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

COLONY AND PROTECTORATE OF KENYA.

# MEDICAL DEPARTMENT ANNUAL REPORT, 1929

*INCLUDING THE*

# Medical Research Laboratory Annual Report, 1929



**PRICE Sh. 5/-**

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COLONY AND PROTECTORATE OF KENYA.

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# MEDICAL DEPARTMENT ANNUAL REPORT, 1929

*INCLUDING THE*

# Medical Research Laboratory Annual Report, 1929

No. 16/716/62.

MEDICAL DEPARTMENT,

HEAD OFFICES,

*Nairobi, 27th February*, 1931.

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 1929, together with the Returns, etc., appended thereto.

I have the honour to be,

Sir,

Your obedient servant,

JOHN L. GILKS,
*Director of Medical and Sanitary Services.*

The Honourable,
The Colonial Secretary,
Nairobi.

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# I.—ADMINISTRATION.

The general administration of the Medical Department was conducted on the same lines as previously. The Nairobi Municipality and the Mombasa Municipal Board proceeded with the arrangements for procuring their own staff. Three sanitary inspectors and one sanitary overseer were actually appointed by the Nairobi Municipality.

(*a*) The following gives the principal appointments, promotions, changes, etc., made during the year :—

(1) Mr. G. H. E. Hopkins, Entomologist, transferred to Uganda on July 5th, 1929.

(2) Dr. A. S. Mackie, Medical Officer, transferred to Tanganyika Territory on promotion to Senior Medical Officer on July 28th, 1929.

(3) Dr. J. H. Neill transferred from Uganda on promotion to Senior Medical Officer on August 15th, 1929.

(4) Dr. H. N. Turner transferred from Seychelles on November 4th, 1929.

*New Appointments—*

| | |
|---|---|
| Medical Officers ... ... ... ... | 12 |
| Nursing Sisters ... ... ... ... | 20 |
| Sanitary Inspector ... ... ... ... | 1 |
| Laboratory Assistants ... ... ... | 2 |
| Sanitary Overseers ... ... ... ... | 2 |
| Malaria Field Overseer ... ... ... | 1 |
| Clerks ... ... ... ... ... | 2 |

*Resignations—*

| | |
|---|---|
| Nursing Sisters ... ... ... ... | 3 |

*Appointments Terminated—*

| | |
|---|---|
| Health Officer ... ... ... ... | 1 |
| Nursing Sister ... ... ... ... | 1 |
| Sanitary Overseer ... ... ... ... | 1 |

(*b*) The following Ordinances affecting public health were enacted during the year :—

Abuse of Opiates Prevention (Amendment) Ordinance.
Appropriation Ordinance.
Births and Deaths Registration (Amendment) Ordinance.
Local Government (Loans) Ordinance.
Local Government (Rating) (Amendment) Ordinance.
Malaria Prevention Ordinance.

## FINANCIAL.

The total of the sanctioned estimates for the Medical Department for the year 1929 was £248,561, an increase of £38,495 over the previous year.

The total for personal emoluments was increased by £8,983 to allow for the appointment of twelve additional medical officers, one sanitation officer, twelve nursing sisters, one sanitary inspector, two laboratory assistants, two malaria overseers, four sub-assistant surgeons and three motor car drivers.

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 |
|---|---|---|---|---|---|
| | £ | £ | £ | £ | £ |
| 1927 .. | 198,265 | Nil | 198,265 | 180,227 | Nil |
| 1928 .. | 204,801 | 5,265 | 210,066 | 195,161 | 4,141 |
| 1929 .. | 233,506 | 15,055 | 248,561 | 222,184 | 11,573 |

The following new votes appeared, of which the first two replaced Bush Clearing, Malaria and Sleeping Sickness Measures, and Upkeep of Disinfecting Apparatus, respectively :—

| | |
|---|---|
| Anti-Malarial Measures ... ... ... ... | £1,800 |
| Prevention of Disease—Routine Measures ... | 200 |
| Propaganda ... ... ... ... ... | 2,200 |
| Upkeep of Boats ... ... ... ... ... | 240 |
| *Total* ... | £4,440 |

The actual expenditure in the year was £14,804 less than the sanctioned total.

The revenue collected amounted to £34,325 against £22,780 in 1928.

Of the total estimated expenditure in 1929 of £3,188,165 for the Colony and Protectorate, £248,561 represented expenditure on Public Health and Medical Relief, a ratio of 1 to 12.8 or 7.79 per cent.

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

## II.—PUBLIC HEALTH.

No outbreak of epidemic disease of any seriousness occurred and the malaria which had made its presence felt so severely in the preceding year lost its epidemic character.

The main factors which govern the state of the public health remain substantially unchanged, nor could it be expected that any great modification in the direction of improvement of such items as the housing, food supplies, economic condition or state of education could take place in any short period of time, especially among the native peoples, the largest section of the population of Kenya. There are, however, very definite indications of a desire for improvement and a willingness to adopt suggestions towards this end.

### (I) GENERAL DISEASES.

#### MALIGNANT DISEASE.

The total number of cases of malignant disease among the native population was returned as fifty-three, a large increase on the previous year. The diagnoses made by histological examination at the Laboratory were :—

| | | | |
|---|---|---|---|
| Carcinoma ... | 17 | Epithelioma ... | 13 |
| Endothelioma ... | 2 | Sarcoma ... ... | 21 |

#### RHEUMATISM.

Large numbers of cases continue to be returned under the headings of either " acute " or " chronic rheumatism ", though comparatively few are admitted to hospital. There is no doubt that the heading is a convenient one under which to group cases whose etiology is not fully explored. Typical acute rheumatism as met with in England is by no means common in Kenya, while secondary effects of acute rheumatism on the heart are equally rare.

#### DEFICIENCY DISEASES.

The numbers of cases which are returned under the various headings of this group are never large under normal circumstances such as have existed in 1929, but this is not an indication that the nutritional condition of the population, especially the native section, is satisfactory. The pre-deficiency state as evidenced by low resistance to disease, defective teeth and gums and generally poor physical condition is undoubtedly very much in evidence.

The actual totals for deficiency diseases returned during the year were :—

Scurvy ... 108 ... Beri-beri ... 12 ... Rickets ... 10

## (II) COMMUNICABLE DISEASES.

### (a) MOSQUITO OR INSECT-BORNE.

#### Malaria.

In the year now under review no fulminating outbreaks such as those which characterized the years 1926 and 1928 occurred anywhere in the highlands and the general incidence in these areas appeared to be low. In one of the rural districts of the highlands, however, in which malaria had prevailed in epidemic form in 1928, careful observations were made throughout 1929 with regard to the parasite and spleen rates of African native employees on farms and such figures as could be obtained with regard to the incidence of clinical malaria among natives, Asiatics and Europeans, were collected. The results showed, firstly, that there was a rise in the incidence of clinical malaria during the period April to July; secondly, that throughout the year parasites could be demonstrated in the blood of many natives who made no complaint of sickness and thirdly, that though only 1.6 per cent of native children over ten years of age and adults were found to be carriers of gametocytes, the percentage of children under ten years of age harbouring gametocytes was very much higher and during the second year of life was 29.3.

The position is, therefore, that from one highland area where malaria had been epidemic in the preceding year the infection in the succeeding non-epidemic year did not disappear completely, though the incidence was not such as to attract general attention. A certain number of cases of definite disability from malaria occurred and a reservoir of infection continued to exist, more particularly among native children. The observations which were begun in this district in 1929 will be continued during 1930. Throughout the remainder of the highland areas, both urban and rural, the incidence of malaria as indicated by the occurrence of clinical cases would appear to have remained low. In some of these areas epidemic outbreaks have never been recorded and it is probable that malaria is seldom contracted locally there. In others it is probable that there is a small seasonal rise each year and that a reservoir is always present to some degree among the native population.

With regard to malaria in the native reserves occupying the lower lying parts of the Colony and in which the disease is endemic, there is as yet little detailed knowledge. We have always known that in these areas malaria is endemic and we have always taken it for granted that the disease there is responsible for a large part of the infantile mortality and for a considerable amount of disability in later life. Further than that, however, we know little as up to the present we have not been in a position to measure the variations in incidence and virulence of malaria from year to year or to determine its importance in relation to other debilitating diseases.

Nevertheless some information has been collected and it is becoming increasingly evident that in the warmer and lower lying areas of the Colony the incidence of infection with the malaria parasite is very high. As more staff becomes available, more detailed observation will be possible, but it will be some years before accurate records of yearly variations can be presented with regard to those areas where at present the incidence of the infection is normally high and in many cases practically universal.

The position may be summed up as follows :—

(*a*) There are areas in the highlands of the Colony where malaria so far as we know is not endemic and has never been epidemic.

(*b*) There are areas in the highlands where malaria of recent years has become endemic and where on occasion it has been epidemic and may on occasion become again epidemic.

(*c*) There are great areas in the lowlands where malaria is endemic, where it undobtedly takes a great toll of life and yearly is responsible for much sickness and disability.

The total number and variety of cases, both in-patients and out-patients, which were shown in the returns of the year are given below :—

| | |
|---|---|
| Tertian ... ... ... ... | 1,337 |
| Quartan ... ... ... ... | 414 |
| Aestivo autumnal ... ... | 2,082 |
| Undifferentiated ... ... | 19,408 |
| Cachexia ... ... ... | 372 |
| *Total* ... | 23,613 |

**Blackwater.**

The numbers of cases of blackwater and deaths which have come under observation by the Government medical staff during the past five years are as follows :—

| | *Cases.* | *Deaths.* |
|---|---|---|
| 1925 ... ... ... | 50 ... | 11 |
| 1926 ... ... ... | 52 ... | 16 |
| 1927 ... ... ... | 34 ... | 7 |
| 1928 ... ... ... | 35 ... | 13 |
| 1929 ... ... ... | 38 ... | 11 |

Twenty-one of the cases and seven deaths occurred among the non-European population.

**Plague.**

A total of 763 cases of plague were reported during the year as compared with 561 cases in 1928. The majority of these cases occurred in the endemic areas of the Nyanza and Kikuyu Provinces. A small outbreak occurred also in an endemic area in the Teita District of the Ukamba Province. In the large maize-growing areas of the settled districts only two sporadic cases occurred. No case occurred in Mombasa and only one case occurred in Nairobi. Two cases were detected in Kisumu.

**Trypanosomiasis.**

The hospital returns show a total of seventy-two cases of sleeping sickness among which were two Europeans who contracted the disease in the neighbourhood of the Kuja River in South Kavirondo. The hospital figures do not represent in any way the incidence of the disease. The areas affected are remote from administrative or medical centres and patients in small numbers only make the necessary journey to obtain treatment. There is little doubt that a focus, small perhaps in extent but with a high incidence, exists in South Kavirondo. This area was detected in the course of the 1927 survey, after which a small group of the most severely affected natives was moved. During 1929, 173 cases were discovered by the medical officer of South Kavirondo during visits to the particular locations concerned and there is evidence to the effect that the disease is spreading and involving a larger area than previously.

