..                                   | ..                                             | ..              | ..                                             | ..                  | 3                                    | 1  |
| Varicose Veins ..                                 | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | 1               | ..           | 1                                           | 1                                    | ..                                             | ..              | 9                                              | 9                   | 1                                    | 1  |
| Phlebitis ..                                      | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | ..                                             | ..                  | ..                                   | .. |
| 94. Diseases of the Lymphatic System—             | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | 5                                              | 6                   | ..                                   | .. |
| Lymphangitis ..                                   | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | 1               | ..           | 1                                           | ..                                   | ..                                             | ..              | 13                                             | 13                  | ..                                   | .. |
| Lymphadenitis, Bubo (non-specific) ..             | 1                                              | 1               | ..           | 1                   | ..                                         | ..                                             | 6               | ..           | 6                                           | ..                                   | ..                                             | 3               | 1                                              | 186                 | 9                                    | .. |
| Adenitis ..                                       | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | ..                                             | ..                  | ..                                   | .. |
| 95. Hæmorrhage of undetermined cause ..           | 4                                              | 4               | ..           | 4                   | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | 9               | 1                                              | 9                   | ..                                   | .. |
| 96. Other affections of the Circulatory System .. | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | 7               | ..           | 7                                           | ..                                   | ..                                             | 12              | 3                                              | 12                  | ..                                   | .. |
| Epistaxis ..                                      | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | ..                                             | ..                  | ..                                   | .. |
| Pink Disease ..                                   | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | ..                                             | ..                  | ..                                   | .. |
| V.—AFFECTIONS OF THE RESPIRATORY SYSTEM           |                                                |                 |              |                     |                                            |                                                |                 |              |                                             |                                      |                                                |                 |                                                |                     |                                      |    |
| 97. Diseases of the Nasal Passages—               | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | ..                                             | ..                  | ..                                   | .. |
| Adenoids ..                                       | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | 6               | ..           | 6                                           | 1                                    | ..                                             | 2               | ..                                             | 18                  | 1                                    | .. |
| Polypus ..                                        | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | ..                                             | 2                   | 2                                    | .. |
| Rhinitis ..                                       | 2                                              | 2               | ..           | 2                   | 1                                          | ..                                             | 2               | ..           | 2                                           | ..                                   | ..                                             | 5               | ..                                             | 14                  | 1                                    | .. |
| Coryza ..                                         | 3                                              | 3               | ..           | 3                   | ..                                         | ..                                             | 2               | ..           | 2                                           | ..                                   | ..                                             | 25              | ..                                             | 123                 | 1                                    | .. |
| Sinusitis ..                                      | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | ..              | ..                                             | ..                  | ..                                   | .. |
| Epistaxis ..                                      | ..                                             | ..              | ..           | ..                  | ..                                         | ..                                             | ..              | ..           | ..                                          | ..                                   | ..                                             | 2               | ..                                             | 2                   | 2                                    | .. |



## RETURN OF DISEASES—IN-PATIENTS—(Contd.)

| DISEASES                                             | EUROPEAN OFFICIALS                             |                   |              |                     | EUROPEAN GENERAL POPULATION (Non-Official) |                                                |                   |              | Non-EUROPEAN OFFICIALS (including ASIATICS) |                                                |                   |              | NATIVE GENERAL POPULATION (including ASIATICS) |                                                |                   |              |
|------------------------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------------|------------------------------------------------|-------------------|--------------|---------------------------------------------|------------------------------------------------|-------------------|--------------|------------------------------------------------|------------------------------------------------|-------------------|--------------|
|                                                      | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year       | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated                         | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated                            | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths |
| VI.—DISEASES OF THE DIGESTIVE SYSTEM—(Contd.)        |                                                |                   |              |                     |                                            |                                                |                   |              |                                             |                                                |                   |              |                                                |                                                |                   |              |
| 110. Affections of the Oesophagus                    | ..                                             | 1                 | ..           | ..                  | ..                                         | ..                                             | 2                 | ..           | 2                                           | ..                                             | ..                | ..           | ..                                             | ..                                             | 9                 | 5            |
| 111. A.—Ulcer of the Stomach                         | ..                                             | 3                 | ..           | 3                   | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | 8                 | 1            | 8                                              | ..                                             | 8                 | ..           |
| B.—Ulcer of the Duodenum                             | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | 7                 | ..           | 7                                              | 2                                              | 7                 | 2            |
| 112. Other affections of the Stomach—                | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 1                 | ..           | 1                                           | ..                                             | 99                | 8            | 100                                            | ..                                             | 100               | ..           |
| Gastritis .. .. .                                    | ..                                             | 14                | ..           | 14                  | ..                                         | ..                                             | 12                | ..           | 12                                          | ..                                             | 92                | ..           | 92                                             | ..                                             | 92                | ..           |
| Dyspepsia .. .. .                                    | ..                                             | 3                 | ..           | 3                   | ..                                         | ..                                             | 4                 | ..           | 4                                           | ..                                             | ..                | ..           | ..                                             | ..                                             | ..                | ..           |
| 113. Diarrhoea and Enteritis—                        | ..                                             | 9                 | ..           | 9                   | ..                                         | ..                                             | 10                | ..           | 10                                          | ..                                             | 180               | 30           | 183                                            | 1                                              | 183               | 1            |
| Under two years .. .. .                              | ..                                             | 16                | ..           | 16                  | ..                                         | ..                                             | 13                | ..           | 13                                          | ..                                             | 192               | 15           | 199                                            | 2                                              | 199               | 2            |
| 114. Diarrhoea and Enteritis—                        | ..                                             | 1                 | ..           | 1                   | ..                                         | ..                                             | 3                 | ..           | 3                                           | ..                                             | 16                | ..           | 16                                             | ..                                             | 16                | ..           |
| Two years and over .. .. .                           | ..                                             | 24                | ..           | 24                  | 1                                          | ..                                             | 10                | ..           | 10                                          | ..                                             | 52                | 1            | 54                                             | ..                                             | 54                | ..           |
| Colic .. .. .                                        | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | ..                | ..           | ..                                             | ..                                             | ..                | ..           |
| Colitis .. .. .                                      | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | 6                 | ..           | 6                                              | ..                                             | 6                 | ..           |
| Gastro Enteritis .. .. .                             | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | ..                | ..           | ..                                             | ..                                             | ..                | ..           |
| Ulceration .. .. .                                   | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | ..                | ..           | ..                                             | ..                                             | ..                | ..           |
| 114A. Sprue .. .. .                                  | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | ..                | ..           | ..                                             | ..                                             | ..                | ..           |
| Septic Throat .. .. .                                | ..                                             | 2                 | ..           | 2                   | ..                                         | ..                                             | 7                 | ..           | 7                                           | ..                                             | 789               | 2            | 781                                            | ..                                             | 781               | 44           |
| 115. Ankylostomiasis .. .. .                         | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | ..                | ..           | ..                                             | ..                                             | ..                | ..           |
| 116. Diseases due to Intestinal Para- sites          | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 2                 | ..           | 2                                           | ..                                             | 1,064             | ..           | 1,039                                          | 7                                              | 1,039             | 7            |
| (a) Cestoda (Taenia) .. .. .                         | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 1                 | ..           | 1                                           | ..                                             | 17                | ..           | 18                                             | ..                                             | 18                | ..           |
| (b) Trematoda (Flukes) .. .. .                       | ..                                             | 1                 | ..           | 1                   | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | ..                | ..           | ..                                             | ..                                             | ..                | ..           |
| (c) Nematoda (other than Ankylostoma) .. .. .        | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 2                 | ..           | 2                                           | ..                                             | 7                 | ..           | 7                                              | ..                                             | 7                 | ..           |
| Ascariis .. .. .                                     | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | 811               | 2            | 829                                            | 18                                             | 829               | 24           |
| Trichocephalus dispar. .. .. .                       | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | 101               | ..           | 105                                            | 4                                              | 105               | 5            |
| Trichina .. .. .                                     | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | 12                | ..           | 12                                             | ..                                             | 12                | ..           |
| Dracunculus .. .. .                                  | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | 40                | ..           | 40                                             | ..                                             | 40                | 3            |
| Strongylus .. .. .                                   | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | 15                | ..           | 15                                             | ..                                             | 15                | 3            |
| Oxyuris .. .. .                                      | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | ..                | ..           | ..                                             | ..                                             | ..                | ..           |
| (d) Coccidia .. .. .                                 | ..                                             | 1                 | ..           | 1                   | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | 30                | 1            | 31                                             | 1                                              | 31                | ..           |
| (e) Other Parasites .. .. .                          | ..                                             | 1                 | ..           | 1                   | ..                                         | ..                                             | 1                 | ..           | 1                                           | ..                                             | 526               | ..           | 542                                            | 16                                             | 542               | 10           |
| (f) Unclassified .. .. .                             | ..                                             | 14                | ..           | 14                  | 2                                          | ..                                             | 44                | ..           | 48                                          | ..                                             | 52                | 5            | 54                                             | 2                                              | 54                | 3            |
| 117. Appendicitis .. .. .                            | ..                                             | 1                 | ..           | 1                   | ..                                         | ..                                             | 11                | ..           | 11                                          | ..                                             | 170               | 6            | 180                                            | 10                                             | 180               | 8            |
| 118. Hernia .. .. .                                  | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | 2                 | 2            | 2                                              | ..                                             | 2                 | ..           |
| Volvulus .. .. .                                     | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                             | ..                | ..           | ..                                             | ..                                             | ..                | ..           |
| 119. A.—Affections of the Anus—Fistula, etc. .. .. . | ..                                             | 1                 | ..           | 1                   | ..                                         | ..                                             | 5                 | ..           | 5                                           | ..                                             | 27                | ..           | 28                                             | 1                                              | 28                | ..           |



## RETURN OF DISEASES—IN-PATIENTS—(Contd.)

| DISEASES                                                  | EUROPEAN OFFICIALS                             |                   |              |                     |                                      | EUROPEAN GENERAL POPULATION (NON-OFFICIAL)     |                   |              |                     |                                      | NON-EUROPEAN OFFICIALS (including ASIATICS)    |                   |              |                     |                                      | NATIVE GENERAL POPULATION (including ASIATICS) |                   |              |                     |                                      |
|-----------------------------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------|
|                                                           | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| VII.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL) |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |
| —(Contd.)                                                 |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |
| 134. Diseases of the Urethra—                             |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |
| (a) Stricture ..                                          | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 2                 | ..           | 2                   | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 30                | 3            | 30                  | 3                                    |
| (b) Other ..                                              | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 35                | 1            | 36                  | 1                                    |
| 135. Diseases of the Prostate—                            |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |
| Hypertrophy ..                                            | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 2                 | ..           | 2                   | ..                                   |
| Prostatitis ..                                            | ..                                             | 2                 | ..           | 2                   | ..                                   | ..                                             | 3                 | ..           | 3                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 17                | 1            | 17                  | 1                                    |
| 136. Diseases (Non-veneral) of the Genital Organs of Man  |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |
| Epididymitis ..                                           | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 2                 | ..           | ..                  | ..                                   | ..                                             | 167               | 1            | 169                 | 1                                    |
| Orchitis ..                                               | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 4                 | ..           | 4                   | ..                                   | ..                                             | 1                 | ..           | 2                   | ..                                   | ..                                             | 17                | ..           | 18                  | ..                                   |
| Hydrocele ..                                              | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 4                 | ..           | 2                   | ..                                   | ..                                             | 66                | ..           | 66                  | ..                                   |
| Ulcer of Penis ..                                         | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 79                | ..           | 83                  | 4                                    |
| Phymosis ..                                               | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 17                | ..           | 18                  | ..                                   |
| 137. Cysts or other Non-malignant Tumours of the Ovaries  |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |
| Salpingitis—                                              |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |
| Abscess of the Pelvis ..                                  | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 2                 | ..           | ..                  | ..                                   | ..                                             | 38                | ..           | 40                  | ..                                   |
| 139. Uterine Tumours (Non-malignant) ..                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 2                 | ..           | 2                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 42                | 1            | 42                  | 1                                    |
| 140. Uterine Haemorrhage (Non- puerperal) ..              | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 12                | 1            | 12                  | ..                                   |
| 141. A.—Metritis ..                                       | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 16                | 1            | 16                  | 1                                    |
| B.—Other affections of the Female Genital Organs ..       | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 22                | 1            | 23                  | ..                                   | ..                                             | 3                 | ..           | ..                  | ..                                   | ..                                             | 112               | 3            | 115                 | 12                                   |
| Displacement of Uterus ..                                 | ..                                             | 1                 | ..           | 1                   | ..                                   | 1                                              | ..                | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 37                | ..           | 37                  | ..                                   |
| Amenorrhœa ..                                             | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 5                 | ..           | 5                   | ..                                   |
| Leucorrhœa ..                                             | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 5                 | ..           | 5                   | ..                                   |
| Dysmenorrhœa ..                                           | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 3                 | ..           | 3                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 43                | ..           | 43                  | 2                                    |
| 142. Diseases of the Breast (Non- puerperal)—             |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |                                                |                   |              |                     |                                      |
| Mastitis ..                                               | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   |
| Abscess of Breast ..                                      | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | 1                   | ..                                   | ..                                             | 1                 | ..           | ..                  | ..                                   | ..                                             | 36                | 2            | 37                  | 2                                    |
| Tumour ..                                                 | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 18                | ..           | 18                  | 1                                    |
| Prosalpinx ..                                             | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   | ..                                             | 1                 | ..           | ..                  | ..                                   | ..                                             | ..                | ..           | ..                  | ..                                   |