There is no information concerning possible new centres and it has not been possible to make more than flying visits by medical officers to the affected areas described in the 1927 survey. Isolated cases came under observation at the Kisii and Kisumu Hospitals and by medical officers working from Maseno.

All the cases detected in hospital or otherwise received treatment by tryparsamide and Bayer 205. Favourable reports as to results were made and attention was called by the medical officer of South Kavirondo to the reduction in the cell count of the cerebro-spinal fluid in those patients who could be persuaded to remain in hospital for the proper course of injections. In no case, however, was a return to normal noted.

It has not proved to be possible to detach an officer during the year to conduct a detailed survey but there is every prospect that this can be done in 1930; in fact the position in South Kavirondo demands such.

### Relapsing Fever.

The incidence of relapsing fever appears to remain at about the same level as in previous years; the totals for 1927, 1928 and 1929 being seventy-one, seventy-nine and fifty-eight respectively. Meru again returns the largest number of cases, seventeen, but this has been equalled by Teita.

### Typhus.

Only one case appears in the official returns, but four were noticed as occurring in Nairobi. As previously, all were observed in Europeans. Two cases came from the same house but they were separated one from the other by a period of six months and the occurrence may be no more than a coincidence.

No light has been shed on the question as to the vector of the disease.

## (b) INFECTIOUS DISEASES.

### Pneumonia.

Pneumonia maintains its place as the most killing disease which is met with in hospital practice. Its effects are the more serious as it appears that the young adult is the section of the population most seriously affected. Of the total number of deaths which took place in Government hospitals 30.1 per cent were due to pneumonia.

The comparative table of admissions and deaths for the past five years is shown below :—

| | Admissions. | Deaths. | Death rate per hundred. |
|---|---|---|---|
| 1925 | 975 | 185 | 18·9 |
| 1926 | 1,263 | 255 | 20·2 |
| 1927 | 1,301 | 279 | 21·4 |
| 1928 | 1,314 | 362 | 27·5 |
| 1929 | 2,175 | 398 | 18·3 |

It will be noted that though there was a considerable increase in the total number of cases there was a distinct fall in the death rate.

The report of the medical officer of health of Nairobi indicates : " That pneumonia caused more than twice as many deaths as all the other communicable diseases put together," being responsible for more than 40 per cent of the total deaths recorded; the death rate working out at 5.5 per thousand of the population of that town.

In Mombasa a similar position obtains. In every month pneumonia headed the list of the causes of death and is responsible for 22 per cent of all deaths which occurred during the year.

Of the deaths in prison 37.3 per cent were caused by pneumonia.

### Smallpox.

No indigenous case of smallpox occurred during the year. One case was detected in April at Mombasa, the patient having landed two days previously from India, and two other similar cases were found during the closing week of the year.

One case of alastrim was reported from Meru, but as no other cases were observed, it is possible that a mistake in diagnosis occurred.

### Syphilis.

The returns show a considerable drop in the number of cases treated during the previous year. The totals for the past five years are :—

| | | | | | |
|---|---|---|---|---|---|
| 1925 | ... | 13,581 | 1927 | ... | 17,054 |
| 1926 | ... | 16,218 | 1928 | ... | 24,442 |
| | | | 1929 | ... | 18,496 |

It should be noted, however, that the large majority of cases are reported as having attended at out-patient dispensaries and for this reason little reliance can be placed upon the figures. Quite apart from the fact that the dressers in charge are semi-illiterate there are enormous inherent difficulties in attempting to keep correct registers concerning an uncivilized population. Added to this there is an unknown number of patients who transfer their patronage from one dispensary to another. The admissions to hospital and out-patients at hospitals only total 3,601 and this, the only figure on which reliance can be placed, is only 1,564 below the figure for 1928 for this section.

It is very doubtful whether the figures as submitted afford any clue as to the real incidence of the disease in the Colony; they may err either on the high or the low side.

The figures from the Kikuyu Reserve, the one perhaps more closely in contact with Nairobi than any other, indicated that syphilis is practically never met with but that yaws is extremely common. This remarkable feature has been commented on in previous reports and appears to be a constant factor when the returns for individual years are considered.

**Yaws.**

The steady increase which has previously been observed in the number of patients receiving treatment for this disease has been maintained in 1929. Comparative figures are :—

| | | | | | |
|---|---|---|---|---|---|
| 1925 | ... | 50,584 | 1927 | ... | 70,253 |
| 1926 | ... | 66,883 | 1928 | ... | 85,617 |
| | | | 1929 | ... | 89,615 |

As in the case of syphilis and for much the same reasons, the figures cannot be accepted as affording an indication of the real incidence of the disease.

Though there is no evidence backed by figures there is little doubt that infective yaws is very much less common in the Kikuyu Reserve than was the case some years ago. The vigorous treatment campaign which has been pursued has probably been the main factor in the control of the disease in this thickly-populated area.

**Tuberculosis.**

The actual figures of cases which came under observation at Government institutions during 1929 remains for all practical purposes the same as in previous years. The totals are :—

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1927 | ... | 634 | 1928 | ... | 657 | 1929 | ... | 676 |

No reliance should be placed on the totals as indicating the incidence of the disease in the country. The position almost certainly is that tuberculosis is far more common than the figures tend to show. Notifications in Mombasa and Nairobi during the year were as follows :—

| | | *Europeans.* | *Asians.* | *Africans.* | *Total.* |
|---|---|---|---|---|---|
| Mombasa | ... | 4 | 49 | 111 | 164 |
| Nairobi | ... | 5 | 7 | 36 | 49 |

The figures might indicate that tuberculosis is less common in Nairobi than in Mombasa, but it would not be safe to draw even such a broad conclusion.

There appears to have been an increase during the past two years in the incidence of tuberculosis in the Nairobi gaol. The matter was made the subject of a special investigation which had not been completed at the end of the year.

All forms of the disease are met with.

**Leprosy.**

The returns give a total of 323 cases for the year, of which fifty-eight were remaining from 1928. The figure is 224 below that of the previous year, but it does not follow that a decline in the incidence of the disease has occurred. Exact knowledge of the amount of leprosy present in the country is lacking and is not likely to be attained until either the disease is regarded more seriously by the native population or some form of specific treatment which will bring about a rapid visible improvement is introduced.

### Enteric.

The number of cases of the enteric group which were reported from Government institutions was considerably lower than in the two preceding years, though the death rate was higher. The actual figures are :—

| | *Cases.* | *Deaths.* |
|---|---|---|
| 1927 ... ... | 230 ... | 34 |
| 1928 ... ... | 320 ... | 45 |
| 1929 ... ... | 107 ... | 25 |

Cases among the native population and deaths were seventy-three and twenty-three respectively.

Of the total 107 cases reported, forty-five occurred in Nairobi and thirty-four in Mombasa.

Nothing approaching an epidemic occurred and cases generally appeared to be unrelated one to another.

The classification by the Laboratory of positive Widal reactions according to the organism concerned (agglutinations in dilutions of over 1–50) was :—

| | |
|---|---|
| B. Typhosus ... ... ... | 93 |
| B. Para-typhosus A. ... ... | 5 |
| B. Para-typhosus B. ... ... | 10 |
| B. Para-typhosus C. ... ... | 2 |

In addition thirteen sera gave positive agglutinations to an equal titre with two or more of the above groups.

### Dysentery.

The total number of cases classified as dysentery which are included in the official returns is 1,382, with fifty-seven deaths. The figure is slightly in excess of that for 1928.

There was a considerable drop in the number of cases of dysentery which occurred in the Nairobi gaol. The cases numbered forty-nine as against 104 in the preceding year.

The classification of cases as received from the various centres is :—

Amoebic ... 204 Bacillary ... 131 Undefined ... 1,049

It is noteworthy that the returns from the Laboratory indicate that amoebic dysentery is relatively uncommon and that no cases of intestinal amoebiasis were met with in the post-mortem room in Nairobi.

It is possible that some at any rate of the large numbers of dysentery cases of which the etiology was not determined were due primarily to schistosomiasis or other causes or were in effect manifestations of food deficiency.

### Diphtheria.

There has been no reason to modify the statement made in the 1928 report to the effect that diphtheria is now endemic in Kenya. Eleven cases were reported during the year, of which the majority, contrary to previous experience, occurred in natives. Seven cases were detected in Nairobi and four at Mombasa. The following table shows the details of the incidence of the disease since it was first detected in 1924 :—

| Year. | Europeans. | Asian. | Natives. | Total. |
|---|---|---|---|---|
| 1924 | 6 | 2 | 3 | 11 |
| 1925 | 2 | .. | .. | 2 |
| 1926 | .. | 4 | 1 | 5 |
| 1927 | 3 | 1 | .. | 4 |
| 1928 | 12 | .. | 2 | 14 |
| 1929 | 3 | .. | 8 | 11 |

No deaths occurred and the disease generally appears to be of a mild type.

One case of dermatitis associated with the Klebs-Loffler bacillus was detected.

### Cerebro-spinal Fever.

A slight increase in the number of cases was reported for the year, the total being sixty-one with seventeen deaths, as against thirty-six with nineteen deaths in the previous year.

A small epidemic in which thirty-two cases were observed occurred at Taveta on the Voi–Moshi Railway.

### Anthrax.

The total of cases which came under observation was 125, of which seventy-six occurred in one location in Meru, where anthrax is rife among the cattle. There were eleven deaths.

The figure for 1928 was sixty-nine.

### Undulant Fever.

Eight cases were reported during the year, of which seven, including two Europeans, were detected at Nairobi. The remaining case came under observation at Machakos, where the disease has occurred in former years.

### Encephalitis Lethargica.

A total of four cases, all among natives, was reported. Two deaths occurred.

Parkinsonism is commonly met with in the Native Reserves.

## (c) HELMINTHIC DISEASES.

It has been stated in previous reports that helminthiasis is practically universal. There has been no reason to modify this remark and there is little doubt that infestation with helminthic parasites as a cause of morbidity is of economic importance, though the actual pathological results have not been worked out.

### Ankylostomiasis.

Infestation with ankylostomes is commonly observed throughout the country, but except on the Coast the condition is one more of ankylostome carrier than of ankylostomiasis.

In the Digo District, where a successful campaign both of treatment and of improvement in sanitary conditions has been vigorously prosecuted for the past few years, a re-examination of a section of the population showed that the egg content per gramme of faeces had fallen 50 per cent. The improvement in the physical condition of the population which was commented on in the 1928 report has been maintained. Provided that the interest in improvement of conditions which has been aroused in this Reserve is continued, and there is no reason why it should be allowed to cool, there is reason to hope that ankylostomiasis may become there a problem of minor importance.

In the Malindi District progress has been slower, but it is being achieved.

### Ascariasis.

Infestation with ascaris is undoubtedly of first rate importance in connexion with morbidity and mortality of children and the numbers of parasites of this nature which have been recovered from individuals have in several instances been remarkable.

Ascaris appears to be the most common helminth met with in Teita and in Kavirondo.

### Taeniasis.

Taenia is only less common than ascaris and infestation with numbers of this parasite as judged by the recovery of heads after treatment is frequent.

### Schistosomiasis.

It is evident that schistosomiasis is more widespread than was formerly imagined. As a result of the increase in the number of trained native laboratory assistants the routine examination of faeces has become more

general than was previously possible, with the result that numerous cases of rectal schistosomiasis which might otherwise have been diagnosed as dysentery have been detected.

In the neighbourhood of Nairobi there appears to be an increase in the number of Europeans, mainly small children, who have become infected with the S. Mansoni.

## VITAL STATISTICS.

The non-native population of the Colony was determined by census in 1926, the African population being estimated at the same time.

*Population in Kenya in* 1926.

| | |
|---|---|
| Europeans ... ... ... | 12,529 |
| Asians ... ... ... ... | 26,759 |
| Arabs ... ... ... ... | 10,557 |
| Africans (estimated) ... ... | 2,515,330 |

### REGISTRATION OF BIRTHS AND DEATHS.

An Ordinance amending the Births and Deaths Registration Ordinance was passed during the year and draft Regulations for promulgation thereunder were prepared and submitted to Government. At the end of the year these Regulations still await approval and the registration of births and deaths remains, therefore, highly unsatisfactory. In the following sections certain figures are given for the larger towns, but as in previous years it is necessary to note that they should be accepted with the utmost reserve. They represent the only deductions which can be drawn from the limited information which is available.

### NAIROBI.

**Health and Mortality—Vital Statistics.**

*A.—Population.*

| | | |
|---|---|---|
| Non-Natives— | | |
| Europeans ... ... | 4,479 | |
| Indians ... ... ... | 9,152 | |
| Arabs ... ... ... | 85 | |
| Others ... ... ... | 1,741 | |
| | | 15,457 |
| Natives ... ... ... ... | | 32,000 |
| Total all races ... ... | | 47,457 |

*B.—Births.*

Births were registered during the year as under :—

| | |
|---|---|
| Europeans ... ... ... | 151 |
| Asiatics ... ... ... ... | 119 |

It is to be noted that only births among Europeans are compulsorily registrable.

*C.—Marriages.*

The following marriages were registered :—

| | |
|---|---|
| Europeans ... ... ... | 120 |
| Asiatics ... ... ... ... | 10 |
| Natives ... ... ... ... | 24 |

*D.—Deaths.*

The total number of deaths reported in Nairobi during the year was 849, equivalent to a crude death rate of 17.91 per thousand population (all races) compared with 25.11 in 1928 and 21.66 in 1927.

The total number given above includes deaths among persons brought into Nairobi hospitals from outside the Municipality.

The number of deaths from all causes among persons stated to be normally resident in Nairobi was 653. The recorded death rate for the year is thus 13.77 per thousand population (all races) as compared with 17.94 in 1928 and 18.9 in 1927.

Of the 653 deaths 481 were males and 172 females.

Thirty-eight deaths occurred among Europeans, equivalent to a rate of 8.48 per thousand Europeans.

One hundred and twenty-eight deaths occurred among Africans, equivalent to a rate of 13.4 per thousand Africans.

*E.—Infant Mortality.*

The total number of deaths in infants under one year of age was 159, or 24.3 per cent total deaths.

As there is no means of ascertaining the number of births during the year no infant mortality rate can be stated.

| Race. | Infant Deaths in Relation to Total Deaths. | | |
|---|---|---|---|
| | Infants. | Total. | Percentage. |
| Europeans .. .. .. .. | 9 | 38 | 23·7 |
| Asiatics .. .. .. .. | 84 | 187 | 44·9 |
| Africans .. .. .. .. | 66 | 428 | 15·4 |

It is to be noted that the African population is very largely composed of adult males, and the number of infants is, therefore, relatively very small.

The chief cause of deaths among infants was pneumonia, fifty-one deaths or 32 per cent of all infant deaths being due to this disease. Diarrhoea and enteritis accounted for fifteen deaths, and congenital debility and premature birth were given as the causes of forty.

## MOMBASA.

### Health and Mortality—Vital Statistics.

*A.—Population.*

The estimated population for 1929 is as follows :—

| Race | Males | Females | Children | Total |
|---|---|---|---|---|
| Europeans .. .. | 700 | 350 | 200 | 1,250 |
| Indians .. .. | 3,800 | 2,100 | 4,100 | 10,000 |
| Goans .. .. | 600 | 300 | 400 | 1,300 |
| Arabs .. .. | 2,400 | 1,850 | 2,750 | 7,000 |
| Africans .. .. | .. | .. | .. | 26,000 |
| Other Races .. | .. | .. | .. | 300 |
| Total .. | .. | .. | .. | 46,850 |

*B.—Births.*

Registration of births is compulsory only in the case of Europeans. The number of births registered during the years 1929 and 1928 was :—

| | 1929. | 1928. |
|---|---|---|
| Europeans ... .. | 23 ... | 13 |
| Indians ... ... | 45 ... | 33 |
| Goans ... ... | 11 ... | 7 |
| Other races ... ... | 14 ... | 5 |
| | 93 | 58 |

*C.—Marriages.*

The following marriages were registered during the years 1929 and 1928 :—

| | 1929. | 1928. |
|---|---|---|
| Europeans ... ... | 53 ... | 79 |
| Arab & Mohammedan | ? ... | 273 |
| Goans ... ... | 8 ... | 9 |
| Africans ... ... | 200 ... | 18 |
| Other races ... ... | 3 ... | 1 |

Many of the European marriages registered in Mombasa are between people belonging to other districts and the figures are not, therefore, representative of Mombasa.

*D.—Deaths.*

The number of deaths reported during 1929 is 933, of which 608 were males and 327 females. For the various races the crude death rates were as follows :—

| | *Per* 1,000 *living.* |
|---|---|
| Europeans ... ... ... | 11.2 |
| Asiatics ... ... ... | 19.82 |
| Arabs ... ... ... ... | 28.85 |
| Africans ... ... ... ... | 18.38 |

The crude death rate for the whole population was 19.99 as compared with 19.44 in 1928, 16.43 in 1927, 19.48 in 1926 and 21.2 in 1925.

*E.—Infant Mortality.*

No infant mortality figures can be arrived at except for Europeans, in which case it was 86.9 per thousand births; this rate is, however, arrived at from very small figures.

## KISUMU.

### Health and Mortality—Vital Statistics.

*A.—Population.*

| Race | 1927 | 1928 | 1929 |
|---|---|---|---|
| Europeans .. .. .. | 153 | 165 | 182 |
| Asiatics .. .. .. .. | 1,257 | 1,600 | 1,768 |
| Africans .. .. .. .. | 6,218 | 5,500 | 3,262 |
| | 7,628 | 7,265 | 5,213 |

*B.—Deaths.*

| Race | 1927 | 1928 | 1929 |
|---|---|---|---|
| Europeans .. .. .. | .. | .. | 1 |
| Asiatics .. .. .. .. | 53 | 43 | 47 |
| Africans .. .. .. .. | 140 | 147 | 85 |
| | 193 | 190 | 133 |

*Crude Death—Rate per* 1,000 *living :—*

| | |
|---|---|
| 1927.. .. | 26·5 |
| 1928.. .. | 26·9 |
| 1929.. .. | 25·5 |

## ELDORET AND KITALE AND THE UASIN GISHU AND TRANS NZOIA DISTRICTS.

### Health and Mortality—Vital Statistics.

It is not considered useful to attempt to modify the population figures used last year as data on which to base alterations are not available and other statistics are similarly approximate. Any rates quoted in this section must be taken as useful for comparison with other districts or countries.

*A.—Population.*

UASIN GISHU DISTRICT (including ELDORET.)

| Race | Male | Female | Children | Total |
|---|---|---|---|---|
| Europeans .. .. | 827 | 438 | 455 | 1,720 |
| Indians .. .. | 699 | 100 | 165 | 964 |
| Goans .. .. | 68 | 22 | 38 | 128 |
| Other Races .. | 119 | 29 | 35 | 183 |
| Africans (estimated) | .. | .. | .. | 17,010 |
| | .. | .. | .. | 20,005 |

ELDORET, ELGONVIEW, KAPSOYA, ORTLEPPVILLE AND WEST ELDORET.

| Race | Male | Female | Children | Total |
|---|---|---|---|---|
| Europeans .. .. | 196 | 129 | 138 | 463 |
| Indians .. .. | 499 | 90 | 180 | 769 |
| Goans .. .. | 57 | 17 | 35 | 109 |
| Other Races .. | 58 | 27 | 35 | 120 |
| Africans (estimated) | .. | .. | .. | 2,248 |
| | .. | .. | .. | 3,709 |

TRANS NZOIA DISTRICT (including KITALE).

| Race | Male | Female | Children | Total |
|---|---|---|---|---|
| Europeans .. .. | 468 | 240 | 222 | 930 |
| Asiatics .. .. | 244 | 41 | 68 | 353 |
| Other Races .. | 35 | 15 | 12 | 62 |
| Africans (estimated) | 6,729 | 5,038 | 7,318 | 19,085 |
| | .. | .. | .. | 20,430 |

KITALE TOWNSHIP.

| Race | Male | Female | Children | Total |
|---|---|---|---|---|
| Europeans .. .. | 75 | 52 | 32 | 159 |
| Asiatics .. .. | 244 | 41 | 68 | 353 |
| Other Races .. | 35 | 15 | 12 | 62 |
| Africans (estimated) | 500 | 200 | 100 | 800 |
| | .. | .. | .. | 1,374 |

*B.—Births.*

Thirty-one European births were recorded for the Uasin Gishu District and seventeen for the Trans Nzoia and the contained townships.

*C.—Marriages.*

Eighteen European marriages were registered in Eldoret and four in Kitale during the year.

*D.—Deaths.*

European deaths were registered for all areas.