## RETURN OF DISEASES—IN-PATIENTS—(Contd.)

| DISEASES                                         | EUROPEAN OFFICIALS                             |                   |              |                     | EUROPEAN GENERAL POPULATION (NON-OFFICIAL) |                                                |                   |              | NON-EUROPEAN OFFICIALS (including ASIATICS) |                                      |                                                |                   | NATIVE GENERAL POPULATION (including ASIATICS) |                     |                                      |    |
|--------------------------------------------------|------------------------------------------------|-------------------|--------------|---------------------|--------------------------------------------|------------------------------------------------|-------------------|--------------|---------------------------------------------|--------------------------------------|------------------------------------------------|-------------------|------------------------------------------------|---------------------|--------------------------------------|----|
|                                                  | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year       | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths | Total Cases Treated                         | Remaining in Hospital at end of year | Cases remaining in Hospital from previous year | Total Admis- sion | Total Deaths                                   | Total Cases Treated | Remaining in Hospital at end of year |    |
| VIII.—PUERPERAL STATE.                           |                                                |                   |              |                     |                                            |                                                |                   |              |                                             |                                      |                                                |                   |                                                |                     |                                      |    |
| 143. A.—Normal Labour ..                         | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 11                | ..           | 11                                          | ..                                   | ..                                             | 35                | 1,062                                          | 3                   | 1,097                                | 28 |
| B.—Accidents of Pregnancy—                       | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   | .. |
| (a) Abortion ..                                  | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 7                 | ..           | 7                                           | ..                                   | 2                                              | 155               | 1                                              | 157                 | 4                                    |    |
| (b) Ectopic Gestation ..                         | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 3                 | ..           | 3                                           | ..                                   | ..                                             | 9                 | 4                                              | 9                   | 1                                    |    |
| (c) Other accidents of Pregnancy                 | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 5                 | ..           | 5                                           | ..                                   | 8                                              | 254               | 23                                             | 262                 | 9                                    |    |
| 144. Puerperal Haemorrhage ..                    | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 10                | 3                                              | 10                  | ..                                   |    |
| 145. Other accidents of Parturition ..           | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 1                                              | 94                | 18                                             | 95                  | 6                                    |    |
| 146. Puerperal Septicæmia ..                     | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 32                | 14                                             | 32                  | 1                                    |    |
| 147. Phlegmasia Dolens ..                        | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 1                 | ..                                             | 1                   | 1                                    |    |
| 148. Puerperal Eclampsia ..                      | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 2                                              | 47                | 4                                              | 49                  | ..                                   |    |
| 149. Sequelæ of Labour ..                        | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 2                 | ..                                             | 2                   | ..                                   |    |
| 150. Puerperal affections of the Breast          | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 1                                              | 2                 | ..                                             | 3                   | ..                                   |    |
| Caesarian Section ..                             | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   |    |
| IX.—AFFECTIONS OF THE SKIN AND CELLULAR TISSUES. |                                                |                   |              |                     |                                            |                                                |                   |              |                                             |                                      |                                                |                   |                                                |                     |                                      |    |
| 151. Gangrene ..                                 | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | 38                                             | 11                  | 38                                   | 3  |
| 152. Boil ..                                     | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 58                | ..                                             | 59                  | 5                                    |    |
| Carbuncle ..                                     | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 1                 | ..           | 1                                           | ..                                   | 1                                              | 30                | ..                                             | 31                  | ..                                   |    |
| 153. Abscess ..                                  | ..                                             | ..                | ..           | ..                  | ..                                         | 2                                              | 23                | ..           | 25                                          | ..                                   | 36                                             | 814               | 10                                             | 850                 | 35                                   |    |
| Whitlow ..                                       | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 2                 | ..           | 2                                           | ..                                   | 3                                              | 42                | ..                                             | 45                  | 2                                    |    |
| Cellulitis ..                                    | ..                                             | ..                | 1            | 16                  | 1                                          | ..                                             | 14                | ..           | 14                                          | 1                                    | 8                                              | 430               | 8                                              | 438                 | 26                                   |    |
| 154. A.—Tinea ..                                 | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | 1                 | ..           | 1                                           | ..                                   | ..                                             | 7                 | ..                                             | 7                   | ..                                   |    |
| B.—Scabies ..                                    | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 5                                              | 124               | ..                                             | 129                 | 4                                    |    |
| Cancerum Oris ..                                 | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   |    |
| 155. Other Diseases of the Skin—                 | ..                                             | ..                | ..           | ..                  | ..                                         | 1                                              | 5                 | ..           | 6                                           | ..                                   | 5                                              | 161               | 5                                              | 166                 | 6                                    |    |
| Erythema ..                                      | ..                                             | 2                 | ..           | 2                   | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 3                                              | 12                | ..                                             | 15                  | ..                                   |    |
| Urticaria ..                                     | ..                                             | 1                 | ..           | 1                   | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 24                | ..                                             | 24                  | ..                                   |    |
| Eczema ..                                        | ..                                             | 2                 | ..           | 2                   | ..                                         | ..                                             | 1                 | ..           | 1                                           | ..                                   | 4                                              | 79                | ..                                             | 83                  | 5                                    |    |
| Herpes ..                                        | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 17                | ..                                             | 17                  | ..                                   |    |
| Dermatitis ..                                    | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   |    |
| Impetigo ..                                      | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   |    |
| Psoriasis ..                                     | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   |    |
| Elephantiasis ..                                 | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 5                                              | 53                | 2                                              | 58                  | 4                                    |    |
| Myiasis ..                                       | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | 3                 | ..                                             | 3                   | ..                                   |    |
| Chigoes ..                                       | ..                                             | 1                 | ..           | 1                   | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | 8                                              | 63                | ..                                             | 71                  | 5                                    |    |
| Curaneous Leishmaniasis                          | ..                                             | ..                | ..           | ..                  | ..                                         | ..                                             | ..                | ..           | ..                                          | ..                                   | ..                                             | ..                | ..                                             | ..                  | ..                                   |    |
| Ulcers ..                                        | ..                                             | 3                 | ..           | 3                   | ..                                         | 1                                              | 4                 | ..           | 5                                           | ..                                   | 333                                            | 4,473             | 26                                             | 4,806               | 342                                  |    |

## RETURN OF DISEASES—IN-PATIENTS—(Contd.)

| DISEASES                                                                      | EUROPEAN OFFICIALS                                   |                      |              |                        |                                            | EUROPEAN GENERAL POPULATION<br>(Non-Official)        |                      |              |                        |                                            | NON-EUROPEAN OFFICIALS<br>(including ASIATICS)       |                      |              |                        |                                            | NATIVE GENERAL POPULATION<br>(including ASIATICS)    |                      |              |                        |                                            |    |
|-------------------------------------------------------------------------------|------------------------------------------------------|----------------------|--------------|------------------------|--------------------------------------------|------------------------------------------------------|----------------------|--------------|------------------------|--------------------------------------------|------------------------------------------------------|----------------------|--------------|------------------------|--------------------------------------------|------------------------------------------------------|----------------------|--------------|------------------------|--------------------------------------------|----|
|                                                                               | Cases remaining<br>in Hospital from<br>previous year | Total Admis-<br>sion | Total Deaths | Total Cases<br>Treated | Remaining in<br>Hospital at end<br>of year | Cases remaining<br>in Hospital from<br>previous year | Total Admis-<br>sion | Total Deaths | Total Cases<br>Treated | Remaining in<br>Hospital at end<br>of year | Cases remaining<br>in Hospital from<br>previous year | Total Admis-<br>sion | Total Deaths | Total Cases<br>Treated | Remaining in<br>Hospital at end<br>of year | Cases remaining<br>in Hospital from<br>previous year | Total Admis-<br>sion | Total Deaths | Total Cases<br>Treated | Remaining in<br>Hospital at end<br>of year |    |
| X.—DISEASES OF BONES AND<br>ORGANS OF LOCOMOTION (OTHER<br>THAN TUBERCULOUS). |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |    |
| 156. Diseases of Bones—                                                       |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |    |
| Osteitis .. .. .                                                              | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 5                    | ..           | ..                     | ..                                         | ..                                                   | 1                    | ..           | ..                     | ..                                         | ..                                                   | 8                    | 3            | 107                    | ..                                         | 9  |
| 157. Diseases of Joints—                                                      |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |    |
| Arthritis .. .. .                                                             | ..                                                   | 1                    | ..           | 1                      | ..                                         | ..                                                   | 2                    | ..           | ..                     | ..                                         | ..                                                   | 2                    | ..           | 2                      | ..                                         | ..                                                   | 10                   | 7            | 10                     | ..                                         | 15 |
| Synovitis .. .. .                                                             | ..                                                   | 4                    | ..           | 4                      | ..                                         | ..                                                   | 1                    | ..           | ..                     | ..                                         | 1                                                    | 3                    | ..           | 4                      | ..                                         | 9                                                    | 167                  | 1            | 176                    | 14                                         | 14 |
| 158. Other Diseases of Bones or Organs<br>of Locomotion .. .. .               | ..                                                   | 2                    | ..           | 2                      | ..                                         | ..                                                   | 6                    | ..           | ..                     | ..                                         | ..                                                   | 4                    | ..           | 4                      | ..                                         | 28                                                   | 400                  | 4            | 428                    | 29                                         | 2  |
| Myalgia .. .. .                                                               | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 1                    | ..           | ..                     | ..                                         | ..                                                   | 8                    | ..           | 8                      | ..                                         | 1                                                    | 109                  | ..           | 110                    | ..                                         | .. |
| XI.—MALFORMATIONS.                                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |    |
| 159. Malformations .. .. .                                                    | ..                                                   | 1                    | ..           | 1                      | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 7                    | ..           | 7                      | ..                                         | .. |
| Hydrocephalus .. .. .                                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 1                    | ..           | 1                      | ..                                         | .. |
| Hypospadias .. .. .                                                           | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | .. |
| Spina Bifida .. .. .                                                          | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 1                    | ..           | 1                      | ..                                         | .. |
| XII.—DISEASES OF INFANCY.                                                     |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |    |
| 160. Congenital Debility .. .. .                                              | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | 3                                                    | 23                   | 9            | 26                     | 1                                          | 1  |
| 161. Premature Birth .. .. .                                                  | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 15                   | 11           | 15                     | ..                                         | .. |
| 162. Other affections of Infancy .. .. .                                      | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 3                    | ..           | ..                     | 1                                          | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 32                   | 8            | 32                     | 1                                          | 1  |
| Inanition .. .. .                                                             | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | .. |
| Marasmus .. .. .                                                              | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 45                   | 21           | 45                     | ..                                         | .. |
| 163. Infant neglect (infants of three<br>months or over) .. .. .              | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 1                    | ..           | 1                      | ..                                         | .. |
| XIII.—AFFECTIONS OF OLD AGE.                                                  |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |                                                      |                      |              |                        |                                            |    |
| 164. Senility—                                                                | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | 1                                                    | 37                   | 19           | 38                     | 1                                          | 1  |
| Senile Dementia .. .. .                                                       | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | .. |
| Apoplexy .. .. .                                                              | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | ..                   | ..           | ..                     | ..                                         | ..                                                   | 1                    | 1            | 1                      | ..                                         | .. |

### RETURN OF DISEASES—IN-PATIENTS—(Contd.)

[illegible]





TABLE VI.  
COLONY AND PROTECTORATE OF KENYA.  
RETURN OF DISEASES (Out-Patients).  
NUMBERS TREATED DURING THE YEAR 1935.

| DISEASES                                      | EUROPEAN OFFICIALS |        |       | EUROPEAN GENERAL POPULATION (NON-OFFICIAL) |        |       | NON-EUROPEAN OFFICIALS (including ASIATICS) |        |       | NATIVE GENERAL POPULATION (including ASIATICS) |        |        |
|-----------------------------------------------|--------------------|--------|-------|--------------------------------------------|--------|-------|---------------------------------------------|--------|-------|------------------------------------------------|--------|--------|
|                                               | Male               | Female | Total | Male                                       | Female | Total | Male                                        | Female | Total | Male                                           | Female | Total  |
| I.—EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES. |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| 1. Enteric Group—                             |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| (a) Typhoid Fever ..                          | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 1                                              | ..     | 1      |
| (b) Paratyphoid A ..                          | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| (c) Paratyphoid B ..                          | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| (d) Type not defined ..                       | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| T.A.B. Reaction ..                            | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 2. Typhus ..                                  | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 3. Relapsing Fever ..                         | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 4. Undulant Fever ..                          | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 5. Malaria—                                   |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| Clinical ..                                   | 16                 | ..     | 16    | 11                                         | 9      | 20    | 135                                         | ..     | ..    | 10,641                                         | 2,574  | 13,215 |
| (a) Tertian ..                                | 9                  | ..     | 9     | 1                                          | ..     | 1     | 5                                           | ..     | ..    | 274                                            | 120    | 394    |
| (b) Quartan ..                                | ..                 | 4      | 4     | 3                                          | ..     | 3     | 1                                           | 4      | ..    | 438                                            | 110    | 548    |
| (c) Aestivo-autumnal ..                       | 33                 | 5      | 38    | 34                                         | 22     | 56    | 32                                          | 3      | 35    | 4,184                                          | 1,378  | 5,562  |
| Cerebral ..                                   | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| (d) Undifferentiated ..                       | 13                 | 9      | 22    | ..                                         | ..     | ..    | 43                                          | 8      | 51    | 5,478                                          | 998    | 6,476  |
| (e) Cachexia ..                               | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 356                                            | 76     | 432    |
| (f) Blackwater ..                             | ..                 | ..     | ..    | 1                                          | 1      | 2     | ..                                          | ..     | ..    | 3                                              | ..     | 3      |
| Vaccinia ..                                   | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 6. Smallpox ..                                | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| Alastrim ..                                   | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 7. Measles ..                                 | 3                  | 1      | 4     | 4                                          | ..     | 4     | 1                                           | ..     | 1     | 1                                              | 130    | 392    |
| 8. Scarlet Fever ..                           | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 9. Whooping Cough ..                          | 8                  | ..     | 8     | 3                                          | 3      | 6     | 12                                          | 2      | 14    | 651                                            | 723    | 1,374  |
| 10. Diphtheria ..                             | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 11. Influenza ..                              | 116                | 49     | 165   | 12                                         | 15     | 27    | 718                                         | 54     | 772   | 13,156                                         | 1,228  | 14,384 |
| 12. Miliary Fever ..                          | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 13. Mumps ..                                  | 3                  | ..     | 3     | ..                                         | ..     | ..    | 4                                           | 2      | 6     | 648                                            | 227    | 875    |
| 14. Cholera ..                                | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 15. Epidemic Diarrhoea ..                     | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 136                                            | 124    | 260    |
| 16. Dysentery ..                              | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| (a) Amoebic ..                                | 49                 | 8      | 57    | 16                                         | 8      | 24    | 17                                          | ..     | 17    | 313                                            | 154    | 467    |
| (b) Bacillary ..                              | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 36                                             | 5      | 41     |
| (c) Undefined or due to other causes ..       | 2                  | ..     | 2     | 6                                          | 1      | 7     | 5                                           | 1      | 6     | 427                                            | 117    | 544    |











## RETURN OF DISEASES—OUT-PATIENTS—(Contd.)

| DISEASES                                          | EUROPEAN OFFICIALS |        |       | EUROPEAN GENERAL POPULATION (NON-OFFICIAL) |        |       | NON-EUROPEAN OFFICIALS (including ASIATICS) |        |       | NATIVE GENERAL POPULATION (including ASIATICS) |        |        |
|---------------------------------------------------|--------------------|--------|-------|--------------------------------------------|--------|-------|---------------------------------------------|--------|-------|------------------------------------------------|--------|--------|
|                                                   | Male               | Female | Total | Male                                       | Female | Total | Male                                        | Female | Total | Male                                           | Female | Total  |
| IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM—(Contd.) |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| 93. Diseases of the Veins—                        |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| Hæmorrhoids ..                                    | 8                  | 9      | 17    | ..                                         | 1      | 1     | 18                                          | 2      | 20    | 54                                             | 16     | 70     |
| Varicose Veins ..                                 | 1                  | ..     | 1     | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 22                                             | 1      | 23     |
| Phlebitis ..                                      | ..                 | ..     | ..    | 1                                          | ..     | 1     | ..                                          | ..     | ..    | 5                                              | 1      | 6      |
| 94. Diseases of the Lymphatic System—             |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| Adenitis ..                                       | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 47                                             | 21     | 68     |
| Lymphangitis ..                                   | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| Lymphadenitis, Bubo (non-specific) ..             | 4                  | 1      | 5     | ..                                         | 3      | 3     | 6                                           | ..     | 6     | 25                                             | 9      | 34     |
| 95. Hæmorrhage of undetermined cause ..           | ..                 | ..     | ..    | 1                                          | ..     | 1     | ..                                          | ..     | ..    | 572                                            | 187    | 759    |
| 96. Other affections of the Circulatory System .. | 3                  | ..     | 3     | ..                                         | 1      | 1     | ..                                          | ..     | ..    | 9                                              | 3      | 12     |
| ..                                                | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 9                                              | 3      | 12     |
| V.—AFFECTIONS OF THE RESPIRATORY SYSTEM.          |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| 97. Diseases of the Nasal Passages—               |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| Adenoids ..                                       | 1                  | ..     | 1     | 1                                          | ..     | 1     | ..                                          | ..     | ..    | 24                                             | 9      | 33     |
| Polypus ..                                        | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 16                                             | 10     | 26     |
| Dysphagia ..                                      | 13                 | 4      | 17    | 2                                          | 1      | 3     | 11                                          | ..     | 11    | 54                                             | 9      | 63     |
| Rhinitis ..                                       | 43                 | 23     | 66    | 19                                         | 9      | 28    | 164                                         | 4      | 168   | 689                                            | 2,077  | 8,966  |
| Coryza ..                                         | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 2                                              | ..     | 2      |
| Epistaxis ..                                      | ..                 | ..     | ..    | ..                                         | ..     | ..    | 2                                           | ..     | 2     | ..                                             | ..     | ..     |
| 98. Affections of the Larynx—                     |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| Laryngitis ..                                     | 7                  | 4      | 11    | 1                                          | ..     | 1     | 2                                           | ..     | 2     | 535                                            | 153    | 743    |
| 99. Bronchitis—                                   |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| (a) Acute ..                                      | 92                 | 33     | 125   | 6                                          | 11     | 17    | 707                                         | 63     | 77    | 27,642                                         | 10,058 | 37,700 |
| (b) Chronic ..                                    | 183                | 36     | 219   | 1                                          | 3      | 4     | 16                                          | ..     | 16    | 7,870                                          | 2,039  | 9,909  |
| 100. Broncho-pneumonia ..                         | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 366                                            | 103    | 474    |
| 101. Pneumonia—                                   |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| (a) Lobar ..                                      | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| (b) Unclassified ..                               | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 151                                            | 44     | 195    |
| 102. Pleurisy, Empyema ..                         | 1                  | ..     | 1     | ..                                         | ..     | ..    | 6                                           | 2      | 8     | 420                                            | 170    | 590    |
| 103. Congestion of the Lungs ..                   | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 47                                             | 7      | 54     |
| 104. Gangrene of the Lungs ..                     | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 7                                              | 3      | 10     |
| 105. Asthma ..                                    | 4                  | 3      | 7     | ..                                         | 2      | 2     | 30                                          | 8      | 38    | 535                                            | 179    | 714    |
| 106. Pulmonary Emphysema ..                       | ..                 | ..     | ..    | 1                                          | ..     | 1     | ..                                          | ..     | ..    | 1                                              | 1      | 1      |
| 107. Other affections of the Lungs ..             | 18                 | ..     | 18    | ..                                         | 25     | 25    | ..                                          | ..     | ..    | 1,067                                          | 993    | 2,065  |
| Pulmonary Spirochaetosis ..                       | ..                 | 2      | 2     | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| Pleurodynia ..                                    | 1                  | ..     | 1     | ..                                         | 1      | 1     | ..                                          | ..     | ..    | 66                                             | 19     | 85     |