Asiatic deaths were registered for Eldoret and a few in Kitale, but it is thought that not all Asiatic deaths in Kitale were registered. African deaths were registered in Eldoret for the whole year, whereas in 1928 they were registered only from July onwards. The following figures are given for comparison with 1928 :—

| | 1928. | | | 1929. | | |
|---|---|---|---|---|---|---|
| | Europ. | Asiatic. | African. | Europ. | Asiatic. | African. |
| Eldoret .. .. | 12 | 14 | 41 | 4 | 9 | 54 |
| Uasin Gishu .. .. | 23 | 6 | | 10 | .. | |
| Kitale .. .. .. | 4 | .. | .. | 2 | .. | .. |
| Trans Nzoia .. .. | 5 | .. | .. | 4 | .. | .. |

A crude death rate based on the population estimated for 1929 would appear to be about 7.4 per thousand for Europeans, the corresponding rate for 1928 was sixteen per thousand.

The alteration in the crude death rate for Europeans reflects the great improvement in health conditions so far as malaria is concerned in 1929 as against 1929. The chief causes of death are pneumonia and broncho-pneumonia which account for twenty-four out of a total eighty-three deaths. Malaria and blackwater fever account for six deaths as compared with thirty-four in 1928.

*E.—Infantile Mortality.*

CAUSES OF DEATHS UNDER ONE YEAR—
UASIN GISHU.

| | European. | Asiatic. |
|---|---|---|
| Intussusception .. .. .. .. | 1 | .. |
| Cerebral malaria .. .. .. .. | 1 | .. |
| Pneumonia .. .. .. .. .. | 1 | .. |
| Dysentery .. .. .. .. .. | .. | 1 |
| Broncho-pneumonia .. .. .. | .. | 1 |
| Heart failure .. .. .. .. | 1 | .. |
| Septic infection .. .. .. .. | 1 | .. |
| | 5 | 2 |

CAUSES OF DEATHS UNDER ONE YEAR—
TRANS NZOIA.

| | European. |
|---|---|
| Prematurity .. .. .. .. .. .. | 1 |

**(1) GENERAL NATIVE POPULATION.**

Registration of births and deaths among natives is not compulsory.

The African population of Kenya was estimated in 1926 to be 2,515,330 and the figures for the subsequent years are as follows :—

1927 ... 2,793,963 1928 ... 2,838,022 1929 ... 2,930,604

These figures are estimations based on the hut count which is made for the collection of tax. The yearly increase which the figures show may to some extent be due to closer enumeration and may not in their entirety

represent increases of the population. Apart from these figures, however, all the indications are that, taken as a whole, the native population of Kenya is increasing in numbers and in certain localised areas in the Native Reserves the density of the population is now great. As examples of congested districts may be quoted certain parts of the Kiambu District of the Kikuyu Native Reserve with a population of over 500 to the square mile, and Bunyore in North Kavirondo with over 900 to the square mile. We do not know what the general birth, death and infantile mortality rates may be, but we do know that in certain areas both the fertility rate of the women and the infant mortality rates are very high, the former being in the neighbourhood of seven live births per woman, and the latter in the neighbourhood of four hundred infant deaths per thousand children born. Under these circumstances the need is not for an increased birth rate but for a higher survival rate.

### (2) GENERAL EUROPEAN POPULATION.

Taken as a whole the conditions under which the general European population lives are at a high level. With few exceptions, and these in the country districts, housing and general amenities are better than the average which obtains in England.

The general European population consists mainly of individuals in the age groups under fifty years. The proportion of those in the groups over fifty years of age is small.

Such information as is available with regard to death rates among this section of the population is indicated in the statistical paragraphs which have been included previously.

Practically no information with regard to sick or invaliding rates is available regarding the general European population. The large majority of these are attended by private practitioners and when needing institutional treatment are admitted to private nursing homes or non-Government hospitals.

### (3) EUROPEAN OFFICIALS.

The figures of sickness, invaliding and death rates among European officials are little different from those for 1928, during which year a considerable rise was recorded.

The main causes of sickness were malaria and influenza.

Comparative figures for in-patients and out-patients are :—

| | *In-patients.* | *Out-patients.* |
|---|---|---|
| 1927 ... | 1,079 ... | 488 |
| 1928 ... | 1,276 ... | 569 |
| 1929 ... | 1,376 ... | 635 |

The three deaths which occurred were due to :—

| | |
|---|---|
| Lobar pneumonia ... ... ... | 1 |
| Pulmonary tuberculosis ... ... | 1 |
| Pneumococcal peritonitis ... ... | 1 |

Invalidings remained at almost the same high level as was the case in 1928. The causes were :—

| | |
|---|---|
| Frontal sinusitis ... ... ... | 1 |
| Optic neuritis ... ... ... | 1 |
| Malaria ... ... ... ... | 2 |
| Metatarsalgia ... ... ... ... | 1 |
| Neurasthenia ... ... ... ... | 3 |
| Duodenal ulcer ... ... ... | 1 |
| Gastritis ... ... ... ... | 1 |
| Debility ... ... ... ... | 3 |
| Ulcer of leg ... ... ... ... | 1 |
| Tuberculosis ... ... ... ... | 1 |
| Cerebral tumour ... ... ... | 1 |
| *Total* ... | 16 |

Progress is being made in the provision of better housing accommodation for European officials in conformity with the programme of Loan Works expenditure.

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

| | 1927 | 1928 | 1929 |
|---|---|---|---|
| Total Number of Officials Resident .. .. .. | 1,753 | 2,171 | 2,297 |
| Average Number Resident.. .. .. .. .. | 1,240 | 1,513 | 1,629 |
| Total Number on Sick List .. .. .. .. | 1,079 | 1,276 | 1,376 |
| Total Number of Days on Sick List .. .. .. | 5,777 | 8,734 | 9,723 |
| Average Daily Number on Sick List .. .. .. | 15·83 | 23·86 | 26·64 |
| Percentage of Sick to Average Number Resident .. | 1·28 | 1·92 | 1·63 |
| Average Number of Days on Sick List to each Patient.. | 5·25 | 6·84 | 7·07 |
| Average sick time to each Resident .. .. .. | 4·66 | 7·04 | 5·97 |
| Total Number Invalided .. .. .. .. .. | 9 | ·17 | ·16 |
| Percentage of Invaliding to Total Residents .. .. | ·51 | ·78 | ·70 |
| Total Deaths .. .. .. .. .. .. | 6 | 3 | 3 |
| Percentage of Deaths to Total Residents.. .. .. | ·34 | ·14 | ·13 |
| Percentage of Deaths to Average Number Resident .. | ·48 | ·24 | ·18 |
| Number of Cases of Sickness contracted away from Residence .. .. .. .. .. .. | — | — | — |

### (4) NON-EUROPEAN OFFICIALS.

During the year there was a distinct rise in the number of days lost through sickness among the non-European officials and in invalidings, but otherwise the statistics of sick invaliding and death rates show little variation from 1928.

As among European officials malaria and influenza were the most frequent causes of sickness.

The comparative table of numbers of in-patients and out-patients is shown below :—

| | *In-patients.* | *Out-patients.* |
|---|---|---|
| 1927 ... | 3,756 ... | 645 |
| 1928 ... | 4,188 ... | 2,875 |
| 1929 ... | 4,782 ... | 2,677 |

Deaths numbered eleven and were certified as due to the following causes :—

| | |
|---|---|
| Typhoid ... ... ... ... | 1 |
| Blackwater ... ... ... ... | 2 |
| Cancer ... ... ... ... | 1 |
| Diabetes ... ... ... ... | 1 |
| Lobar pneumonia ... ... ... | 3 |
| Endocarditis ... ... ... | 1 |
| Cerebral haemorrhage ... ... | 1 |
| Asthma ... ... ... ... | 1 |
| | 11 |

Invalidings were nearly double those which occurred during 1928. The causes were :—

| | |
|---|---|
| Neurasthenia ... ... ... | 7 |
| Debility ... ... ... ... | 3 |
| Asthma ... ... ... ... | 1 |
| Hemiplegia ... ... ... ... | 1 |
| Dyspepsia ... ... ... ... | 1 |
| Rheumatism ... ... ... ... | 1 |
| Pyorrhoea ... ... ... ... | 1 |
| | 15 |

Progress is also being made in the programme for the provision of housing for the non-European officials.

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

| | 1927 | 1928 | 1929 |
|---|---|---|---|
| Total Number of Officials Resident .. .. .. | 2,760 | 3,059 | 3,224 |
| Average Number Resident.. .. .. .. .. | 2,249 | 2,489 | 2,694 |
| Total Number on Sick List .. .. .. .. | 3,756 | 4,188 | 4,287 |
| Total Number of Days on Sick List .. .. .. | 18,439 | 22,591 | 24,237 |
| Average Daily Number on Sick List .. .. .. | 50·52 | 61·99 | 66.40 |
| Percentage of Sick to Average Number Resident .. | 2·25 | 2·49 | 2 46 |
| Average Number of Days on Sick List to each Patient .. | 4·91 | 5·42 | 5·65 |
| Average sick time to each Resident .. .. .. | 8·20 | 9·01 | 8·99 |
| Total Number Invalided .. .. .. .. .. | 12 | 8 | 15 |
| Percentage of Invaliding to Total Residents .. .. | ·44 | ·26 | ·46 |
| Total Deaths .. .. .. .. .. .. | 10 | 12 | 11 |
| Percentage of Deaths to Total Residents.. .. .. | ·36 | ·39 | ·34 |
| Percentage of Deaths to Average Number Resident .. | ·44 | ·48 | ·41 |
| 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.

In the Annual Report for 1928 the general question of " preventive measures " among the two and a half or three million Africans who constitute the bulk of the population of the Colony was reviewed at some length and it was shown how at the present time the institution of specific preventive measures with regard to disease other than by treatment was not, except in a few instances, a matter of practical politics in the Native Reserves since in the case of almost all diseases an essential preliminary to prevention is a radical alteration in environmental conditions and in culture. Such an alteration under the conditions which prevail in Africa will, therefore, be dependent on general education or developmental policy and on an improvement in the material prosperity of the people. So far, therefore, as the Native Reserves are concerned it remains only to give some account of work and progress, firstly with regard to those diseases in respect of which specific preventive measures can at present be taken, and secondly of work and progress with regard to education in so far as education is a function of a medical department.

With regard to the first point—the institution of preventive measures—work during the year has largely been confined to the treatment of cases of sickness and of this work an account is given elsewhere. With regard to helminthiasis the only group of diseases with which so far we have attempted to deal by means of an alteration of environmental conditions on a large scale, work during the year was chiefly confined to the consolidation of work previously undertaken in the Digo and Teita Districts. Arrangements had been made for the institution of a large campaign for the provision of latrines in parts of the Nyanza Province, but staff casualties prevented its inauguration during the year.

With regard to malaria an account is given below of the special attempts which are being made in the Digo and Teita Districts to improve housing and to popularize quinine.

With regard to work in respect of education, this to an increasing extent is being undertaken by medical officers in Native Reserves who miss no opportunity of addressing Local Native Councils and other meetings of natives and individual natives with regard to hygiene and sanitation. To be effective, however, such work must be much more systematic and intensive than has hitherto been possible especially in the larger reserves and to this end additional European staff is required. Provision was made for such staff in the Estimates for the year but this staff only began to arrive towards the end of the year. Intensive work was, therefore, largely confined to the

small districts such as Digo and Teita. In referring to the question of education it is necessary, however, to emphasize the importance of the work which is now being achieved as the result of the establishment of new and better hospital accommodation in the Native Reserves. These institutions run as they now are on approved hospital lines, with in some case European sisters in charge must exert a great influence on all who come into them as patients. Without exception these hospitals are always full and at the least the populations in the reserves where they have been established are beginning to learn that diseases can be cured and in the areas where European sisters have been appointed this knowledge is being acquired even by the women.

## MOSQUITO AND INSECT-BORNE DISEASES.

### Malaria.

Malaria is now being generally recognized as a " social " disease, that is a disease which is dependent for its continuance in areas where it is endemic, on among other factors, a low standard of living among the bulk of the population; it follows that any general anti-malaria policy must take due cognizance of this fact and that all measures aimed at securing a general reduction of the disease must be based on this knowledge. It is true that in certain special circumstances it may be possible to adopt measures based on another piece of knowledge which we possess with regard to malaria, namely the fact that malaria cannot be contracted by man except through the medium of the mosquito, but these circumstances occur as a rule only in limited areas such as towns or among highly organized communities. Measures based on this knowledge can also, it is true, be adopted almost anywhere by the individual provided he is sufficiently intelligent, sufficiently cultured and sufficiently well off, but they are not capable of general adoption among the members of a community which is still living at a very low stage of civilization.

As malaria in Kenya is acquiring a history so also is anti-malaria policy and it is of interest to review that history and to consider how far policy has kept abreast of modern thought and knowledge with regard to the prevention of malaria and how far a programme has been formulated to give effect to policy.

The history of anti-malaria policy in Kenya is short. It extends back no longer than five years, for previous to 1925 no general anti-malaria policy had been defined. No anti-malarial policy had been defined up till then, not because no problem existed, but because at that time the only major problem presented was that of malaria in the Native Reserves and there, at that time as now, the need was for general development and the establishment of general health services.

In 1925, however, an initial step was taken when provision for a large increase in general health services was made and an entomologist for whom provision had been made in the previous year was apppointed to the staff of the Medical Department for the first time, the object of this appointment was to obtain information with regard to the entomological side of the malaria problem in order that we might know where and how measures based on our knowledge of the part played by the mosquito might be taken. The appointment was a necessary preliminary to the determination of a general anti-malaria policy. In 1926 the first notable highland epidemic affected Nairobi and the country in the neighbourhood and a policy aimed at the ultimate elimination of dangerous anopheline mosquitoes from the municipal area by means of drainage and general sanitary measures was adopted and large financial provision was made to give effect to a programme which had this end in view. A second entomologist was also appointed.

In 1928 a second epidemic occurred in another part of the highlands and on this occasion owing very largely to the fact that the districts affected were less highly developed than those previously attacked, and the European population less prosperous, the incidence of the disease among Europeans was greater and the effects more severe, and the importance of the disease as one which might affect a rural community was more widely appreciated. During these years, however, considerable effect had been given by Government to its general policy for the extension of health services throughout the country.

more detailed information was available with regard to the reserves, propaganda had been carried out with regard to the question of the public health and it had become widely recognized that the health of the great bulk of the public, namely the native population, was unsatisfactory. During this period also the results of the investigations of the League of Nations Commission in Europe became available, and it was appreciated that the findings of the Commission had a large bearing on the problem of malaria in Africa. When, therefore, in 1928 malaria again occurred in epidemic form in a part of the country which had up till that time appeared to be comparatively free from this so-called " tropical " disease, the result was not merely to direct attention to a local problem, for it was more widely appreciated by the public that these epidemics were the result not only of certain conditions in the locality in which they occurred but of endemic disease elsewhere. It was, however, also realized that malaria among a backward community could not be dealt with as an isolated problem. The result of these epidemics was therefore not only to emphasize the importance of malaria and the need for specific measures where such were practicable, but incidentally to emphasize the great need to implement existing policy aimed at promoting the public health as an essential general anti-malaria measure.

So far, therefore, as malaria was concerned Government's policy in 1928 was defined as follows :—

(*a*) To make provision for the execution of specific measures where such measures were possible.

(*b*) To make provision for improved health services throughout the country and more particulaly in the Native Reserves.

This policy was reflected in the Estimates for the succeeding year when financial provision was made to give effect to a programme based upon it. That programme provided among other items for the following :—

1. The establishment of health units in four Native Reserves which up till that time were either without any health service or incompletely provided for.
2. The strengthening of the health services in three other Native Reserves and in two townships.
3. The establishment of " farm medical officers " in two districts of the settled areas.
4. The extension of general propaganda with regard to hygiene and sanitation and the prevention of malaria.
5. The provision of cheap quinine.
6. The extension of anti-mosquito measures in townships by various methods.
7. The extension of investigations with regard to the entomological and other factors affecting the epidemiology of malaria.
8. The consideration of the general question of malaria in Kenya by a specialist in malariology.

This programme entailed both the erection of buildings and the recruitment of a considerable number of technical officers and difficulties inherent in both of these matters prevented its completion by the end of the year ; nevertheless effect has been given to a considerable portion of the programme while arrangements have been made for implementing the bulk of the remainder early in 1930.

Among the parts of the programme which have been carried out are the following :—

1. A medical officer has been posted to the Kiambu Native Reserve which contains a population of over 80,000 and previously was without any health service. This reserve was seriously affected by the malaria epidemic of 1926 and on that occasion no medical relief could be provided.

   Plans have been prepared for the erection of native hospitals and houses for staff at Kiambu, Kericho and Digo.

2. A European sanitary inspector has been posted to Kitale and a European overseer to Eldoret, two towns which suffered from malaria in 1928.

   A Euopean health sister has been posted in Eldoret, which has made possible the treatment of native children for malaria and the education of the women as to the need for such treatment.

   Arrangements are in hand for the posting of second medical officers to South Kavirondo (a district which suffered severely from malaria in 1928) and to Central Kavirondo (a reserve where malaria is endemic) and of a medical officer for the first time to the Kabarnet district (a reserve which also suffered severely in 1928) early in 1930.

3. A farm medical officer has been stationed in the Trans Nzoia District throughout the year. This officer has visited many farms, has made extensive and careful investigations as to the endemicity of malaria in the district and the conditions favouring the continuance and spread of malaria on farms, he has also carried out a large amount of personal propaganda among farmers with regard to the prevention of malaria and the general improvement of sanitary conditions. An essential part of this campaign has been the investigation of health conditions among native employees. A comprehensive report on this work has been published locally.

   Arrangements have been made to post a farm medical officer to the extensive Nairobi district early in 1930.

4. *Propaganda.*—Large numbers of pamphlets dealing with malaria, the housing and care of native employees, treatment of intestinal worms, etc., have been distributed by post to all European settlers and farm or estate managers throughout the Colony. Plans of designs of housing suitable for native labourers have been widely distributed and an illustrated booklet in Kiswahili on hygiene for natives has been widely distributed throughout both the Native Reserves, the towns and settled areas. A comprehensive health exhibition was staged in Mombasa by a local committee with some assistance from the Government Medical Department, while the Department itself staged a health exhibit at the Nakuru Agricultural Show and has arranged for a health exhibition of some magnitude to be held in Nairobi early in the new year. A model village which will serve as a permanent demonstration of various types of native housing in which the avoidance of infection with malaria would be a possibility, has been designed and is in course of erection at the medical centre in Central Kavirondo, a reserve with a population of over 300,000 persons of whom the great majority at present suffer to a greater or less degree from malaria. Much educational work and propaganda has been carried out by medical officers in the Native Reserves. In the Digo Native Reserve this work has been directed especially towards the impovement of housing by the introduction of windows, ceilings, whitewash, etc., and in the Teita Native Reserve a systematic endeavour has been made to inculcate the importance of treatment and to provide facilities for treatment with quinine by means of itinerant native dressers.

5. Quinine has been put on sale at approximately cost price at all Post Offices.

6. In many of the smaller townships systematic oiling, filling and ditching has been carried out in a more effective fashion than hitherto as a result of the provision of data collected by the native entomological staff engaged on investigation work for the entomologist. In Eldoret in particular more work has been done to eliminate mosquito breeding places and the sanitary condition of this town at the end of the year so far as anopheline breeding was concerned was exceedingly satisfactory. A considerable amount of permanent canalization was carried out in Nairobi and schemes for permanent drainage in certain areas in Eldoret and Mombasa were prepared or reported on by the anti-malaria engineer.

7. Entomological investigations have been continued in the Trans Nzoia and Uasin Gishu Districts by mobile teams consisting of European field overseers with the necessary native staff and motor transport working under the direction of the entomologist. Similar investigations have been continued or inaugurated with regard to many other districts. An extensive and carefully controlled experiment with regard to the control of anopheline mosquitoes by means of paris green has been commenced in Kitale and it environs. Arrangements have also been made for obtaining meteorological data from a number of areas with regard to which such data were previously unavailable.

8. Arrangements were made for the consideration of the general question of malaria by a specialist in malariology and a visit was accordingly made to the Colony during the year by Lt.-Colonel James, Advisor on Tropical Diseases to the Ministry of Health in England. Col. James' report will be published early in 1930.

To summarize : Government's anti-malaria programme provides for the following :—

I. The institution of specific anti-malaria measures where such are practicable.

II. Continued investigation of the general problem.

III. Facilitating treatment.

IV. Supplying health staff so far as possible to all areas in order that information may be available with regard to the special and general needs of these areas and medical relief provided.

V. Supplying health staff so far as possible to all areas in order that general health propaganda may be carried out and information as to healthy living and the prevention of malaria widely disseminated both in the Native Reserves and the settled districts.

The programme summarized above reflects Governent's anti-malaria policy. The extent to which that policy may be successful either in the settled districts or the Native Reserves will depend on the extent to which as a result of development the efficiency of African society may be raised and on the degree to which as a result of increased efficiency the economic social conditions of the average family are improved.

## EPIDEMIC DISEASES.

### Plague.

A total of 763 cases of plague were reported during the year and of these the great majority occurred in the endemic areas of the Kavirondo and Kikuyu Native Reserves.

Plague like malaria is a " social " disease dependent for its continuance as an important factor in rural African life on the squalor and poverty of the African village. With regard to no disease can it more truly be said that for its prevention a revolution of existing domestic and economic conditions is required and pending such a revolution the only preventive measure at our disposal is the immunization of the people when occasion offers. During the year 1929, 82,492 doses of plague vaccine were issued for this purpose.