## RETURN OF DISEASES—OUT-PATIENTS—(Contd.)

| DISEASES                                   | EUROPEAN OFFICIALS |        |       | EUROPEAN GENERAL POPULATION<br>(NON-OFFICIAL) |        |       | NON-EUROPEAN OFFICIALS<br>(INCLUDING ASIATICS) |        |       | NATIVE GENERAL POPULATION<br>(INCLUDING ASIATICS) |        |        |
|--------------------------------------------|--------------------|--------|-------|-----------------------------------------------|--------|-------|------------------------------------------------|--------|-------|---------------------------------------------------|--------|--------|
|                                            | Male               | Female | Total | Male                                          | Female | Total | Male                                           | Female | Total | Male                                              | Female | Total  |
| VI.—DISEASES OF THE DIGESTIVE SYSTEM.      |                    |        |       |                                               |        |       |                                                |        |       |                                                   |        |        |
| 108. <i>A.</i> —Diseases of Teeth or Gums— |                    |        |       |                                               |        |       |                                                |        |       |                                                   |        |        |
| Caries .. .. .                             | 2                  | 1      | 3     | 6                                             | 2      | 8     | 21                                             | ..     | 21    | 172                                               | 20     | 192    |
| Pyorrhea, etc. .. .                        | 11                 | 2      | 13    | 13                                            | 5      | 18    | 61                                             | ..     | 61    | 7,574                                             | 2,922  | 10,496 |
| <i>B.</i> —Other affections of the Mouth   | 2                  | ..     | 2     | 2                                             | ..     | 2     | 21                                             | 2      | 23    | 267                                               | 94     | 361    |
| Stomatitis .. .. .                         | 1                  | ..     | 1     | ..                                            | 1      | 1     | 2                                              | ..     | 2     | 32                                                | 11     | 43     |
| Glossitis, etc. .. .                       | 1                  | 1      | 2     | 3                                             | ..     | 3     | 27                                             | 2      | 29    | 574                                               | 270    | 844    |
| Glossitis, etc. .. .                       | ..                 | ..     | ..    | ..                                            | 1      | 1     | ..                                             | ..     | ..    | 19                                                | 6      | 25     |
| 109. Affections of the Pharynx or Tonsils  | ..                 | ..     | ..    | ..                                            | 2      | 2     | ..                                             | ..     | ..    | 6                                                 | 30     | 36     |
| Tonsillitis .. .. .                        | 31                 | 22     | 53    | 15                                            | 23     | 38    | 85                                             | 13     | 98    | 2,132                                             | 1,022  | 3,154  |
| Pharyngitis .. .. .                        | 34                 | 8      | 42    | 4                                             | 9      | 13    | 104                                            | 5      | 109   | 2,041                                             | 247    | 2,288  |
| 110. Affections of the Oesophagus          | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| 111. <i>A.</i> —Ulcer of the Stomach       | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| <i>B.</i> —Ulcer of the Duodenum           | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| 112. Other affections of the Stomach       | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| Gastritis .. .. .                          | 15                 | 6      | 21    | 8                                             | 10     | 18    | 19                                             | 3      | 22    | 931                                               | 330    | 1,261  |
| Dyspepsia .. .. .                          | 98                 | 61     | 159   | 20                                            | 38     | 58    | 91                                             | 7      | 98    | 2,739                                             | 1,812  | 4,551  |
| Gastro Enteritis .. .. .                   | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| 113. Diarrhoea and Enteritis—              | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| Under two years .. .. .                    | ..                 | ..     | ..    | 6                                             | 4      | 10    | 75                                             | 3      | 78    | 749                                               | 976    | 1,725  |
| 114. Diarrhoea and Enteritis—              | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| Two years and over .. .. .                 | 26                 | 4      | 30    | 9                                             | 15     | 24    | 61                                             | 6      | 67    | 2,250                                             | 776    | 3,026  |
| Colitis .. .. .                            | 23                 | 8      | 31    | 4                                             | 2      | 6     | ..                                             | ..     | ..    | 1,220                                             | 119    | 1,339  |
| Ulceration .. .. .                         | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | 5      | 5      |
| Colic .. .. .                              | 1                  | ..     | 1     | 1                                             | 2      | 3     | 2                                              | ..     | 2     | 149                                               | 81     | 230    |
| 114A. Sprue .. .. .                        | ..                 | ..     | ..    | ..                                            | 2      | 2     | ..                                             | ..     | ..    | ..                                                | 1      | 1      |
| 115. Ankylostomiasis .. .. .               | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 651                                               | 171    | 822    |
| 116. Diseases due to Intestinal Parasites— | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| (a) Cestoda (Tania) .. .. .                | 13                 | ..     | 13    | ..                                            | ..     | ..    | 12                                             | ..     | 12    | 34,791                                            | 4,615  | 39,406 |
| (b) Trematoda (Flukes)                     | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| (c) Nematoda (other than—                  | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| Ankylostoma) .. .. .                       | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| Ascaris .. .. .                            | ..                 | ..     | ..    | ..                                            | ..     | ..    | 1                                              | ..     | 1     | 12                                                | 3      | 15     |
| Trichocephalus dispar.                     | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 3,580                                             | 3,924  | 7,504  |
| Trichina .. .. .                           | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 51                                                | 4      | 55     |
| Dracunculus .. .. .                        | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 40                                                | 23     | 63     |
| Strongylus .. .. .                         | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 2                                                 | ..     | 2      |
| Oxyuris .. .. .                            | ..                 | ..     | ..    | 2                                             | 1      | 3     | ..                                             | ..     | ..    | 29                                                | 3      | 32     |
| (d) Coccidia .. .. .                       | ..                 | ..     | ..    | ..                                            | 2      | 2     | ..                                             | ..     | ..    | 15                                                | 5      | 20     |
| (e) Other Parasites .. .. .                | 1                  | ..     | 1     | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..     |
| (f) Unclassified .. .. .                   | ..                 | ..     | ..    | 1                                             | ..     | 1     | ..                                             | ..     | ..    | 1,067                                             | 335    | 1,402  |
|                                            | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 507                                               | 162    | 669    |

## RETURN OF DISEASES—OUT-PATIENTS—(Contd.)

| DISEASES                                                          | EUROPEAN OFFICIALS |        |       | EUROPEAN GENERAL POPULATION (NON-OFFICIAL) |        |       | NON-EUROPEAN OFFICIALS (INCLUDING ASIATICS) |        |       | NATIVE GENERAL POPULATION (INCLUDING ASIATICS) |        |        |
|-------------------------------------------------------------------|--------------------|--------|-------|--------------------------------------------|--------|-------|---------------------------------------------|--------|-------|------------------------------------------------|--------|--------|
|                                                                   | Male               | Female | Total | Male                                       | Female | Total | Male                                        | Female | Total | Male                                           | Female | Total  |
| <b>VI.—DISEASES OF THE DIGESTIVE SYSTEM—(Contd.)</b>              |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| 117. Appendicitis .. .. .                                         | 3                  | 2      | 5     | 3                                          | 2      | 5     | 2                                           | ..     | 2     | 5                                              | 1      | 6      |
| 118. Hernia .. .. .                                               | 2                  | 2      | 4     | 3                                          | 1      | 4     | ..                                          | ..     | ..    | 143                                            | 3      | 146    |
| 119. A.—Affections of the Anus .. .. .                            | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| Fistula, etc. .. .. .                                             | ..                 | ..     | ..    | 1                                          | 1      | 2     | 2                                           | 2      | 4     | 14                                             | 5      | 19     |
| B.—Other affections of the Intestines—                            | 1                  | ..     | 1     | ..                                         | 2      | 2     | ..                                          | ..     | ..    | 3                                              | 4      | 7      |
| Enteroptosis .. .. .                                              | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 2                                              | ..     | 2      |
| Constipation .. .. .                                              | 49                 | 2      | 51    | 1                                          | 5      | 6     | 193                                         | 6      | 204   | 14,091                                         | 6,953  | 21,044 |
| 120. Acute Yellow Atrophy of the Liver .. .. .                    | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 121. Hydatid of the Liver .. .. .                                 | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 122. Cirrhosis of the Liver—                                      | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| (a) Alcoholic .. .. .                                             | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| (b) Other forms .. .. .                                           | ..                 | ..     | ..    | ..                                         | ..     | ..    | 1                                           | ..     | 1     | 1                                              | 2      | 3      |
| 123. Biliary Calculus .. .. .                                     | ..                 | ..     | ..    | ..                                         | 2      | 2     | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 124. Other affections of the Liver—                               | ..                 | ..     | ..    | ..                                         | ..     | ..    | 1                                           | ..     | 1     | ..                                             | ..     | ..     |
| Abscess .. .. .                                                   | ..                 | ..     | ..    | 1                                          | ..     | 1     | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| Hepatitis .. .. .                                                 | 1                  | 3      | 4     | 2                                          | ..     | 2     | 4                                           | ..     | 4     | 162                                            | 73     | 235    |
| Cholecystitis .. .. .                                             | ..                 | ..     | ..    | ..                                         | 1      | 1     | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| Jaundice .. .. .                                                  | 1                  | ..     | 1     | 1                                          | ..     | 1     | ..                                          | ..     | ..    | 23                                             | 8      | 36     |
| 125. Diseases of the Pancreas .. .. .                             | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| 126. Peritonitis (of unknown cause) .. .. .                       | ..                 | ..     | ..    | ..                                         | ..     | ..    | 1                                           | ..     | 1     | ..                                             | ..     | ..     |
| 127. Other affections of the Digestive System .. .. .             | 15                 | 2      | 17    | 1                                          | 6      | 7     | 4                                           | 2      | 6     | 241                                            | 77     | 318    |
| <b>VII.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL).</b> |                    |        |       |                                            |        |       |                                             |        |       |                                                |        |        |
| 128. Acute Nephritis .. .. .                                      | ..                 | ..     | ..    | ..                                         | ..     | ..    | ..                                          | ..     | ..    | 2                                              | ..     | 2      |
| 129. Chronic Nephritis .. .. .                                    | 1                  | ..     | ..    | ..                                         | ..     | ..    | 1                                           | ..     | 1     | 7                                              | 18     | 25     |
| 130. A.—Chyluria .. .. .                                          | ..                 | ..     | ..    | 4                                          | ..     | 4     | ..                                          | ..     | ..    | 28                                             | 20     | 48     |
| B.—Schistosomiasis .. .. .                                        | 3                  | ..     | 3     | ..                                         | ..     | ..    | ..                                          | ..     | ..    | ..                                             | 1      | 1      |
| 131. Other affections of the Kidneys—                             | ..                 | ..     | ..    | ..                                         | ..     | ..    | 2                                           | ..     | 2     | 365                                            | 22     | 387    |
| Pyelitis .. .. .                                                  | 4                  | ..     | 4     | 1                                          | ..     | 1     | ..                                          | ..     | ..    | 3                                              | 11     | 14     |
| 132. Urinary Calculus .. .. .                                     | ..                 | ..     | ..    | 1                                          | ..     | 1     | ..                                          | ..     | ..    | 11                                             | 1      | 12     |
| 133. Diseases of the Bladder—                                     | 16                 | ..     | 16    | 1                                          | ..     | 1     | ..                                          | ..     | ..    | ..                                             | ..     | ..     |
| Cystitis .. .. .                                                  | ..                 | 24     | 24    | 11                                         | 10     | 21    | 13                                          | 4      | 22    | 111                                            | 30     | 141    |







## RETURN OF DISEASES—OUT-PATIENTS—(Contd.)

| DISEASES                                                     | EUROPEAN OFFICIALS |        |       | EUROPEAN GENERAL POPULATION<br>(NON-OFFICIAL) |        |       | NON-EUROPEAN OFFICIALS<br>(including ASIATICS) |        |       | NATIVE GENERAL POPULATION<br>(including ASIATICS) |        |       |
|--------------------------------------------------------------|--------------------|--------|-------|-----------------------------------------------|--------|-------|------------------------------------------------|--------|-------|---------------------------------------------------|--------|-------|
|                                                              | Male               | Female | Total | Male                                          | Female | Total | Male                                           | Female | Total | Male                                              | Female | Total |
| XIV.—AFFECTIONS PRODUCED BY<br>EXTERNAL CAUSES.              |                    |        |       |                                               |        |       |                                                |        |       |                                                   |        |       |
| 165. Suicide by Poisoning .. ..                              | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 166. Corrosive Poisoning (intentional) ..                    | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 167. Suicide by Gas Poisoning ..                             | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 168. Suicide by Hanging or Strangulation .. ..               | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 159. Suicide by Drowning .. ..                               | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 170. Suicide by Firearms .. ..                               | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 171. Suicide by Cutting or Stabbing Instruments .. ..        | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 172. Suicide by jumping from a height .. ..                  | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 173. Suicide by Crushing .. ..                               | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 174. Other Suicides .. ..                                    | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 175. Food Poisoning—<br>Botulism .. ..                       | 1                  | ..     | 1     | 3                                             | 3      | 6     | ..                                             | ..     | ..    | 51                                                | 40     | 91    |
| 176. Attacks of Poisonous Animals—<br>Snake Bite .. ..       | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| Insect Bite .. ..                                            | 19                 | 3      | 22    | 4                                             | 5      | 9     | 7                                              | ..     | ..    | 49                                                | 11     | 60    |
| 177. Other Accidental Poisonings ..                          | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 163                                               | 33     | 216   |
| 178. Burns (by Fire) .. ..                                   | 3                  | ..     | 3     | ..                                            | 2      | 2     | 1                                              | ..     | ..    | 2                                                 | 1      | 3     |
| 179. Burns (other than by Fire) ..                           | 15                 | 2      | 17    | 3                                             | 1      | 3     | 34                                             | 3      | 37    | 1,289                                             | 762    | 2,051 |
| 180. Suffocation (Accidental) ..                             | ..                 | ..     | ..    | 2                                             | ..     | 3     | ..                                             | ..     | ..    | 514                                               | 227    | 741   |
| 181. Poisoning by Gas (Accidental) ..                        | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 182. Drowning (Accidental) ..                                | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | ..                                                | ..     | ..    |
| 183. Wounds (by Firearms, War accepted) .. ..                | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 1                                                 | ..     | 1     |
| 184. Wounds (by Cutting or Stabbing Instruments) .. ..       | 2                  | ..     | 2     | 5                                             | 1      | 6     | 3                                              | ..     | ..    | 4                                                 | 1      | 5     |
| 185. Wounds (by Fall) .. ..                                  | 1                  | ..     | 1     | 4                                             | ..     | 4     | 2                                              | ..     | ..    | 4,244                                             | 665    | 4,909 |
| 186. Wounds (in Mines or Quarries) ..                        | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 3,295                                             | 233    | 3,528 |
| 187. Wounds (by Machinery) ..                                | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 4                                                 | ..     | 4     |
| 188. Wounds (Crushing, e.g., Railway Accidents, etc.) ..     | ..                 | ..     | ..    | ..                                            | ..     | ..    | ..                                             | ..     | ..    | 108                                               | 50     | 158   |
| 189. Injuries inflicted by Animals, Bites, Kicks, etc. .. .. | 1                  | ..     | 1     | 4                                             | ..     | 4     | 1                                              | ..     | ..    | 42                                                | 3      | 45    |
|                                                              |                    |        |       |                                               |        |       |                                                |        |       | 155                                               | 25     | 210   |





MEDICAL RESEARCH LABORATORY  
ANNUAL REPORT 1936

By

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MEDICAL RESEARCH LABORATORY  
ANNUAL REPORT 1936

BY

THE MEDICAL RESEARCH LABORATORY

Cambridge, England

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APPENDIX—Work Carried Out at the Clinical Laboratory attached to the  
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| 56 | 57                 | 58  |
| 59 | 60                 | 61  |
| 62 | 63                 | 64  |
| 65 | 66                 | 67  |
| 68 | 69                 | 70  |
| 71 | 72                 | 73  |
| 74 | 75                 | 76  |
| 77 | 78                 | 79  |
| 80 | 81                 | 82  |
| 83 | 84                 | 85  |
| 86 | 87                 | 88  |
| 89 | 90                 | 91  |
| 92 | 93                 | 94  |
| 95 | 96                 | 97  |
| 98 | 99                 | 100 |

THE HISTORY OF THE

## Annual Report of the Medical Research Laboratory, Colony and Protectorate of Kenya, 1936

### STAFF, 1936

*Senior Bacteriologist.*—R. P. Cormack, M.B., Ch.B. (Edin.), D.P.H. (Cant.), D.T.M. & H. (Eng.).

*Assistant Bacteriologists.*—H. D. Tonking, M.R.C.S. (Eng.), L.R.C.P. (Lond.); F. W. Vint, M.D., B.Ch., B.A.O. (Q.U. Belfast), B.Sc.; R. M. Dowdeswell, M.A., B.Ch. (Cantab.), M.R.C.S. (Eng.), L.R.C.P. (Lond.); G. L. Timms, M.R.C.S. (Eng.), L.R.C.P. (Lond.), M.B., B.S. (Lond.) (seconded from Medical Division on 5th October, 1936).

*Biochemist.*—D. Harvey, M.A., B.Sc., Ph.D.

*Medical Entomologists.*—C. B. Symes, J. I. Roberts, D.Sc.

*Laboratory Superintendent.*—F. A. Bailey.

*Laboratory Assistants, Senior Grade.*—H. M. Nefdt, B.Sc., W. L. Titman, J. P. McMahon, A. H. Daws, W. A. Doust, E. C. Young.

*Laboratory Assistants, Junior Grade.*—W. E. Grainger, T. G. R. Jones, Miss E. C. Macdonald.

*Laboratory Assistants (Asiatic).*—Ramji Dass, J. St. A. M. de Souza.

*Malaria Field Overseers.*—J. O. Harper, C. Teesdale, G. Poppleton, C. F. Greenway.

*Tsetse Field Overseer.*—R. T. Vane.

*Librarian and Stenographer.*—Miss I. E. Bowman.

*Storekeeper.*—Max de Souza.

### A—SECTION OF MEDICAL BIOLOGY

#### 1—STAFF

(a) *European.*—The section was in charge of Mr. E. C. Young until the beginning of December, when Dr. G. L. Timms assumed charge.

(b) *African.*—The native staff varies from time to time, except for one or two senior boys who help with the training of the juniors.

#### 2—SPECIMENS

During the year 26,336 specimens were received and dealt with in this section. A further 1,510 were examined at the Infectious Diseases Hospital, making a total of 26,343. They are tabulated below:—

##### (a) *Fæces Examinations*

The number of specimens examined was 12,948, including 620 from the Nairobi Prison (part of a survey the results of which are not included in the table below), and 1,463 which were examined by a trained boy from the Medical Research Laboratory at the Infectious Diseases Hospital.

*E. histolytica* is still at a high figure compared with years prior to 1931, but the number of positives has dropped from 795 in 1935 to 618 in 1936.

As usual the table is made out to show the numbers of times the individual organisms were encountered, no account being taken of whether or not several varieties were present in the same specimen.

|                                                      | Europeans | Asians | Africans | Total |
|------------------------------------------------------|-----------|--------|----------|-------|
| Ova of—                                              |           |        |          |       |
| <i>Taenia</i> .. .. .                                | 5         | 9      | 1,760    | 1,774 |
| <i>A. lumbricoides</i> .. .. .                       | 18        | 10     | 954      | 982   |
| <i>A. duodenale</i> .. .. .                          | 67        | 26     | 1,253    | 1,346 |
| <i>S. stercoralis</i> .. .. .                        | 5         | 6      | 73       | 84    |
| <i>S. stercoralis</i> (Larvæ of) .. .. .             | 6         | 4      | 252      | 262   |
| <i>S. mansoni</i> .. .. .                            | 43        | 4      | 209      | 256   |
| <i>E. vermicularis</i> .. .. .                       | 4         | 4      | 93       | 101   |
| <i>T. trichura</i> .. .. .                           | 63        | 32     | 801      | 896   |
| <i>H. diminuta</i> .. .. .                           | —         | —      | 4        | 4     |
| <i>H. nana</i> .. .. .                               | —         | 2      | 26       | 28    |
| Cysts and other forms of—                            |           |        |          |       |
| <i>E. coli</i> .. .. .                               | 238       | 58     | 1,892    | 2,188 |
| <i>E. histolytica</i> .. .. .                        | 186       | 16     | 416      | 618   |
| <i>E. histolytica</i> ? .. .. .                      | 14        | —      | —        | 14    |
| <i>I. butschlii</i> .. .. .                          | 34        | 4      | 355      | 393   |
| <i>G. intestinalis</i> .. .. .                       | 83        | 12     | 191      | 286   |
| <i>C. mesnili</i> .. .. .                            | 149       | 15     | 322      | 486   |
| Flagellate cysts (undifferentiated) ..               | 267       | 37     | 1,056    | 1,360 |
| Charcot-Leyden crystals (no cysts) ..                | 102       | 21     | 161      | 284   |
| Negative .. .. .                                     | 2,365     | 387    | 2,383    | 5,135 |
| <i>I. hominis</i> .. .. .                            | —         | —      | 1        | 1     |
| <i>E. histolytica</i> and <i>C. mesnili</i> together | 25        | 3      | 81       | 109   |

Included in the above table is the number of times *C. mesnili* has been found with *E. histolytica*, which amounts to about 20 per cent of the cases—the same as in the previous year.

#### (b) Blood Examinations

The total number of specimens examined was 14,984, which included 47 examined at the Infectious Diseases Hospital. The table below does not include 1,503 examinations for the Colonial Development Fund Survey at Mombasa.

The following examinations and findings were carried out:—

|                                     | Europeans    | Asians       | Africans     | Total         |
|-------------------------------------|--------------|--------------|--------------|---------------|
| <i>P. falciparum</i> .. .. .        | 177          | 525          | 978          | 1,680         |
| <i>P. vivax</i> .. .. .             | 19           | 121          | 42           | 182           |
| <i>P. malaria</i> .. .. .           | 7            | 18           | 58           | 83            |
| <i>P. ovale</i> .. .. .             | 1            | —            | —            | 1             |
| <i>P. falciparum</i> (crescents) .. | —            | 15           | 83           | 98            |
| Mixed infections .. .. .            | 4            | 1            | 2            | 7             |
| Filaria, unsheathed .. .. .         | —            | —            | 26           | 26            |
| <i>S. rossi</i> .. .. .             | —            | —            | 31           | 31            |
| Differential counts .. .. .         | 331          | 33           | 38           | 402           |
| Total counts .. .. .                | 375          | 36           | 34           | 445           |
| Arnetz or allied counts .. .. .     | 5            | 6            | —            | 5             |
| Reticulocyte .. .. .                | 25           | —            | —            | 25            |
| Negative for malaria counts ..      | 1,311        | 2,791        | 6,938        | 11,040        |
| <b>TOTAL</b> .. .. .                | <b>2,255</b> | <b>3,540</b> | <b>8,230</b> | <b>14,025</b> |

There was no big rise in malaria as in 1935, the highest weekly totals being between 25-4-36 and 15-8-36. The highest weekly total was 106, compared with 330 positives in 1935. The total number of microscopically diagnosed cases decreased by 2,414 compared with 1935, and 1,168 compared with 1934.

It is of interest to note that *S. rossi* increased by 100 per cent.

#### (c) Serological Examinations

Widal reactions were carried out in this section until the beginning of April, when this work was taken over by the Serology Section. Two hundred and forty specimens were received and examined from January to April. The findings are included in those of the Serology Section.

*(d) Miscellaneous Examinations*

- 32 cerebro-spinal fluids for cell count were received.
- 39 specimens of blood were examined to ascertain the group.
- 38 specimens of urine were examined for the presence of *S. hæmotobium*, and 11 were found to be positive.
- 2 sputa were examined for the presence of liver cells, amœbæ or Charcot-Leyden crystals, and found negative to all.
- 2 fluids from blisters were examined for the presence of eosinophils.
- 1 cerebro-spinal fluid was examined for the presence of trypanosomes and found negative.
- 1 fluid from a gland in the groin was examined for *B. pestis* and found negative.
- 1 ascitic fluid was received and examined for type of cells.
- 4 spleen smears were examined for the presence of Leishman Donovan bodies and found negative; one, sent in for examination for malarial parasites, showed the presence of *B. pestis*.
- 1 specimen passed from the urethra was sent in and was identified as a (?)urethral cast.

*(e) Other Work*

(i) During the year several cultures were made from stools microscopically diagnosed as containing *E. histolytica* cysts. All showed active amœbæ present after incubation.

(ii) A daily reticulocyte count was done on a patient who had a macrocytic anæmia, to show response to liver injections. After the fifth day *P. falciparum* was found in the blood. The reticulocyte count fell from 6.3 to 1.8 per cent and the total red cell count from 5.83 millions to 4.7 millions. When the fever had been treated with Atebrin the reticulocyte count again rose to 3.15 per cent and the red cell count to 5.89 millions. The reticulocyte counts were carried out over a period of four weeks.

(iii) Several Price-Jones curves were made on cases of anæmia, using the photographic method of measuring the red cells. Included in these cases were an aplastic, a pernicious, a macrocytic, a microcytic, and two anæmias of children.

(iv) Work is still being carried out to try and ascertain at what stage in a leucocytosis the differential count compares with the accepted normal differential count in England in regard to polymorphs. As far as can be judged at present with the figures at hand, the polymorph percentage works out at 53.05 per cent with a total white cell count of between 6 and 9 thousands. Even with as high a leucocytosis as 16,000 the average polymorph count is only 68.66 per cent, which is not higher than the accepted normal for England of 65 to 70 per cent. It is hoped to work out figures if possible over a 1,000 total white cell counts. The figures given above are from 400 counts.

**B—CALF LYMPH SECTION**

As in 1935, the great difficulty in calf lymph production has been due to the use of adult male animals, as these have been the only ones available.

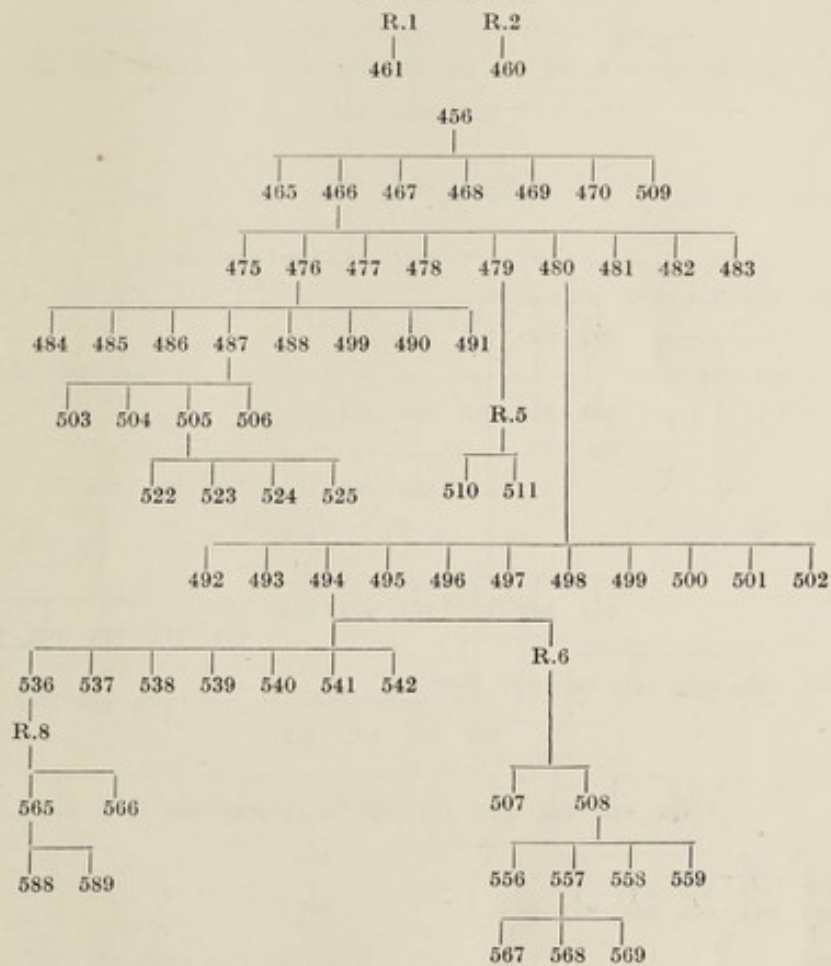
Investigations were carried out by Dr. H. D. Tonking into the production of a vaccine grown on eggs. Owing to the transfer of Dr. Tonking this work has been left in abeyance, and it is proposed to carry on with the ordinary routine method of production.

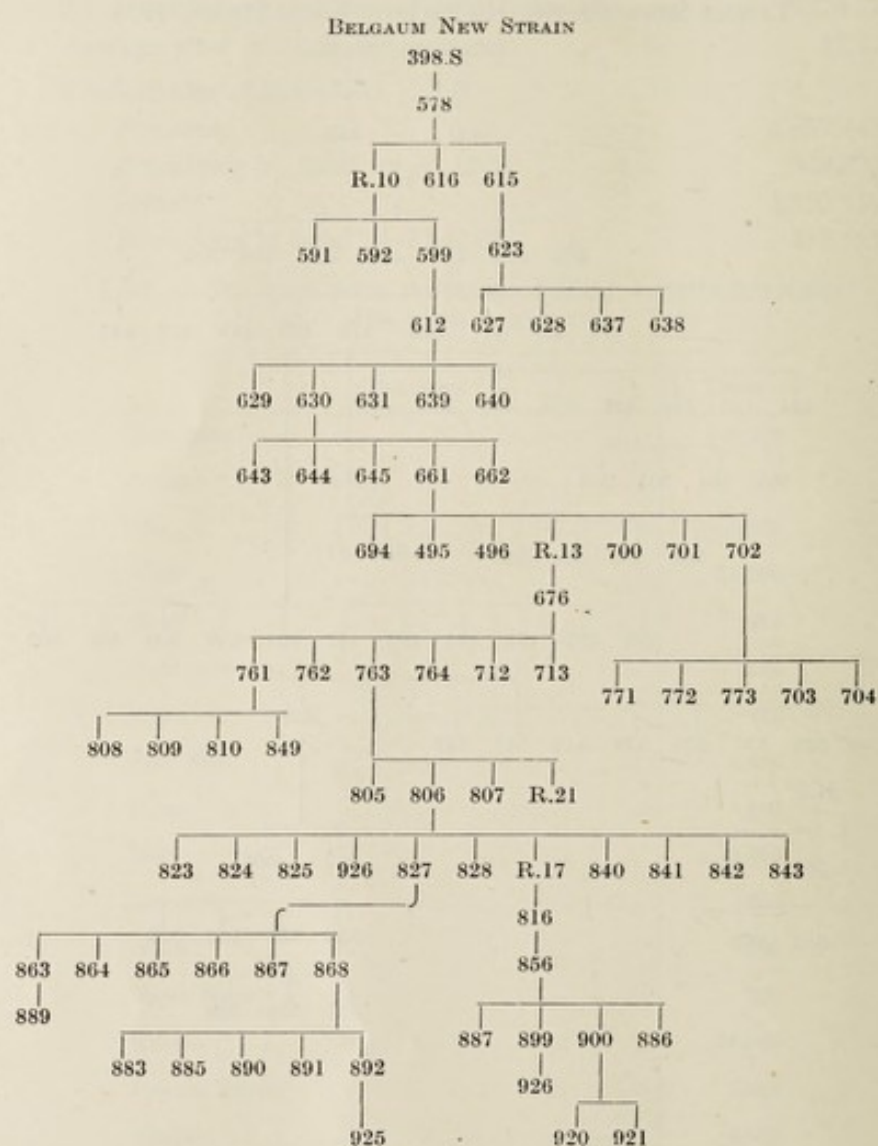
The amount of calf lymph supplied to the Uganda Government gradually decreased during the year, due to the outbreak of smallpox in that Protectorate having been brought under control.