During the year the rat destruction campaign which has now been in operation for nine years was carried on as usual but there is no evidence to suggest that as a general measure of control such destruction over a large rural area has any effect on the incidence of the disease under existing conditions.

In the larger towns rat destruction was carried out as follows :—

| | 1928. | 1929. |
|---|---|---|
| Nairobi ... | 59,482 | 8,667 |
| Mombasa ... | 32,596 | 55,782 |
| Kisumu ... | 20,337 | 19,862 |

In these towns as in the rural areas the importance of rat destruction except in certain special circumstances is probably small. The essential plague preventive measures in the towns as elsewhere are the adoption of clean and efficient methods with regard both to domestic life and commercial

operations and in so far as the towns have been freed from the menace of plague it has been due to the adoption of these methods. Unfortunately it is still the case that in many of the towns the conditions under which the African and to a lesser extent the Asiatic population have no option but to live are not yet such as to encourage the adoption of these methods or even in many cases to render their adoption possible.

### Smallpox.

No indigenous case of smallpox occurred during the year and only three cases of smallpox were reported. All occurred in Mombasa, the patients having arrived from Bombay just prior to the disease developing.

*Vaccination.*—The total number of vaccinations performed during the year was 36,976.

## HELMINTHIC DISEASES.

### Ankylostomiasis, etc.

As already stated, preventive work during 1929 has largely been confined to the consolidation of work carried out in previous years in the Digo and Teita Districts and elsewhere. In addition, however, much treatment has been given throughout the country while as a result of general propaganda there is now a widespread knowledge among the African population with regard to the subject which will make further preventive work an easier matter than has been the case in the past.

## (II) GENERAL MEASURES OF SANITATION.

General measures of sanitation such as sewage disposal, scavenging, refuse disposal, drainage, water supplies, etc., in townships are carried out under the direction of the local authorities established for the purposes of local government. In the case of the towns of Nairobi, Mombasa, Nakuru and Eldoret these authorities are now in a varying degree representative elected bodies and during the year under review, which is the first year of their constitution, they have been faced with many difficulties, more particularly with regard to the recruitment of staff and the raising of revenue. Without exception, however, these authorities have taken great interest in the work for which they are now responsible and though no striking progress has been possible during the year an organization has now been established which should allow of matters of sanitary importance receiving in future more careful consideration both by a local authority and by the central government than was always possible in the past.

With regard to the general condition of the towns it may be said that though many sanitary improvements have been carried out during the year the needs in each case are still very great and very careful administration and much thought will be required before their sanitary conditions will be all that might be desired.

### Offensive Trades, Sanitary Inspections, etc

Sanitary inspection in the case of the towns of Nairobi and Mombasa is carried out by sanitary inspectors who are employed by the Municipal Council and the Municipal Board respectively. In Eldoret, Nakuru, Kitale and Kisumu and in the numerous trading centres which are scattered throughout the Native Reserves and the settled districts this work is carried out by inspectors employed by Government. During the year the usual routine inspections have been carried out by these officers and in a number of Indian trading centres very considerable improvement has been effected. Work in these trading centres is becoming increasingly important for not only is it necessary in the interests of the Indian trader but as there is now some evidence that the African is tending to become seriously interested in trade it is essential that he should copy a sanitary example and not an insanitary one. It is hoped to extend this work over a much wider area during 1930.

## (III) SCHOOL HYGIENE.

The medical supervision of school children was first started in this Colony in 1924. It was only, however, in 1929 when a separate and whole time staff was for the first time allotted to this branch of the Medical Department that systematic inspections and supervision became possible. The report of the school medical officer is included in Appendix A.

## (IV) LABOUR CONDITIONS.

The Senior Medical Officer, Labour, continued to be seconded to the Native Affairs Department and to act as Principal Labour Inspector under the direction of the Chief Native Commisisoner. Apart, however, from the work undertaken by the labour inspection branch of the Native Affairs Department, a special investigation with regard to the health of employed labourers was carried out under the direction of the Medical Department by the farm medical officer appointed to the Trans Nzoia District. The results of this investigation are given in the following extract from the report which was rendered by this officer towards the end of the year :—

### General Conditions Affecting Native Labour.

" *Housing*.—The natives who provide the farm labour are of two classes, casual labourers engaged on a monthly agreement, who are as a rule unaccompanied by their families, and secondly squatters, engaged on a three yearly agreement, who live on the farm with their wives and children.

Casual labourers are housed in dwellings built by the employer, which are as a general rule of the round mud and wattle type with a thatched roof. They are, with few exceptions of the insanitary type which the primitive native, unused to more civilized conditions, seems frequently to prefer. The huts which the squatters build for themselves are of the same type, but are as a rule dirtier and more insanitary. Huts of a more permanent and better type are being built on a few farms.

*Diet*.—In a district such as the Trans Nzoia, which derives its labour from a number of different reserves, it follows that there are different dietetic customs peculiar to each tribe. Thus the Nandi, Masai and Suk subsist largely upon blood, milk, and meat in their reserves, and when they come out to work, they continue these habits on the farms, to some extent. The diet of the North Kavirondo tribes, on the other hand, consists to a greater extent of carbohydrate food. With regard to the Kitosh, about which tribe more information has been obtained, the diet appears to be a fairly well balanced one, including three kinds of grain, sweet potatoes, a regular supply of meat, milk and fat. Although it is not easy to investigate the diet of these tribes outside their reserves, there is reason to believe that the diet of the other Kavirondo tribes is also fairly well balanced.

Whilst he is working on a farm the labourer is supplied with the usual two pounds of posho a day, but there is no doubt that the majority supplement this to some extent by their own exertions. A few employers supply also a small ration of beans. The issue of a meat ration is not customary."

In the above extract no mention is made of malaria as that disease was dealt with at length and as a separate issue. It may be stated, however, that a large number of the labourers examined were found to be infected. From this account it will be seen that the majority of labourers employed on farms in the Trans Nzoia still live under conditions which are but little different from those which pertain in the Native Reserves and that as a consequence the diseases from which they suffer are those which are associated with a low standard of civilization. The health problem which is presented in this district is partly an economic one and partly and perhaps chiefly an educational one. The district is still in an early stage of development and the provision of permanent housing for farm labourers in this area is not yet, except in a few instances, a matter of practical politics. Attention, therefore, has been chiefly directed to advising employers as to the methods by which they can improve housing with the means available and as to elementary sanitation. There remains, however, the difficulty which is presented by the low standard of civilization of the natives who form the bulk of the labour supply in this district. The majority of these natives come from Native Reserves in which but little development has yet taken place and for the most part they are uneducated and primitive to a degree and their customs and methods of living are not conducive to health. The education of the adult is, however, a difficult matter and it follows that of equal importance with the improvement of sanitary conditions on the farm, is the development and education of the communities from which the farm labourers are recruited.

In the more developed parts of the rural settled areas the conditions under which the native labourers are employed continue slowly to improve. Even here, however, both the economic and the educational factors still present difficulties. It is proposed that early in 1931 a farm health officer will be appointed to the large and well developed farming area constituted by the Nairobi District and it is hoped that by intensive personal propaganda among both employers and employed, considerable further progress with regard to both housing and sanitation may be brought about during the year and it is probable that if legislation were to be introduced specifying the requirements of Government with regard to housing a uniform standard of accommodation could readily be obtained.

### Labour Conditions in Towns.

As noted in last year's report the problem of the town labourer is both a large and a difficult one. During the year an important step was taken when arrangements were sanctioned for the erection in Eldoret of a new native location. The plan for this location had been the subject of much consideration and it represents a great advance on anything which has previously been attempted in the Colony. Provision is to be made not only for the usual single room quarters but a number of two-roomed cottages will also be built and a market place with lock-up shops for native traders; butcher shops and eating houses will also be provided. The experiment is important in that it is complete and it should provide much useful information with regard to the economics of urban native housing.

## (V) HOUSING AND TOWNPLANNING AND REGIONAL PLANNING.

European housing in townships in Kenya is as a general rule good. There is, however, a shortage of housing except perhaps in Nairobi where recent building development is tending to relieve the situation. The problem is not yet a large one, however, though for many individuals the difficulties with which they are faced in finding suitable accommodation which is within the range of their incomes is considerable.

With regard to Asiatic housing it may be said that in many towns much house property has been erected during the year. The amount of new housing which has been erected has not, however, yet been sufficient to decrease to a marked extent the overcrowding of old slum areas and both much more housing and ultimately several extensive improvement schemes will be required before it will be possible to say that conditions generally are satisfactory. It is, however, a matter for satisfaction that much of the new housing which has been erected is of a greatly improved type.

As regards African housing the most important occurence of the year has been the approval of the establishment of the new native location at Eldoret which has been referred to in the section dealing with labour conditions. This location, it has been noted, is of importance in that though small it is complete and will provide useful information for the guidance of other local authorities.

In Nairobi where the problem which is presented by the need for more and better accommodation for Africans is serious and where the conditions under which large number of the native population live are deplorably unsatisfactory the question of the means which should be adopted for its solution has been under consideration by the Municipal Council on several occasions and it is probable that proposals for dealing with it at least in part will be put forward by the Council at an early date. The following extract from the Annual Report of the Medical Officer of Health summarizes the position :—

### Native Housing.

> " The housing of the large native population of the town is a problem to which it is difficult to find a solution. The existing state of affairs by which natives, other than domestic servants housed on their employer's premises, find their accommodation in privately-owned houses in the villages of Pangani and Pumwani is from every standpoint highly undesirable.
>
> The native himself is often exploited and pays an exorbitant rent for his lodging. The system encourages a totally parasitic type of lodging-house keeper who, in addition to deriving excessive profits fom his lodgers,

supplements his or her income by the illicit brewing of " tembo " and by using the premises as a brothel. In these places supervision is difficult and the harbouring of criminals and undesirables easy.

The public health of a community depends not a little on the social and moral conditions under which it lives. The state of affairs in the native villages in Nairobi is well indicated by the very high incidence of venereal disease among not only adults of both sexes, but also young female children. In fact, conditions as at present prevailing in the native locations are incompatible with the health and decency—moral or political —of the urban native population, and can only exert wholly harmful influence upon the raw native coming from the reserves to work in the town.

The ideal solution is the provision of sufficient municipally owned and regulated houses of various types suitable for the several social grades to be accommodated. The abolition of the privately owned house, almost always of an inferior sanitary standard, would automatically remove a considerable number of persons whose presence in Nairobi is neither necessary nor desirable. A stricter degree of supervision could be exercised and undesirable elements and activities eliminated.

The capital expenditure involved in such a scheme is very high, but it would probably be wiser to adopt it in its entirety and proceed with it as and when funds are available than to accept a less costly modification which would at best prove only a partial remedy and might end in the last state being but little better than the first."