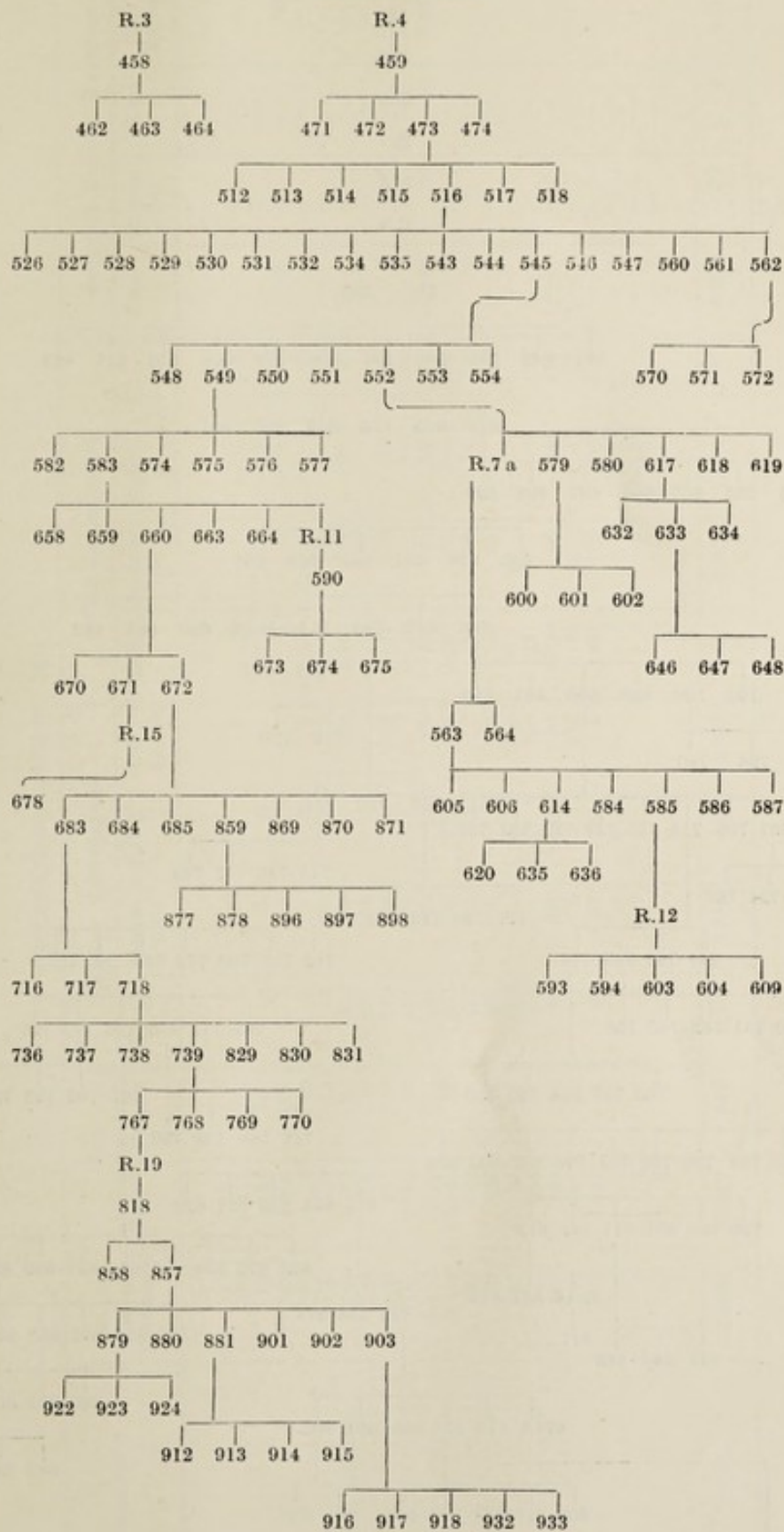
## TABLES SHOWING THE HISTORY OF EACH STRAIN, 1936

## BELGAUM STRAIN

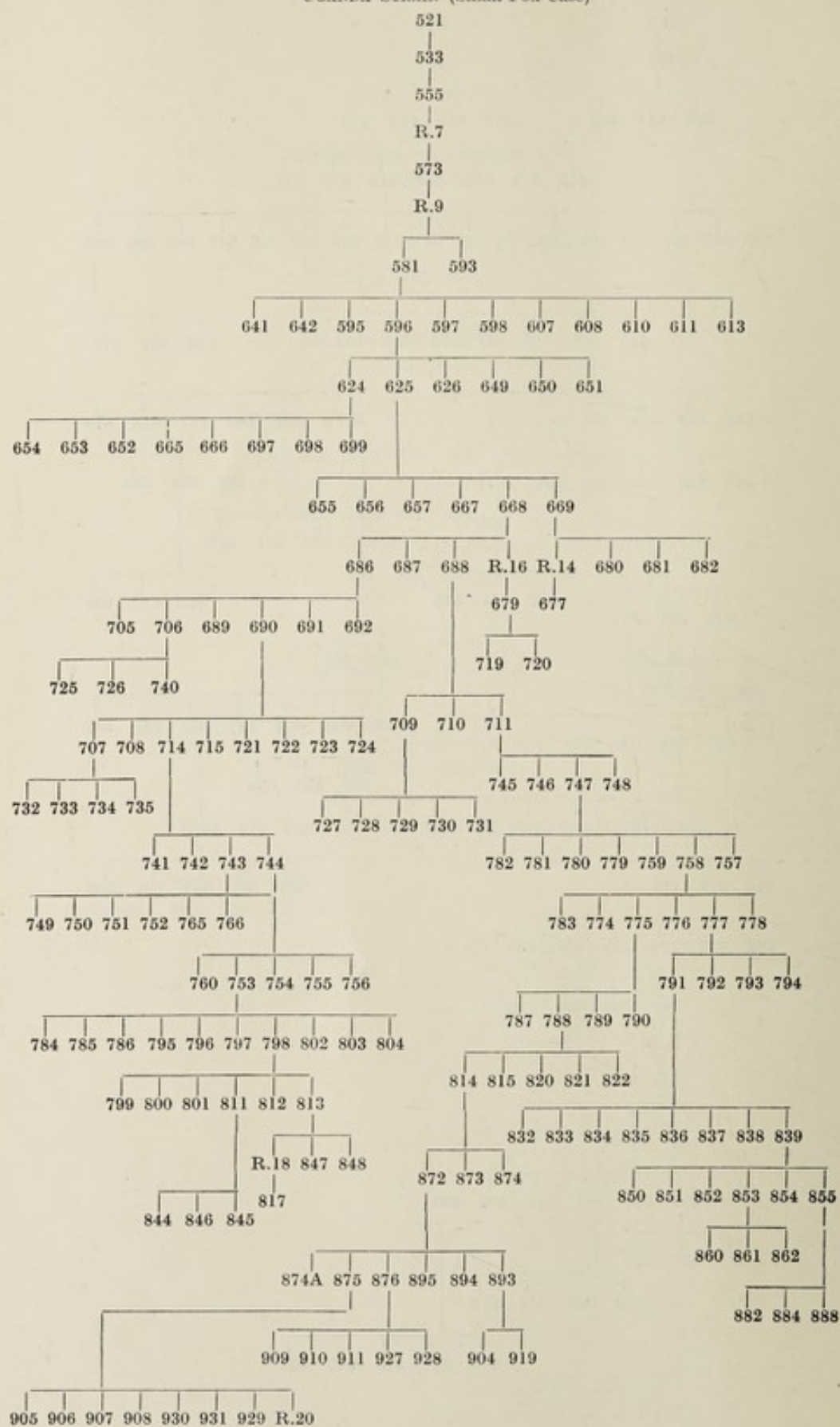




## BOEDANG STRAIN



## UGANDA STRAIN (Small Pox Case)



## VACCINATION RETURNS, 1936

| RESIDENCE               | No. of<br>Persons<br>Vaccinated | SEX           |            | PRIMARY VACCINATIONS |                 |            |              | RE-VACCINATIONS |                 |              |              | PREVIOUS HISTORY UNKNOWN |                 |          |              |
|-------------------------|---------------------------------|---------------|------------|----------------------|-----------------|------------|--------------|-----------------|-----------------|--------------|--------------|--------------------------|-----------------|----------|--------------|
|                         |                                 | Male          | Female     | Total                | Success-<br>ful | Failed     | Un-<br>known | Total           | Success-<br>ful | Failed       | Un-<br>known | Total                    | Success-<br>ful | Failed   | Un-<br>known |
| Lamu                    | 422                             | 417           | 5          | 9                    | —               | —          | 9            | 413             | —               | —            | 413          | —                        | —               | —        | —            |
| Kilifi ..               | 93                              | 82            | 11         | 86                   | 61              | 9          | 16           | 7               | 2               | —            | 2            | —                        | —               | —        | —            |
| Wesu                    | 809                             | 486           | 323        | 809                  | 2               | —          | —            | 1               | 1               | —            | —            | 806                      | —               | —        | 806          |
| Machakos                | 19                              | 9             | 10         | 8                    | 5               | 2          | 1            | 11              | 5               | —            | 6            | —                        | —               | —        | —            |
| Miscellaneous           | 139                             | 106           | 33         | 95                   | 74              | 13         | 8            | 44              | 24              | 15           | 5            | —                        | —               | —        | —            |
| Nairobi Prison Hospital | 1,521                           | 1,447         | 74         | 330                  | 310             | —          | 20           | 1,191           | 850             | 301          | 40           | —                        | —               | —        | —            |
| Nakuru                  | 344                             | 306           | 38         | 254                  | 254             | —          | —            | 90              | 90              | —            | —            | —                        | —               | —        | —            |
| Eldoret                 | 652                             | 537           | 115        | 579                  | 349             | —          | —            | 70              | 10              | —            | —            | 3                        | 3               | —        | —            |
| Kitale                  | 121                             | 105           | 16         | 101                  | 100             | 78         | —            | 20              | —               | 32           | 28           | —                        | —               | —        | —            |
| Kisumu                  | 6,298                           | 6,229         | 69         | 155                  | 42              | 27         | 86           | 302             | 69              | 58           | 10           | —                        | —               | —        | —            |
| Kakamega                | 2,944                           | 2,941         | 3          | 1,437                | 355             | 227        | 805          | 1,507           | 380             | 294          | 175          | 5,841                    | 36              | 4        | 5,801        |
| Kericho                 | 632                             | 629           | 3          | 443                  | 423             | 13         | 7            | 185             | 170             | 14           | 833          | —                        | —               | —        | —            |
| Tambach                 | 353                             | 322           | 31         | 328                  | 186             | —          | 142          | 25              | 14              | —            | 11           | —                        | —               | —        | —            |
| Moyale                  | 143                             | 91            | 52         | 143                  | —               | —          | 143          | —               | —               | —            | —            | —                        | —               | —        | —            |
| Kitui                   | 237                             | 236           | 1          | 106                  | —               | —          | 106          | 131             | —               | —            | 131          | —                        | —               | —        | —            |
| Fort Hall               | 309                             | 288           | 21         | 95                   | 53              | 12         | 30           | 214             | 66              | 36           | 112          | —                        | —               | —        | —            |
| Nyeri                   | 273                             | 241           | 32         | 112                  | 4               | —          | 108          | 161             | —               | 3            | 158          | —                        | —               | —        | —            |
| Meru                    | 525                             | 521           | 4          | 64                   | 34              | 24         | 6            | 461             | 119             | 230          | 112          | —                        | —               | —        | —            |
| Narok                   | 5                               | 2             | 3          | 4                    | 4               | —          | —            | 1               | —               | —            | —            | —                        | —               | —        | —            |
| Kisii                   | 5                               | 3             | 2          | 1                    | 1               | —          | —            | 4               | 2               | —            | —            | —                        | —               | —        | —            |
| Kapsabet                | 15                              | 9             | 6          | 7                    | 7               | —          | —            | 8               | 7               | —            | —            | —                        | —               | —        | —            |
| <b>TOTAL</b>            | <b>15,859</b>                   | <b>15,007</b> | <b>852</b> | <b>4,359</b>         | <b>2,264</b>    | <b>456</b> | <b>1,639</b> | <b>4,846</b>    | <b>1,809</b>    | <b>1,000</b> | <b>2,037</b> | <b>6,654</b>             | <b>39</b>       | <b>4</b> | <b>6,611</b> |

## C—SECTION OF PATHOLOGY

## 1—STAFF

Throughout the year this section was in charge of Dr. F. W. Vint, and his staff consisted, from 1st January until 31st October, of Miss E. C. Macdonald (Laboratory Learner), and since then of an African Laboratory Assistant. Thus, owing to the pressure of routine work, little time was available for research. A large number of measurements of African erythrocytes were, however, carried out and an investigation into the reticulo endothelial system of the African has been commenced.

## 2—POST-MORTEM EXAMINATIONS

## EUROPEAN—

|                      |    |    |    |    |   |
|----------------------|----|----|----|----|---|
| Accident and suicide | .. | .. | .. | .. | 5 |
| Coronary thrombosis  | .. | .. | .. | .. | 1 |
| Nephritis            | .. | .. | .. | .. | 1 |
| Tuberculosis         | .. | .. | .. | .. | 1 |

## ASIAN—

|                         |    |    |    |    |   |
|-------------------------|----|----|----|----|---|
| Haemorrhage from wounds | .. | .. | .. | .. | 1 |
| Poisoning               | .. | .. | .. | .. | 1 |

## AFRICAN—

|                                           |    |    |    |    |    |
|-------------------------------------------|----|----|----|----|----|
| Embolus, cerebral                         | .. | .. | .. | .. | 1  |
| Endocarditis                              | .. | .. | .. | .. | 1  |
| Food deficiency                           | .. | .. | .. | .. | 1  |
| Gastro enteritis                          | .. | .. | .. | .. | 5  |
| Haemorrhage ruptured aneurysm             | .. | .. | .. | .. | 2  |
| Intestinal obstruction                    | .. | .. | .. | .. | 2  |
| Malaria                                   | .. | .. | .. | .. | 4  |
| Meningitis, meningococcal                 | .. | .. | .. | .. | 12 |
| Myocarditis                               | .. | .. | .. | .. | 7  |
| Mitral stenosis                           | .. | .. | .. | .. | 1  |
| Nephritis : Interstitial                  | .. | .. | .. | .. | 3  |
| Paraneurymatous                           | .. | .. | .. | .. | 1  |
| Plague                                    | .. | .. | .. | .. | 4  |
| Pneumonia : Lobar                         | .. | .. | .. | .. | 23 |
| „ and meningitis                          | .. | .. | .. | .. | 14 |
| „ and pericarditis                        | .. | .. | .. | .. | 3  |
| „ and peritonitis                         | .. | .. | .. | .. | 1  |
| Pneumococcal septicaemia                  | .. | .. | .. | .. | 1  |
| Bronchopneumonia                          | .. | .. | .. | .. | 3  |
| Peritonitis                               | .. | .. | .. | .. | 2  |
| Septicaemia                               | .. | .. | .. | .. | 9  |
| Syphilis congenital and broncho pneumonia | .. | .. | .. | .. | 3  |
| Shock                                     | .. | .. | .. | .. | 1  |
| Thrombosis                                | .. | .. | .. | .. | 3  |
| Tuberculosis                              | .. | .. | .. | .. | 16 |
| Tumours                                   | .. | .. | .. | .. | 2  |
| Typhoid                                   | .. | .. | .. | .. | 1  |
| Violence                                  | .. | .. | .. | .. | 29 |

TOTAL .. 165

The two most interesting conditions seen were:—

- (a) Pneumococcal peritonitis following pneumonia. This is believed to be the first recorded case in an African in Kenya.
- (b) Peritonitis following rupture of a duodenal ulcer. This condition is rare in the African.

## 3—HISTOLOGICAL EXAMINATIONS

## EUROPEAN—

|                         |    |    |    |     |
|-------------------------|----|----|----|-----|
| Tumours : Benign        | .. | .. | .. | 24  |
| Malignant               | .. | .. | .. | 9   |
| Curettage—Non-malignant | .. | .. | .. | 28  |
| Inflammatory            | .. | .. | .. | 70  |
| Tuberculosis            | .. | .. | .. | 3   |
| TOTAL                   | .. | .. | .. | 134 |

## ASIATIC—

|                           |    |    |    |    |
|---------------------------|----|----|----|----|
| Tumours : Benign          | .. | .. | .. | —  |
| Malignant                 | .. | .. | .. | 3  |
| Curettage : Non-malignant | .. | .. | .. | 2  |
| Inflammatory              | .. | .. | .. | 7  |
| Tuberculosis              | .. | .. | .. | 1  |
| TOTAL                     | .. | .. | .. | 13 |

## AFRICAN—

|         |              |    |    |    |
|---------|--------------|----|----|----|
| Tumours | Benign—      |    |    |    |
|         | Adenoma      | .. | .. | 10 |
|         | Chondroma    | .. | .. | 2  |
|         | Cysts        | .. | .. | 12 |
|         | Fibroma      | .. | .. | 11 |
|         | Haemangioma  | .. | .. | 7  |
|         | Lipoma       | .. | .. | 2  |
|         | Lymphangioma | .. | .. | 3  |
|         | Neurofibroma | .. | .. | 1  |
|         |              |    |    | 48 |

## Malignant—

|                         |    |    |    |     |
|-------------------------|----|----|----|-----|
| Carcinoma               | .. | .. | .. | 14  |
| Endothelioma            | .. | .. | .. | 8   |
| Epithelioma             | .. | .. | .. | 32  |
| Hypernephroma           | .. | .. | .. | 2   |
| Melanoma                | .. | .. | .. | 10  |
| Mixed tumour of parotid | .. | .. | .. | 2   |
| Rodent ulcer            | .. | .. | .. | 3   |
| Sarcoma                 | .. | .. | .. | 36  |
| Teratoma                | .. | .. | .. | 2   |
|                         |    |    |    | 109 |

TOTAL .. 157

|                           |    |    |    |   |
|---------------------------|----|----|----|---|
| Curettage : Non-malignant | .. | .. | .. | 1 |
| Malignant                 | .. | .. | .. | 6 |
| TOTAL                     | .. | .. | .. | 7 |

|                   |    |    |    |    |
|-------------------|----|----|----|----|
| Inflammatory      | .. | .. | .. | 89 |
| Banti's disease   | .. | .. | .. | 7  |
| Degeneration      | .. | .. | .. | 1  |
| Fungi             | .. | .. | .. | 5  |
| Hodgkin's disease | .. | .. | .. | 2  |
| Leprosy           | .. | .. | .. | 3  |
| Malarial          | .. | .. | .. | 26 |
| Schistosomiasis   | .. | .. | .. | 3  |
| Syphilis          | .. | .. | .. | 4  |
| Tuberculosis      | .. | .. | .. | 33 |

TOTAL .. 173

|                            |    |    |    |    |
|----------------------------|----|----|----|----|
| Normal tissues             | .. | .. | .. | 10 |
| Animal tissues             | .. | .. | .. | 18 |
| Other post mortem material | .. | .. | .. | 64 |

92

TOTAL EXAMINATIONS: 576

It is interesting to note that amongst the inflammatory tissues there were seven appendices showing inflammation. Appendicitis is rare in the African.

## D—SECTION OF BACTERIOLOGY

## 1—STAFF

This section was under the charge of Dr. R. M. Dowdeswell. Mr. J. St. A. M. de Souza was in charge of the routine work until he went on leave in November, when Mr. T. G. R. Jones took his place. Mr. W. A. Doust was in charge of the culture media preparation and most of the stock prophylactic vaccine manufacture.

## 2—ROUTINE WORK

The total number of specimens received was 3,444, of which 1,171 were for cultural investigation.

Some of the pathogenic conditions diagnosed were:—

*Anthrax*.—One case.

*Conjunctival Exudates*.—Of 221 specimens examined, the Koch-Weeks bacillus was found in 30, gonococci in 18, pneumococci in 12, and the Morax-Axenfeld bacillus in 4; others showing diphtheroids, etc.

*Diphtheria*.—Eleven cases showed the presence of *C. diphtheriae*.

*Dysentery*.—Only two cases yielded typical organisms, *Bact. flexneri* and Schmitz's bacillus.

*Gonorrhoea*.—Gonococci were found in 76 specimens of urethral discharges, urines, etc.

*Meningitis*.—Of 183 samples of cerebro-spinal fluid examined, 68 showed the presence of meningococci, 18 of pneumococci, 4 of *H. influenzae*, and 2 of *M. tuberculosis*.

Naso-pharyngeal swabs from 83 persons were examined for the presence of meningococci; of these one was positive.

*Plague*.—Eight gland punctures showed *B. pestis*. Of 34 rats sent in for examination, two were found to be infected with plague.

*Tuberculosis*.—Twelve hundred specimens of sputum were examined. 132 were positive. *M. tuberculosis* was also found in two urines and one stool, as well as the two cerebro-spinal fluids already mentioned.

Eight guinea-pig tests were performed; three of these were positive.

*Typhoid*.—*S. typhi* was recovered from two stools and three blood cultures.

*Bact. alkaligenes* was recovered from the centre of one of some 15 gallstones removed at operation.

## 3—VACCINES

(a) *Autogenous Vaccines*

One hundred and forty-two were prepared, of which sixty-five were of the "agglutinating faecal coliform" type and thirty-two for urinary infections.

(b) *Stock Vaccines*

|                                                      |     |     |     |            |
|------------------------------------------------------|-----|-----|-----|------------|
| Detoxicated gonococcal vaccine                       | ... | ... | ... | 3,420 c.c. |
| Mixed anti-catarhal vaccine                          | ... | ... | ... | 864 c.c.   |
| Multivalent streptococcal and staphylococcal vaccine | ... | ... | ... | 228 c.c.   |
| Mixed <i>B. coli</i> vaccine                         | ... | ... | ... | 100 c.c.   |

*Stock Prophylactic Vaccines*(c) *Typhoid-paratyphoid Vaccine*

Prepared, 24,320 c.c.; issued, 21,174 c.c.; 646 c.c. of a diluted form for children were also issued. 3,760 c.c. were supplied to Uganda.

One c.c. of the vaccine contains: *S. typhi*, 1,000 million organisms; *S. paratyphi* "A", 750 million organisms; *S. paratyphi* "B", 750 million organisms. A fresh local strain of *S. typhi* was introduced, but no change has been made in the preparation of this vaccine, as in spite of the destruction of the "Vi" antigen no more efficient method of preparation has yet been devised.

*(d) Plague Vaccine*

Prepared, 580,000 c.c.; issued, 474,550 c.c.; 39,000 c.c. were supplied to Uganda.

*(e) Anti-rabic Vaccine*

Prepared, 12,270 c.c.; issued, 9,150 c.c.; 3,480 c.c. were supplied to Uganda and 2,660 c.c. to Tanganyika.

*(f) Pneumococcal Vaccine*

Prepared, 93,690 c.c.; issued, 58,167 c.c. This vaccine, which at the beginning of the year contained the eight most prevalent types of pneumonia, was altered to include *H. influenzae* in place of the least common of the pneumococcal types.

Issues in 1936 of stock prophylactic vaccines rose well over those of 1935, the increases in demand for typhoid-paratyphoid, plague, and anti-rabic vaccines being 10 per cent, 43 per cent, and 30 per cent, respectively.

*(g) Treatment*

Thirty courses of injections for desensitization, autogenous vaccines and prophylactic vaccines were carried out at the Laboratory.

Sour milk cultures have been supplied to dairies and private individuals, the organism used being *Lactobacillus acidophilus*.

## 5—ANTI-SERA

The following anti-sera obtained from England or South Africa were issued:—

|                                              | Ampoules<br>Received |
|----------------------------------------------|----------------------|
| Anti-streptococcal (multivalent) .. .. .     | 293                  |
| Anti-streptococcal (puerperal) .. .. .       | 131                  |
| Anti-meningococcal .. .. .                   | 828                  |
| Meningococcus anti-toxin .. .. .             | 263                  |
| Tetanus anti-toxin (prophylactic) .. .. .    | 180                  |
| Tetanus anti-toxin (therapeutic) .. .. .     | 183                  |
| Gas gangrene anti-toxin .. .. .              | 71                   |
| Selavo's anti-anthrax serum .. .. .          | 52                   |
| Diphtheria anti-toxin (therapeutic) .. .. .  | 92                   |
| Diphtheria anti-toxin (prophylactic) .. .. . | 36                   |
| Anti-dysentery .. .. .                       | 59                   |
| Anti-venomous .. .. .                        | 10                   |

## 6—WATER ANALYSES

Ten samples of water were examined bacteriologically. Samples received from the Nairobi Municipality did not show a very satisfactory condition of the water supply.

## 7—FINANCE

Our stock prophylactic vaccines are issued free in this Colony, although a small charge is made to the adjoining territories. The value of the vaccines prepared, based on the charges made by other laboratories, is shown below:—

|                              | VALUE    |        |
|------------------------------|----------|--------|
|                              | Prepared | Issued |
|                              | £        | £      |
| Plague Vaccine .. .. .       | 29,000   | 23,727 |
| T.A.B. Vaccine .. .. .       | 1,216    | 1,059  |
| Anti-rabic Vaccine .. .. .   | 479      | 357    |
| Pneumococcal Vaccine .. .. . | 4,685    | 2,908  |

Actual revenue from all work done by this section was £380-15-0. Of this sum, £159 was derived from vaccines sent to Uganda and Tanganyika.

#### 8—CULTURE MEDIA

In order to obviate the cost of buying commercial preparations of peptone for all purposes, Mr. Doust has prepared peptone from discarded material from the abattoir, using a modification of Bramigk's method. This product is now used in the stock broth and in the medium for the preparation of plague vaccine, thus making a saving of about £50 a year.

#### 9—RESEARCH

##### (a) *Pneumonia*

During six years' work on pneumococci nearly 800 strains were typed, and a vaccine containing the eight most prevalent types was produced. This year therefore it has been considered advisable to confine investigation to cases of pneumonia in H.M. Prison, Nairobi, where the value of the pneumonia vaccine is being tried, and to the maintenance of types to be incorporated in the vaccine.

One hundred and fourteen specimens, mostly of sputa from cases of pneumonia in the Prison Hospital, were examined, the results being as follows:—

|                                             | From<br>sputa | From<br>C.S.F. | Other<br>sources | Total<br>number | In-<br>cidence<br><i>Per cent</i> |
|---------------------------------------------|---------------|----------------|------------------|-----------------|-----------------------------------|
| <i>Pneumococci</i> —                        |               |                |                  |                 |                                   |
| Type I .. .. .                              | 8             | —              | 2                | 10              | 13.2                              |
| " II .. .. .                                | 2             | —              | —                | 2               | 2.6                               |
| " III .. .. .                               | 2             | —              | —                | 2               | 2.6                               |
| " V .. .. .                                 | —             | —              | 1                | 1               | 1.3                               |
| " VIII .. .. .                              | 2             | 1              | —                | 3               | 3.9                               |
| " XII .. .. .                               | —             | —              | 1                | 1               | 1.3                               |
| " XV .. .. .                                | 2             | —              | —                | 2               | 2.6                               |
| " Kw I .. .. .                              | 1             | —              | 1                | 2               | 2.6                               |
| " Kw M .. .. .                              | 1             | 1              | —                | 2               | 2.6                               |
| " Kw V .. .. .                              | 2             | —              | —                | 2               | 2.6                               |
| Not of the eight vaccine types ..           | 17            | 1              | —                | 18              | 23.7                              |
| <i>Streptococci</i> .. .. .                 | 4             | —              | 2                | 6               | 7.9                               |
| <i>H. influenzae</i> .. .. .                | 7             | —              | —                | 7               | 9.2                               |
| " with an unknown pneumo-<br>coccus .. .. . | 10            | —              | —                | 10              | 13.2                              |
| Friedlander's bacillus .. .. .              | 6             | —              | —                | 6               | 7.9                               |
| <i>H. influenzae</i> with streptococci ..   | 2             | —              | —                | 2               | 2.6                               |
| TOTAL ..                                    | 66            | 3              | 7                | 76              |                                   |

In 38 specimens the mouse blood cultures were either negative, or the mice survived, or the specimen was a repeat from a previous case.

Cross agglutination tests, done with suspensions and sera received from New York in conjunction with our own sera and suspensions, have established that Dr. de Snidt's original types Kw B, Kw F, Kw O, and Kw T, are identical with the New York types IV, IX, XV, and XII (Cooper) respectively.

##### (b) *Plague*

The vaccine is made by culture at 30° C., and is carbolyzed. Partly to compare our product with vaccines of live bacilli, the efficacy of our vaccine was tested on a small scale on white rats. Fifteen control and fifteen experimental animals were used; all were females, with weights varying between 240 grammes and 260 grammes, and were divided so as to obtain equal numbers of the same weight in each group.

The rats of the experimental group were given two doses of the stock plague vaccine of 0.3 c.c. and 0.4 c.c. subcutaneously with an interval of six days. Ten days after the second dose of vaccine all animals of both groups were given a subcutaneous injection of 300 million virulent plague bacilli—a dose which had been previously found to cause death in about three to four days.

|                                       | Control Group          | Vaccinated Group       |
|---------------------------------------|------------------------|------------------------|
| 1st day (Dose of virulent bacilli) .. | 15 all well            | 15 all well            |
| 4th day .. ..                         | 3 died<br>12 survivors | 1 died<br>14 survivors |
| 5th day .. ..                         | 8 died<br>4 survivors  | 1 died<br>13 survivors |
| 6th day .. ..                         | 3 died<br>1 survivor   | 13 survivors           |
| 7th day .. ..                         | 1 survivor             | 1 died<br>12 survivors |
| 8th day .. ..                         | 1 died<br>No survivors | 12 survivors           |
| 10th day .. ..                        |                        | 1 died<br>11 survivors |
| 15th day .. ..                        |                        | 1 died<br>10 survivors |
| 30th day .. ..                        | No survivors           | 10 survivors           |

All the rats which died were examined and plague infection was confirmed by spleen smear and culture. The ten survivors of the vaccinated group were then killed and examined as before, and no plague infection was found.

It will be seen that the difference in percentage mortality is 66.7, of which the standard deviation is 17.2, so that the result may be considered significant.

It would appear therefore that in white rats the plague vaccine afforded a definite protection, and although the vaccinated animals received relatively much larger doses than those used in human prophylaxis it seems reasonable to assume that some degree of immunity would be conveyed to man.