In Mombasa large areas of the Island have during the last three years been developed for the housing of Africans and during this period over 2,000 new native houses have been erected. These houses are, however, of temporary construction and even if fairly well built and designed in the first instance soon tend to become insanitary structures recreating in new areas an old problem.

Both in Nairobi and in Mombasa, however, the problem which is presented by an increasing African population is not one which can be solved by the efforts of the urban local authorities alone as besides the question of the housing of those natives who can take an effective part in the economic activities of the town and who in consequence may be able to benefit both socially and economically from residence therein there is the problem of the native who drifts to the town, less because there is an economic demand for his services there than because rural life is less atractive or for the moment fails to offer opportunity.

### Housing in Native Reserves.

The question of housing in the Native Reserves was dealt with at some length in the report for 1928 in connexion with the prevention of disease. When it was noted that an essential preliminary to the prevention of most epidemic and endemic diseases in these areas was improved housing. During 1929 much propaganda with regard to housing was carried out by the Medical Officer in the Digo District and on the coast while in Central Kavirondo a beginning was made with the erection of a model village. The difficulties which lie in the way of progress with regard to the problem of housing in the rural areas are, however very great and one of these difficulties, namely the poverty and ignorance of the people, was emphasized in the report for 1928. Apart, howver, from this difficulty which is the general one there is another which affects particularly those natives who are in a position to build good permanent houses : it is the difficulty which is presented by the native systems of land tenure and it is not improbable that if some system could be devised whereby security of tenure could be obtained where necessary and adequately large holdings provided for those Africans who are capable of cultivating the land in an efficient fashion, great advances might be secured with regard to rural housing in the next few years.

### Townplanning.

During the year much attention was given to the question of the improvement of the layout of the smaller townships and the regulation of their future development by the local authorities concerned and the municipal and townplanning engineer, who is on the staff of the Commissioner for Local Government, acting in conjunction with these authorities has produced a preliminary development plan in a number of cases. In Nairobi much detailed work has

been done under the direction of the local townplanning authority which should allow of considerable progress being made with regard to at least one insanitary area during the forthcoming year.

### Regional Planning.

From what has been said in the preceding paragraphs in connexion with townplanning and African housing, both in the towns and in the Native Reserves and with regard to population increase in the sections dealing with vital statistics and with regard to health on farms in the sections dealing with labour it becomes clear that in the interests of health and orderly development there is now need not only for town plans but also for the consideration of development plans for the Natives Reserves as well.

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

The question of human nutrition has received much attention in recent years and it still remains one of the most important subjects with regard to which research is required. The problem is by no means an academic one for if as we have reason to believe the dietaries of many of the tribes are unsatisfactory, the provision of accurate information with regard to the directions in which they are deficient is of primary importance as providing a basis for the fomulation of a correct agricultural policy in these reserves and it is probably not going too far to say that one of the most important and urgent matters at present outstanding with regard to the public health in Africa is the continuation and extension of research with regard to human nutrition, and as a necessary corollary, animal nutrition.

Apart, however, from the question of research one of the matters which is clearly of outstanding importance is the education of the people with regard to the use of milk and the improvement of the milk supplies since apart from a few pastoral tribes it is doubtful to a degree whether this important article of diet is as extensively used as is desirable. In the case of many agricultural tribes cattle, though kept and valued, are kept rather as an evidence of wealth than as a source of milk and in consequence are frequently kept at great distances from the owners' holding. As a result the children suffer from lack of milk and the ground from lack of manure. So far, therefore, as the public health is concerned one of the most important steps which could be taken would be the inculcation wherever possible of correct methods of mixed farming.

In the towns as in the reserves the question of the dietaries of the native population is one which merits invesitgation. The problem in the towns is, however, not one which can readily be solved for not only is it an educational problem but it is to a very great extent economic. The average wage of the town dwelling African is still small and it is more than doubtful whether any but a few Africans among the urban populations are in a position to provide themselves with a sufficient and well balanced dietary. The question of the economic position of the urban African is one which merits close and full investigation.

### Meat and Food Inspection and Control.

In Kisumu, Eldoret, Kitale, Fort Hall and Nakuru as well as in Mombasa and Nairobi there are now qualified European sanitary inspectors who undertake the inspection of meat and food in these towns and give attention to all premises where meat and food is sold, stored and prepared. The general condition of such premises shows steady improvement.

During the year a Bill dealing with the Prevention of the Adulteration of Food and Drugs was prepared and submitted to Government.

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

Hygiene is a subject of instruction in all Government and State-aided schools, but it is not an easy subject to teach in such a fashion that the knowledge acquired will subsequently be put into practice. There is, however, one institution at which the subject is taught in such a manner that it may be expected that far reaching practical results will be obtained. This institution is the Jeanes School at Kabete. The object of this school, which is situated about seven miles from Nairobi, is to train supervisory native teachers for work among the small bush schools in the Native Reserves, and so far as the teaching of hygiene is concerned this school is likely to be effective, firstly because the subject is taught in the most practical of fashions, namely by enabling the teacher to live under hygienic conditions, and secondly

because not only is the teacher trained but his wife and family are trained as well. But there is another factor—the spirit of the school. The teachers who have attended this school have had an opportunity not only of learning something of hygiene but they have had an unequalled opportunity of realizing the responsibility of knowledge and more than a few of them are likely to teach in the future not merely because they are professional teachers but because they are genuinely anxious to help their people.

So far as the Medical Department is concerned it may be said that an increasing amount of work has been done by medical officers in the Native Reserves who miss no opportunity of addressing Local Native Councils and other meetings of natives with regard to hygiene and sanitation.

In referring to the question of education it is necessary to emphasize the importance of the work which is now being achieved as the result of the establishment of new and better hospital accommodation in the Native Reserves. These institutions run as they now are on approved hospital lines and very especially where there are European nursing sisters in charge, must exert a great influence on all who come into them as patients, and later as it becomes possible for some of these sisters to undertake district visiting, there influence will be still greater.

During the year much work was done in the way of collecting material, preparing plans and making models which will ultimately be used in connexion with health exhibitions and more systematic propaganda which it is proposed to inaugurate in the coming year.

In the Central Kavirondo Reserve considerable progress was made with the construction of a model native village.

## C.—Training of Sanitary Personnel.

No systmatic attempt has so far been made to train African sanitary inspectors as the need in the Native Reserves is for education rather than inspection. In the Digo Reserve a number of Africans are employed who among their functions include the inspection of villages, but these natives have in all cases had a fairly sound technical training in building and carpentry and it is on their capacity to teach and help that their effectiveness depends.

## D.—Recommendations for Future Work.

### I. AFRICAN HOUSING IN TOWNS.

Great as the needs of all the towns in the Colony and Protectorate may be with regard to specific matters of sanitary importance such as sewerage, drainage, water supplies, etc., there is no problem with which the local authorities responsible for the development of these towns are faced which is of greater importance than the correct and orderly development of the African section of the urban community. This problem of the correct development of the urban African communities is everywhere an intricate and a difficult one and in the larger towns of Nairobi and Mombasa it is already of outstanding and vital importance. It is true that essentially it is an economic and a social problem but on its correct solution all sanitary progress will in the long run depend for no town can afford sanitation if large numbers of the community are either poor, inefficient, ill-educated or unnecessary. These for the moment are, however, the conditions which prevail and in such circumstances no multiplication of housing schemes will solve even the housing problem and few housing schemes will yield an economic return.

It would be outside the scope of a medical report to enter in detail on a discussion of the many factors which are involved or to make detailed recommendations for the solution of the various problems which arise, but no report on sanitary conditions in Kenya would be complete which did not direct attention to the fundamental sanitary importance of ensuring satisfactory social and economic conditions among the urban native populations and recommend as a subject for the closest study and investigation the many intricate problems which are presented by existing conditions and more particularly the problem of the prevention of that drift to the town which during the past hundred years has been a characteristic of development in many new countries and which is becoming every year a more noticeable feature of development in Kenya.

### II. REGIONAL PLANNING.

In the Annual Medical Report for 1922 an account was given in the section dealing with sanitation in Native Reserves of the primitive conditions which prevailed in these areas.

In the Report for 1928 an attempt was made to review the results of medical and sanitary work during the intervening years and it was shown that though much had been done, prevention had for the most part been limited to treatment and that with the exception of helminthiasis and yaws effective measures for the prevention of disease on a large scale had not yet been able to be instituted in the Native Reserves. In this latter report the incidence of disease was correlated with the general conditions which prevailed and it was noted that unless a general improvement of environment could be effected no great alteration in the incidence of the major diseases such as malaria, plague, dysentery, tuberculosis and syphilis could be expected.

The environmental conditions to which particular attention was directed were housing, food supplies and water and it was noted that general improvement would ever be dependent on a rise in the standard of culture and prosperity. In effect the conditions which are to-day responsible for a low standard of physical fitness and a high incidence of disease are those primitive conditions which were fully described in 1922. There is, however, a difference between 1922 and to-day, a difference in outlook.

" In the Report for 1922 it was stated that " . . . neither prosperity nor education are likely to be achieved unless there be first obtained an outlook on life which suggests that their acquisition is worth while," and that " as regards the outlook on life of the African native all that need be said here is that it is perhaps almost as impossible for a European to conceive its present limitations as it is for him to guess to what extent it can be developed."

In the eight years that have passed the outlook of the African native in Kenya has developed in a fashion which has perhaps been unprecedent in any other part of Africa at any time, and the desire of the African to be educated, to progress and to assume responsibility is a phenomenum of the times. But for the most part the systematic education which was at first provided tended to be one sided, it had relation to letters rather than to life; it exalted the clerk's stool at the expense of straight furrows. And the drift to the town set in.

In more recent years, however, some systematic education on broader lines has been provided and partly as a result of this education and partly as a result of many other factors which have been educational in their effects, there are also many Africans who are endeavouring to develop their land. Direction, however, is required if development is to proceed on sound lines for the technique of trade and commerce has yet to be acquired by these people.

From every point of view, therefore, there is urgent need that consideration should be given to the question of the planning of the Native Reserves. The question was adumbrated in the annual report for the year 1926 but to-day the question is an urgent one. There is no solution to the problem of disease in Africa save in the culture of the land but good agriculture and good social conditions will not remain a possibility unless education can be carried to the point at which the desire for a high standard of living will be sufficiently strong to counteract the tendency to rural congestion. But the education must be such as to render the African an efficient agriculturist and so to emphasize the dignity and importance of agricultural work. Just, therefore, as the complete town plan of to-day is a project not merely for the layout of land and the alignment of roads, but a project for the development of the community which will dwell in the town and takes cognizance of all matters which may have a bearing on health, morals, education, commerce, industry and general efficiency so must there be plans for the Native Reserves which will make provision for all those measures which are necessary to ensure not only that the land is so planned that it can be economically developed but that the population is so trained and educated as to be able to use in an efficient manner the resources which are at its disposal.