#### (c) Meningitis

Sixty-three samples of cerebro-spinal fluid were collected from the Native Hospital, Nairobi, of which twenty yielded growths of meningococci. Of the twelve strains tested by agglutination with the Oxford Laboratories' sera, all fell into Group I, although with varying titres.

A vaccine is in the process of preparation, and although an estimate of the value of such a vaccine is very difficult to form, it is hoped that there will be an opportunity to obtain some indication following its use on estates in endemic areas.

#### (d) Typhoid

A survey of *S. typhi* "H" and "O" agglutinins in the sera of Africans, which have been sent for Kahn tests, is being carried out.

### E—SECTION OF SEROLOGY

#### 1—STAFF

Dr. F. W. Vint was in charge of this section during January, 1936; Dr. H. D. Tonking from February to September, and Dr. G. L. Timms from October till the end of the year.

#### 2—ROUTINE EXAMINATIONS

##### (a) For Syphilis

The Kahn reaction was used as a routine test for syphilis as in previous years; 3,625 sera were received, and the results were as follows:—

|                                               |     |     |     |     |     |       |
|-----------------------------------------------|-----|-----|-----|-----|-----|-------|
| Negative                                      | ... | ... | ... | ... | ... | 1,898 |
| Positive                                      | ... | ... | ... | ... | ... | 1,386 |
| Doubtful                                      | ... | ... | ... | ... | ... | 240   |
| Contaminated or otherwise unsuitable for test | ... | ... | ... | ... | ... | 101   |

Sera classed as "doubtful" include many of which there was insufficient to allow of the full test being carried out.

(b) *Agglutination Tests*

738 specimens of serum were received for examination for agglutinins against the typhoid group of organisms. All these sera, whether it was asked for or not, were also tested against a *Brucella Abortus* suspension supplied by the Veterinary Research Laboratory, Kabete. The results obtained are tabulated below:—

|                                                           | Euro-<br>pean | Asian | African | Total |
|-----------------------------------------------------------|---------------|-------|---------|-------|
| Negative .. .. .                                          | 75            | 28    | 339     | 442   |
| Giving a titre of 1:50 or over against—                   |               |       |         |       |
| i. <i>B. typhosus</i> alone .. .. .                       | 21            | 13    | 113     | 147   |
| ii. <i>B. Para Typhosus A</i> alone .. .. .               | 0             | 1     | 1       | 2     |
| iii. <i>B. id. Typhosus B</i> alone .. .. .               | 4             | 0     | 11      | 15    |
| Group agglutination (T.A.B.) .. .. .                      | 54            | 0     | 27      | 81    |
| iv. <i>Brucella Abortus</i> .. .. .                       | 2             | 0     | 24      | 26    |
| Giving a titre of 1:125 or over against <i>B. Proteus</i> |               |       |         |       |
| X19, X2 or K (Weil Felix Reaction) .. .. .                | 12            | 1     | 4       | 17    |
| Haemolysed or otherwise unsuitable .. .. .                | 3             | 0     | 5       | 8     |

In addition, one serum was received for examination for heterophile sheep cell agglutinins diagnostic of glandular fever, and was found positive.

## F—SECTION OF MEDICAL ENTOMOLOGY

### 1—STAFF

The staff included: Mr. C. B. Symes, Medical Entomologist in Charge; Dr. J. I. Roberts, Medical Entomologist; Mr. J. McMahon, Senior Laboratory Assistant; Mr. J. O. Harper, Malaria Overseer; Mr. C. Teesdale, Malaria Overseer; Mr. C. Greenway, Malaria Overseer; Mr. R. T. Vane, Tsetse Field Overseer; Mr. W. E. Grainger, Junior Laboratory Assistant; and thirty-five African assistants.

### 2—LEAVE

Mr. J. O. Harper returned from overseas leave on 7th April, and resumed duty in Kisumu.

Mr. W. E. Grainger proceeded on leave in April and returned in December.

Dr. J. I. Roberts proceeded on leave on 25th November.

Additional African staff were appointed and trained for duty under the Colonial Development Fund Scheme at Mombasa.

### 3—MOSQUITOES AND MALARIA

(a) *Nairobi*.—Routine observations have continued. The Medical Officer of Health, Nairobi, has been kept informed of breeding activity. The incidence of malaria was low as the result of seasonal influences.

(b) *Kisumu*.—Temporary control has been maintained. Over 7,500 dissections of *A. gambiae* and *A. funestus* have been carried out. These are the only domestic species.

Permanent work under the Colonial Development Fund scheme has progressed satisfactorily. During the year the following items of work have been carried out:—

- (i) Survey of the whole of the lake shore area and streams flowing thereto.
- (ii) Abolition of a large section of papyrus swamp in the vicinity of the aerodrome.
- (iii) Drainage of seepage areas in the vicinity of the Kisart River and Partington's Dyke.
- (iv) Raising and levelling the low-lying land at the head of Hippo Bay.

(v) Filling, levelling, or drainage of murram pits, other excavations and disused drains.

(vi) Tree planting at the Rifle Butts area and near the head of the Kisart River.

We are associated with these works merely in an advisory capacity.

(c) *Kakamega*

Mr. Greenway, Malaria Overseer, took over control work from Mr. Teesdale in March. Routine township control has continued satisfactorily. Mines and mining areas have been visited regularly. Some attention has also been paid to native reserve areas, where numerous mill dams are creating dangerous conditions.

(d) *Kitui, Fort Hall, Digo, Meru, Isiolo, Malindi and Kilifi*.—Trained Africans have continued their surveys and general control work in each of these places. At Malindi and Kilifi organized domestic searches are reducing the incidence of *A. funestus*. But in Malindi successful control of this species will be possible only when the many old wells are abolished or satisfactorily repaired and covered. At the moment we are distributing a local larvivorous fish.

(e) *Mombasa*.—An intensive entomological survey was begun in June with funds granted from the Colonial Development Fund. The survey will continue for about eighteen months.

So far the results indicate a very scanty production of *A. gambiae* on the Island but an abundance on the mainland. *A. funestus* has not been found on the Island during the present investigation.

(f) Over 7,000 dissections have been carried out of adults of *A. gambiae* and *A. funestus* captured in Nairobi and the Digo districts.

A few specimens of other species have also been examined. Natural infection is confined to *gambiae* and *funestus*.

(g) Dr. A. M. Evans, of the Liverpool School of Tropical Medicine, arrived in April to carry out researches on *A. funestus* and its probable varieties. She worked on collections from all districts, and visited Kisumu, Kitale, Kakamega, Fort Hall, Mombasa, Malindi, and Msambweni. She returned to England in September. Her findings are being published in the *Annals of Tropical Medicine and Parasitology*. They include two new species, *A. harperi* Evans and *A. mcMahon*i Evans, and much new information on the *funestus* group.

Mr. H. S. Leeson, Collector on the staff of the London School of Hygiene and Tropical Medicine, accompanied by Mr. Gillett, Assistant, paid a brief visit to Kisumu and later to Nairobi, during a collecting tour in Uganda and Tanganyika.

#### 4—YELLOW FEVER

(a) *Aedes ægypti*.—During the year special surveys have been made in Kisumu, Kakamega, Nairobi, Malindi and Mombasa to determine the degree of infestation by this species. Results are briefly as follows:—

##### *Nairobi*

(i) Houses and compounds searched, 1,033. *Aedes ægypti* index: Adults, 0.19 per cent; larvæ, 0.39 per cent.

(ii) Tree holes searched, 127. *Aedes ægypti* index: 22 per cent.

##### *Kisumu*

Houses and compounds searched, 493. *Aedes ægypti* index: 0.

A piped water supply, together with house-to-house inspections, have been instrumental in producing this result.

*Kakamega*

House and compound searches, 1,054. *Aedes aegypti* index (adults): 1.9 per cent.

House-to-house inspections have helped to produce this low index.

*Malindi*

(i) Average monthly searches in houses and compounds, 657. Average *Aedes aegypti* index (larvæ): 27 per cent.

(ii) Average number of wells searched monthly, 151. Average *Aedes aegypti* index (larvæ): 19 per cent.

Wells are the only permanent sources of domestic water. The index would drop in a striking manner if all wells could be effectively covered.

*Mombasa*

(i) Houses and compounds searched, 1,745. *Aedes aegypti* index: larvæ, 17 per cent; adults, 13 per cent.

(ii) Number of tree holes searched, 4,552. *Aedes aegypti* index: larvæ, 1.9 per cent.

(iii) Number of wells searched, 259. *Aedes aegypti* index: larvæ, 0.38 per cent.

(iv) Large numbers of old tins, coco-nut shells, and other articles that hold water also produced *A. aegypti*.

The native population obtains domestic water from standpipes and kiosks. They store it in tins, drums and small stone or concrete tanks. Control is being organized.

Other areas are being investigated.

(b) *Other Species of the Yellow Fever Group.*—The only species that appear to enter houses in numbers are *Taeniorhynchus uniformis* and *T. africanus*. They are very numerous in domestic catches in Kisumu. Breeding places of *A. simpsoni* and *Eretmopodites Chrysogaster* (group) are abundant in Mombasa, but adults are rarely captured either in domestic searches or in the bush.

## 5—INSECTS IN AEROPLANES

(a) Incoming aeroplanes are still searched for insects at Nairobi and Kisumu. Numbers of specimens, in large variety, are captured. There are, however, fewer mosquitoes than formerly. It seems that the pyrethrum spray fluids used for disinfestation of aeroplanes are effective against few insects other than mosquitoes. Muscids are probably the commonest group transported by air.

(b) Our disembarkation traps, fitted to both luggage and passenger exits at Kisumu, are capturing insects similar in numbers and variety to those already recorded from cabins. Muscids are again predominant.

(c) We have carried out tests of a paraffin pyrethrum-carbon-tetrachloride spray fluid for routine disinfestation of aeroplanes. Our results are briefly as follows:—

(i) The ordinary home-made pyrethrum-paraffin extract, made with 1 lb. pyrethrum powder and 1 gallon of paraffin, must be used at the rate of 20 to 25 c.c. per 1,000 cubic feet to produce a complete kill in five minutes—the time we considered convenient for practical application.

(ii) With this dosage, the atmosphere in the fumigation chamber—a room of 1,400 cubic feet—is definitely not pleasant.

(iii) Though such an amount of paraffin in 1,000 cubic feet of air may not be inflammable or explosive, it may be that over a period of time many applications of this dosage *might* make fabric more easily inflammable. When

it is realized that an aeroplane may be treated several hundred times a year during its service between, say, Cairo and the Union of South Africa, the importance of reducing the non-volatile paraffin residue to a minimum seems clear.

(iv) The strength of pyrethrum-paraffin home-made extract varies with the quality of pyrethrum powder used, the quality of the paraffin, and the time during which the extraction is allowed to go on. The product produced in Kisumu may therefore be very different from that produced in Mombasa. Moreover, it seems advisable to eliminate as many possible sources of error or inefficacy as possible.

(v) In order to overcome these drawbacks—(ii), (iii), (iv)—we have carried out tests with a standard concentrated pyrethrum extract made by Messrs. Stafford Allan.

We find that a mixture made up as follows kills all mosquitoes in five minutes when used at a dosage of 20 c.c. per 1,000 cubic feet:—

|                                           |          |
|-------------------------------------------|----------|
| Stafford Allan's Concentrated Extract ... | 1 part   |
| Paraffin (good "white") ...               | 16 parts |
| Carbon tetrachloride ...                  | 64 parts |

This mixture, at the dosage given, does not irritate the mucous membranes of people present whilst the fumigation is in progress. It contains so little paraffin (4 c.c. per 1,000 cubic feet) that the inflammability factor is reduced very considerably; and, since the pyrethrum content is constant, it gives consistent results.

(vi) The difference in cost (of materials) of the two fluids mentioned in paras. (i) and (v) is, of course, very considerable.

The simple paraffin-pyrethrum extract (home-made) costs about 10 cents for a 5,000 cubic feet fumigation, whereas the paraffin-pyrethrum-carbon tetrachloride mixture costs about Sh. 1 for a 5,000 cubic feet fumigation.

(vii) We carried out tests on three different pumps:—

- (a) Four Oaks Kent sprayer with specially adapted nozzle.
- (b) Devilbiss Handpower sprayer.
- (c) British Aerograph Co.'s sprayer.

The last is suitable for this work; the others are not. It can be pumped up to 40 lb. pressure, it delivers a good carrying well-atomized cloud, and it is easily portable. Moreover, its glass container permits of the measurement of the required dosage.

#### 6—TSETSE FLY (*G. palpalis*) AND SLEEPING SICKNESS

(a) *Kaniadoto*.—Elimination of *G. palpalis* by the "block" method has been continued throughout the year with funds provided by the Local Native Council. Settlement of the fly-free area along the Nthiwa, Pala and Mirogi Rivers, which had been freed of fly during the course of an experiment financed from the Colonial Development Fund, has also continued. Large acreages are being used for cotton production.

(b) *Port Victoria*.—This second field experiment in trapping and hand-catching has continued. Fly density was very high in this area, however, and reduction is considerably slower than it was in Kaniadoto. Financial help from the Nyanza Administration is promised to extend the period of this experiment to the end of June.

Very large numbers of pupæ are being collected. Mr. Southby, who is in charge of the work, has noted that gravid females are attracted to newly turned soil in light shade. His pupæ collectors therefore prepare simple breeding grounds in easily accessible places. From these, pupæ are obtained in large numbers.

## 7—PLAGUE

The incidence of plague in Kenya is governed largely, as elsewhere, by the economic condition of the people. An important factor in the occurrence of the disease is an abundance and consequent wastage of foodstuffs, due to inherent fertility of the land, as at South Nyeri; to affluence of the people arising out of the sale of produce; or to both.

There seems to be, however, one important difference between Kenya and other areas throughout the world where plague occurs: Kenya does not suffer from very serious epidemics, such as are encountered, for instance, in India and Uganda.

It is suggested that the differences in the habits of the two plague carriers, *X. cheopis* and *X. brasiliensis*, offer a possible explanation for the much lower incidence of the disease in Kenya.

*X. cheopis* is associated with rats living underground; *X. brasiliensis* with rats in the roof. *X. cheopis* areas are distinguished by an intensity of human infection; *brasiliensis* areas by low incidence in man.

The results of studies in Kenya suggest that the higher incidence of human infection in *cheopis* areas is due to the closer contact with man afforded to this species by its habit of nesting and breeding in the debris of floors in domestic premises; whereas *brasiliensis* areas suffer lower human infection owing to the fewer chances of contact with man offered to this roof-frequenting species.

A subject to which some attention has been given is that of housing and its effects on the incidence of plague. Efforts at rat control among primitive communities by the provision of better houses are to be deprecated unless other control measures are instituted concurrently. As the most important measure is to deprive rats of food, rat-proof grain stores are obviously the greatest need in Kenya endemic centres.

In urban endemic areas, one effective anti-plague measure is the provision of good floors.

## 8—FUMIGATION WITH HCN GAS AS AN ANTI-PLAGUE MEASURE

As a result of experimental work carried out in native reserves against plague, it has been suggested that stocks of cyanide fumigant, together with pumps, should be made available in endemic centres for fumigating infested huts.

It has been recommended that only selective fumigation be carried out with the object of lessening human mortality. At the same time, an extensive campaign of rat-proofing grain stores should be conducted. Anything which deprives rats of food and shelter is an anti-plague measure, and the most effective means of doing this in our endemic areas is to protect the cereal crops and thus reduce the present enormous rat population.

For breaking contact between infective rats, fleas and man, and thus preventing heavy human mortality, routine fumigation has a decided value.

## 9—TYPHUS

The history of a typical *R. sanguineus*-borne human case of typhus has been obtained, together with results of intraperitoneal inoculation in guinea-pigs of material from the initial lesion. This material in the earlier inoculations caused a high mortality among guinea-pigs, and the febrile period was characterized by the swing of temperatures between morning and evening.

Three cases of non-lesion type of typhus occurred in a brewery heavily infested with rats and fleas, the patients affirming that they had been bitten only by fleas. The *Xenopsylla* index was 15.0 per rat. Inoculation into guinea-pigs of emulsified brain and testicle material from *Rattus rattus* trapped at this typhus focus, and of emulsified fleas from the rats, resulted in the establishment of a strain of virus producing a typhus-like syndrome. A typical scrotal reaction was observed in the majority of guinea-pigs inoculated. The

onset was generally sudden, and coincided with the rise in temperature. Subsidence of the swelling and inflammation was gradual. Loss in weight was not a marked feature of the forms of virus-infection encountered in Kenya. It has not been found necessary to keep the pigs on vitamin-deficient diets.

Post-mortem appearances in the rat and flea forms of typhus differ from those of the tick type mainly in less ascites and slight enlargement of the spleen. In the former type, too, the swing in temperatures between morning and evening is not so pronounced as in the tick type.

#### 10—SCHISTOSOMIASIS

The result of the snail survey in the Nairobi district has shown that *Planorbis pfeifferi* Kos. is present in the districts where *S. mansoni* infections are encountered in the native population, and is probably the intermediate host. *Pulinus tropicus* Kos. is also very prevalent, but its association with any form of the disease has not yet been established for this area. In the Digo district, where heavy *S. haematobium* infections are encountered in the native populations, *Physopsis ovoidea* Bgt. and *P. nasuda* Mts. are present and may be hosts of the schistosome.

#### 11—RAILWAY FUMIGATION

The trouble experienced in the employment of paper discs impregnated with liquid HCN gas, recorded in last year's Report, has been satisfactorily dealt with.

The fumigant supplied during 1935 contained 3 per cent chloropicrin, whilst the original experimental supplies did not, and this substance accounted for the bad effect on the health of fumigators. It also caused erosion of the containers. An improvement in the method of packing and the omission of chloropicrin make possible the adoption of this cheaper and quicker method.

#### 12—PUBLICATIONS

- (1) "*A. funestus* (Giles) as a 'Domestic' Breeder," by C. B. Symes; *Annal. Trop. Med. & Parasit.*, Vol. 30, No. 3, Oct. 1936.
- (2) "The Food of Tsetse Flies (*G. swynnertoni* and *G. palpalis*) as determined by the Precipitin Test," by C. B. Symes and J. P. McMahon; *Bull. Ent. Res.*, Dec. 1936.
- (3) "The Eradication of *G. palpalis* from River Areas by the 'Block' Method," by C. B. Symes and R. T. Vane; *Rec. Med. Res. Lab.* No. 7.
- (4) "Plague Conditions in Urban Areas in Kenya," by J. I. Roberts; *Jour. Hyg.*, Vol. 36, No. 1, Sept. 1936.
- (5) "Plague Conditions in Rural Areas in Kenya," by J. I. Roberts; *Jour. Hyg.*, Vol. 36, No. 1, Sept. 1936.
- (6) "The Carriage of Plague," by J. I. Roberts; *Jour. Hyg.*, Vol. 36, No. 1, Sept. 1936.
- (7) "Notes on an East African Vesicant Beetle, *Paederus Crebripunctatus* Epp.," by J. I. Roberts and H. D. Tonking; *Ann. Trop. Med. and Parasit.*, Vol. 29, No. 4, 1935.

### G—SECTION OF BIOCHEMISTRY

#### 1—STAFF

The staff of the section consisted of the Biochemist and two native laboratory assistants. From 1st January until 1st April, Mr. H. M. Nefdt, Laboratory Assistant, was attached to the section. On 27th July, Mr. A. H. Daws was posted to the section as assistant on his return from overseas leave.

## 2—ROUTINE WORK

The following table gives the number and nature of the routine examinations made during the year:—

(a) *Urine*—

|                                                                                      |       |
|--------------------------------------------------------------------------------------|-------|
| General examination, i.e. reaction, specific gravity, albumin, sugar and deposit ... | 1,322 |
| Macleod's urea concentration test ...                                                | 24    |
| Sugar ... ..                                                                         | 42    |
| Albumin ... ..                                                                       | 6     |
| Bile ... ..                                                                          | 7     |
| Diastase ... ..                                                                      | 2     |
| Lead ... ..                                                                          | 1     |

(b) *Blood*—

|                               |    |
|-------------------------------|----|
| Sugar tolerance curves ... .. | 37 |
| Sugar ... ..                  | 44 |
| Urea ... ..                   | 65 |
| Calcium ... ..                | 7  |
| Van den Bergh test ... ..     | 15 |

(c) *Fæces*—

|                                                                           |    |
|---------------------------------------------------------------------------|----|
| Occult blood ... ..                                                       | 32 |
| Fat estimation, i.e. total fat, fatty acids, neutral fat and soaps ... .. | 3  |

(d) *Gastric Contents*—

|                                                                                   |    |
|-----------------------------------------------------------------------------------|----|
| Fractional test meals for total and free acidity, bile, blood and lactic acid ... | 47 |
|-----------------------------------------------------------------------------------|----|

(e) *Cerebro-spinal Fluid*—

|                          |    |
|--------------------------|----|
| Excess globulin ... ..   | 19 |
| Sugar ... ..             | 4  |
| Chloride ... ..          | 3  |
| Lange gold curves ... .. | 18 |

(f) *Miscellaneous*—

|                                         |   |
|-----------------------------------------|---|
| Renal calculi ... ..                    | 2 |
| Human milk ... ..                       | 6 |
| Serous fluid ... ..                     | 2 |
| Vomit ... ..                            | 1 |
| Basal metabolic rate determinations ... | 5 |

The preparation of metallic bismuth was continued, and during the year 169,100 doses were sent to Medical Stores for issue to medical officers.

## 3—RESEARCH WORK

The work on the composition of the blood of the East African native, initiated under the scheme suggested by the Inter-territorial Research Conference of 1933, was completed as far as the hæmoglobin content is concerned by the examination at sea-level of a group of fifty individuals. At Mombasa also the work on vital capacity was concluded by the application of Dreyer's formulæ to one hundred and fourteen subjects.

In connexion with these investigations, acknowledgment is made of the invaluable assistance in the provision of material rendered by the Commissioner of Prisons and his staffs, both in Nairobi and in Mombasa.

Studies of basal metabolism and energy exchange in Kenya natives were commenced, and on a group of eight natives and one European thirty-eight estimations of basal metabolic rate were made. With these same individuals the energy exchange during standing has been measured on fourteen occasions.

An examination was made of sixty-seven dietary scales in use in thirty Government hospitals in various parts of the country. On the basis of these scales a long-term rat-feeding experiment was commenced and is at present in progress.

In connexion with a dispatch on the subject of nutrition from the Right Hon. the Secretary of State for the Colonies, a memorandum was prepared and submitted to the Hon. the Director of Medical Services. It summarized the work already published from the Colony and indicated the past, present and projected lines of work on the subject in the Biochemistry Section.

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## APPENDIX

RESUME OF WORK CARRIED OUT AT THE CLINICAL LABORATORY  
ATTACHED TO THE NATIVE HOSPITAL, MOMBASA,  
DURING THE YEAR 1936

## 1—STAFF

*European.*—Mr. W. L. Titman was in charge throughout the year.

*African.*—Two trained assistants.

## 2—EXAMINATIONS

During the year 14,453 specimens were received and dealt with, an increase of 1,393 over the previous year.

The sum of Sh. 2,210 was collected on account of examinations carried out for medical practitioners engaged in private practice.

A detailed account of the work carried out is as follows:—

(a) *Blood Examinations*

(i) Microscopical Examinations (parasites, counts, etc.): 5,446 blood slides were examined, an increase of 1,077 over those examined during 1935. The following list shows the results obtained:—

|                                     |     |     |     |     |       |
|-------------------------------------|-----|-----|-----|-----|-------|
| Negative                            | ... | ... | ... | ... | 4,063 |
| Differential counts                 | ... | ... | ... | ... | 221   |
| Complete blood counts               | ... | ... | ... | ... | 24    |
| <i>P. falciparum</i> (crescents 22) | ... | ... | ... | ... | 1,020 |
| <i>P. malariae</i>                  | ... | ... | ... | ... | 53    |
| <i>P. vivax</i>                     | ... | ... | ... | ... | 19    |
| <i>S. rossi</i>                     | ... | ... | ... | ... | 10    |
| Microfilariae—sheathed              | ... | ... | ... | ... | 4     |
| Microfilariae—unsheathed            | ... | ... | ... | ... | 32    |

Mixed infections 31 (included in above figures).

## (ii) Other blood examinations—

|                        |     |     |     |     |   |
|------------------------|-----|-----|-----|-----|---|
| Van den Bergh reaction | ... | ... | ... | ... | 1 |
| Sugar tolerance curves | ... | ... | ... | ... | 5 |

(b) *Fæces*

(i) 3,885 specimens of fæces were received and examined. *Ankylostoma* and *trichuris* were the predominating ova. *E. histolytica* seems to have fallen in incidence, as there is a difference of practically 100 in the number of positive specimens and a relative increase of some 200 in the total specimens examined.

The following shows the number of occasions on which individual helminths and protozoa were identified:—

|                                  |     |     |     |     |       |
|----------------------------------|-----|-----|-----|-----|-------|
| Negative                         | ... | ... | ... | ... | 1,179 |
| <i>Taenia saginata</i>           | ... | ... | ... | ... | 488   |
| <i>Ascaris lumbricoides</i>      | ... | ... | ... | ... | 879   |
| <i>Ankylostoma duodenale</i>     | ... | ... | ... | ... | 1,383 |
| <i>Trichuris trichura</i>        | ... | ... | ... | ... | 1,241 |
| <i>S. mansoni</i>                | ... | ... | ... | ... | 91    |
| <i>Strongyloides stercoralis</i> | ... | ... | ... | ... | 108   |
| <i>Oxyuris vermicularis</i>      | ... | ... | ... | ... | 23    |
| <i>Hymenolepis Nana</i>          | ... | ... | ... | ... | 3     |
| <i>S. hæmatobium</i>             | ... | ... | ... | ... | 3     |
| <i>Entamæba coli</i>             | ... | ... | ... | ... | 904   |
| <i>Entamæba histolytica</i>      | ... | ... | ... | ... | 249   |
| <i>Giardia intestinalis</i>      | ... | ... | ... | ... | 352   |
| <i>Iodamæba butschlii</i>        | ... | ... | ... | ... | 28    |
| Flagellates (undifferentiated)   | ... | ... | ... | ... | 470   |
| <i>Entamæba nana</i>             | ... | ... | ... | ... | 2     |

## (ii) Other tests on fæces—

|                       |     |     |     |     |    |
|-----------------------|-----|-----|-----|-----|----|
| Occult blood          | ... | ... | ... | ... | 28 |
| For tubercle bacilli— |     |     |     |     |    |
| Negative              | ... | ... | ... | ... | 4  |
| Positive              | ... | ... | ... | ... | 1  |

(c) *Serological Examinations*

(i) Widal's test was carried out on 140 samples of serum, taking as a standard agglutination in a dilution of one in fifty or higher, with the following results:—

|                                 |     |     |     |     |     |
|---------------------------------|-----|-----|-----|-----|-----|
| Negative                        | ... | ... | ... | ... | 102 |
| <i>B. typhosus</i> alone        | ... | ... | ... | ... | 27  |
| <i>B. typhosus</i> para A alone | ... | ... | ... | ... | 3   |
| <i>B. typhosus</i> para B alone | ... | ... | ... | ... | 5   |
| Group agglutinations            | ... | ... | ... | ... | 3   |

In addition to the above, five specimens were put up against *Melitensis* and *Abortus*, all giving negative results.

(ii) 400 specimens of blood for the Kahn reaction were received (a very marked increase over the previous year), pipetted off, and forwarded to Nairobi for examination.

(iii) Ten blood grouping tests were performed.

(d) *Bacteriological Examinations*

(i) *Gonorrhoea*.—338 specimens of urethral exudate were examined, and *Diplococcus gonorrhoeae* was identified microscopically in 177.

(ii) Eight smears from eyes were examined for gonococci and five proved positive.

(iii) *Lymph from chancres*.—43 specimens were received and examined. *T. pallida* was demonstrated in 11 specimens.

(iv) *Sputum*.—474 specimens of sputa were received and examined for tubercle bacilli, with the following results:—

|                |     |     |     |     |     |
|----------------|-----|-----|-----|-----|-----|
| Negative sputa | ... | ... | ... | ... | 335 |
| Positive       | ... | ... | ... | ... | 138 |

In addition to the above examinations, five concentration tests were carried out by the Antiformin Method, one of which proved positive.

(v) *Leprosy*.—Thirteen nasal smears were examined for *B. leprae*, all of which proved negative.

(vi) *Plague*.—1,134 smears from rats either trapped or found dead were examined for *B. pestis*, all of which were negative.

(vii) *Cerebro-spinal Fluid*.—Thirty-five specimens were received and examined as follows:—

|                             |     |     |     |     |    |
|-----------------------------|-----|-----|-----|-----|----|
| For meningococci—           |     |     |     |     |    |
| Negative                    | ... | ... | ... | ... | 16 |
| Positive                    | ... | ... | ... | ... | 13 |
| For trypanosomes (negative) | ... | ... | ... | ... | 2  |
| Pneumococci present         | ... | ... | ... | ... | 1  |
| Cell counts                 | ... | ... | ... | ... | 3  |

(viii) *Anthrax*.—Two smears were received, and *B. anthracis* was identified in both.

(ix) *Cultures*.—Ninety-five specimens for cultural examination were received as follows:—

|                |     |     |     |     |    |
|----------------|-----|-----|-----|-----|----|
| Fæces          | ... | ... | ... | ... | 9  |
| Urine          | ... | ... | ... | ... | 80 |
| Pus from boils | ... | ... | ... | ... | 2  |
| Throat swabs   | ... | ... | ... | ... | 4  |

(x) *Miscellaneous Smears*.—Twenty-six smears from various sources were received and dealt with. Noticeable among these was one specimen of pus from a gland which contained tubercle bacilli and one smear from a sore in which Leishman Donovan bodies were found.

*(e) Urines*

2,756 specimens of urine were received and examined as follows:—

|                             |     |     |     |       |
|-----------------------------|-----|-----|-----|-------|
| General examination         | ... | ... | ... | 2,713 |
| Gonococci—                  |     |     |     |       |
| Negative                    | ... | ... | ... | 13    |
| Positive                    | ... | ... | ... | 1     |
| Sugar estimation            | ... | ... | ... | 2     |
| Albumin estimation          | ... | ... | ... | 10    |
| Acetone                     | ... | ... | ... | 5     |
| Tubercle bacilli (negative) | ... | ... | ... | 12    |

(*S. hæmatobium* was found in 87 specimens during the course of the above examinations.)

*(f) Gastric Analysis*

*Fractional Test Meals.*—Five of these tests were performed for total and free acidity, etc.

*(g) Water Analysis*

Six bacteriological examinations of water were performed, four from the Mombasa water supply and two from wells.

The preliminary results of these, together with sub-cultures, were forwarded to Nairobi for completion of the tests.

*(h) Pathological Specimens*

Thirteen specimens were forwarded to Nairobi for histological examination.

*(i) Miscellaneous Specimens sent to Nairobi*

- 3 cultures for vaccine preparation,
- 3 specimens for Malta fever,
- 10 specimens of *tembo* distillate for alcohol percentage,
- 1 specimen for Weil Felix reaction.

*(j) Post-mortem Examinations*

Sixteen post-mortem examinations were carried out, as follows:—

|                                |     |     |   |
|--------------------------------|-----|-----|---|
| Hæmorrhage of brain (murder)   | ... | ... | 1 |
| Pneumonia                      | ... | ... | 3 |
| Fractured skull (murders)      | ... | ... | 2 |
| Fractured cervical vertebrae   | ... | ... | 1 |
| Ruptured spleen and liver      | ... | ... | 1 |
| Heart failure                  | ... | ... | 2 |
| Death by drowning              | ... | ... | 2 |
| Multiple stab wounds (murders) | ... | ... | 4 |