An essential preliminary to the production of any plan is, however, a comprehensive investigation with regard to economic and social, agricultural and trade conditions and the needs and the possibilities of both the land and the people. In the interests of the public health such an investigation is as a result of the remarkable developments of the past eight years now very urgently required.

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*Deputy Director of Sanitary Service.*

## RAT DESTRUCTION RETURN—NORTH KAVIRONDO AND NANDI RESERVES, 1929

| Location. | Chief. | Huts. | Number of Rats. | | | | | | | | | | | | Total. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | January | February | March | April | May | June | July | August | September | October | November | December | Number of Rats | No. per Hut |
| Wanga .. .. .. .. | Mumia .. | 8,102 | 1,112 | 160 | .. | 550 | .. | 460 | .. | .. | .. | .. | .. | .. | 2,282 | 0.2 |
| Marama .. .. .. .. | Mulama .. | 8,112 | .. | 2,404 | 589 | 668 | 940 | 949 | .. | .. | .. | 841 | .. | .. | 6,591 | 0.8 |
| Kisa .. .. .. .. | ,, .. | 1,518 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bunyore .. .. .. .. | Zakai .. | 9,518 | 10,248 | 6,634 | 13,103 | 12,460 | 5,590 | 1,114 | 6,988 | 4,553 | .. | .. | 5,360 | 5,360 | 71,410 | 7. |
| E. Kakamega .. .. .. | Osore .. | 2,966 | .. | 2,364 | 2,877 | 5,633 | .. | 1,874 | 2,560 | 1,558 | .. | 616 | .. | .. | 17,482 | 5,9 |
| W. Kakamega .. .. .. | Mulimu .. | 5,636 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Watsotso .. .. .. | Mutsembi .. | 1,900 | .. | .. | 3,144 | 4,165 | 2,939 | .. | 4,600 | 2,807 | 4,240 | 3,862 | 1,936 | 1,936 | 29,629 | 15,5 |
| Mukulu .. .. .. | Rapandos .. | 1,783 | 1,200 | 1,200 | 1,200 | .. | 1,200 | .. | 1,200 | .. | 1,000 | .. | 1,050 | 1,050 | 9,100 | 5.1 |
| Kakaleiwa .. .. .. | Ndombi .. | 1,741 | 2,977 | 1,524 | 2,169 | 510 | 1,100 | 1,340 | 956 | .. | .. | 1,820 | 3,230 | 3,230 | 18,856 | 10.8 |
| Kabras .. .. .. .. | Mwanza .. | 2,738 | .. | .. | .. | .. | .. | .. | .. | .. | 2,023 | .. | .. | .. | 2,023 | 0.7 |
| S. Kitosh .. .. .. | Sudi .. .. | 6,965 | 530 | .. | 1,380 | 2,008 | .. | .. | .. | .. | .. | .. | 2,512 | 2,512 | 8,942 | 1.2 |
| N. Kitosh .. .. .. | Murunga .. | 9,333 | 1,030 | .. | .. | .. | .. | .. | .. | .. | 1,290 | .. | .. | .. | 2,320 | .2 |
| Marach .. .. .. .. | Oduya .. | 4,179 | 550 | .. | .. | .. | .. | .. | .. | .. | 5,400 | .. | .. | .. | 5,950 | 1.4 |
| Ohayo .. .. .. .. | Ezekia .. | 4,931 | 7,678 | 6,200 | 7,823 | .. | 9,840 | 6,480 | .. | 6,434 | .. | 5,378 | .. | .. | 49,838 | 10.1 |
| Waholo .. .. .. .. | Were .. | 2,414 | 4,200 | .. | .. | .. | .. | .. | .. | .. | 3,600 | .. | .. | .. | 7,800 | 3.2 |
| Wamia .. .. .. .. | Nyasata .. | 6,397 | 4,840 | 2,300 | 3,200 | 400 | 5,364 | .. | .. | .. | .. | 5,065 | .. | .. | 21,169 | 3.3 |
| Tiriki .. .. .. .. | Amian .. | 4,858 | 24,420 | 54,929 | .. | .. | 4,800 | 4,330 | 10,850 | 3,300 | 3,900 | 16,885 | 7,530 | 7,360 | 138,304 | 28.4 |
| Wooidakho<br>N. Maragoli .. .. | Odangas .. | 10,147 | 15,308 | 12,156 | .. | 8,980 | .. | 10,342 | 5,564 | 3,418 | 4,702 | 9,620 | .. | 7,530 | 78,620 | 7.7 |
| S. Maragoli .. .. .. | Munubi .. | 6,287 | .. | .. | .. | 7,586 | 3,789 | .. | 2,420 | .. | .. | 3,190 | 2,180 | 2,180 | 21,345 | 3 3 |
| Kakamega Township .. | .. .. | .. | 124 | 138 | 166 | 120 | 122 | 163 | 115 | 89 | 192 | 120 | 112 | 112 | 1,573 | .. |
| | | 99,530 | 74,217 | 90,009 | 35,656 | 43,280 | 35,684 | 27,052 | 35,253 | 23,159 | 26,347 | 47,397 | 23,910 | 31,270 | 493,234 | .. |

## RAT DESTRUCTION RETURN—CENTRAL KAVIRONDO DISTRICT, 1929

| Location. | Chief. | Huts. | Number of Rats. | | | | | | | | | | | | Total. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | January | February | March | April | May | June | July | August | September | October | November | December | Number of Rats | No. per Hut |
| Samia .. .. .. .. | Muguti .. | 13,308 | 17,905 | .. | 19,900 | .. | 12,920 | 10,900 | 12,150 | 11,900 | 12,000 | 6,500 | 11,600 | 13,600 | 129,375 | 9.7 |
| S. Ugenya .. .. .. | Ndeda .. | 6,133 | .. | 380 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 380 | .06 |
| N. Gem .. .. .. .. | Ogada .. | 8,946 | 3,210 | 3,210 | .. | 7,100 | .. | .. | .. | 1,840 | .. | .. | .. | .. | 15,360 | 1.6 |
| S. Gem .. .. .. .. | Ndeda .. | 6,133 | .. | .. | .. | .. | .. | 262 | .. | .. | .. | .. | .. | .. | 262 | .04 |
| Alego .. .. .. .. | J. Odima .. | 16,361 | .. | .. | 197 | 1,481 | 4,894 | .. | .. | .. | .. | .. | .. | .. | 6,572 | .4 |
| Sakwa .. .. .. .. | E. Abonyo .. | 5,199 | .. | 180 | 600 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 780 | 1 |
| Uyoma .. .. .. .. | Nathan .. | 4,130 | .. | .. | 950 | 1,605 | 1,420 | 1,480 | 940 | 1,090 | 2,040 | 1,420 | .. | .. | 10,945 | 2 6 |
| Sagam .. .. .. | Y. Orau .. | 1,880 | .. | 2,800 | .. | .. | .. | .. | 1,930 | .. | .. | .. | .. | .. | 4,730 | 2.5 |
| S. Tiriki .. .. .. | Chewya .. | 2,680 | .. | 13,240 | 9,280 | 12,200 | .. | 6,580 | 4,354 | .. | 4,450 | 5,000 | 14,200 | 11,140 | 80,444 | 30.0 |
| Kadimo .. .. .. .. | Ogutu .. | 2,202 | 550 | .. | 305 | .. | .. | .. | .. | 1,340 | 600 | .. | 680 | .. | 3,475 | 1 5 |
| | | 66,972 | 21,665 | 19,810 | 31,232 | 22,386 | 19,234 | 19,222 | 19,374 | 16,170 | 19,090 | 12,920 | 26,480 | 24,740 | 252,323 | .. |

## IV.—PORT HEALTH WORK AND ADMINISTRATION.

At the beginning of the year the duties of Port Health Officer, Mombasa, were definitely disassociated from those of the Medical Officer of Health, Mombasa. A separate officer was posted to take charge of the shipping and port area.

The amount of shipping entering Mombasa and Kilindini Harbour maintained the increase which has been the featue of past returns.

The number of dhows slightly decreased.

| | No. of Steamships. | Tonnage. | Dhows. |
|---|---|---|---|
| 1927 | 593 | 1,703,896 | 1,405 |
| 1928 | 637 | 1,814,731 | 1,468 |
| 1929 | 639 | 1,950,733 | 1,444 |

Four vessels arrived from India infected with smallpox. The saloon passengers were allowed to land and the ships were ordered to proceed to the Quarantine Station at Zanzibar where the infected persons and deck passengers were quarantined and the ships disinfected. On return to Mombasa restricted pratique was granted. In two instances passengers recently arrived from India although apparently well at the time of landing, developed smallpox. The comparative proximity of Bombay where smallpox is usually present allows passengers infected before embarkation to pass the health authorities on arrival at Mombasa and subsequently to develop the disease.

A not inconsiderable section of the duties of the Port Health Officer, Mombasa, is the examination of second-hand clothing imported for sale. Nearly 40,000 articles were passed during the year. Under the Port Health Regulations these are now only accepted if accompanied by certificates of satisfactory disinfection.

Routine measures of rat destruction and of mosquito suppression are carried out in the port area under the supervision of the Port Health Officer.

At Kisumu a routine examination of steamers arriving from Lake Ports is performed. The value of this procedure is somewhat problematical.

## V.—MATERNITY AND CHILD WELFARE.

Maternity and child welfare centres are maintained at Mombasa and Nairobi. Apart, however, from these definite centres the posting of European nursing staff to the various native hospitals results in the performance of a considerable amount of work which because it is conducted as part of the ordinary work of a hospital and not as a specialized section does not appear in the statistics relating to maternity and child welfare activities.

The work is definitely developing on the health visiting side and the effectiveness of this is reflected in the satisfactory attendances at the centres.

At Nairobi three centres are in operation at which there has been a total attendance of 3,110. At two centres there have been increases of 120.6 per cent and of 112.9 per cent in attendances, while at the thrid, situated in a locality where it has been impossible to carry out health visiting, attendances have fallen by 49.5 per cent.

At Mombasa, three new centres were opened during the year, making five in all. Nine sessions are held weekly. Over 4,000 visits were paid to homes and nearly 15,000 attendances at centres were recorded.

In addition to the centres maintained by Government the institutions conducted by the Lady Grigg Welfare League continued to function. Two of these, one each at Mombasa and Nairobi, are for Africans and the third, at Nairobi, for Indians. The work consists both in attendance on individuals and in the training of midwives. Expectant mothers and children receive out-patient treatment and women are admitted for confinement. The work in training midwives is likely to be of great value in the future.

Considerable financial support is afforded by Government to the Lady Grigg Welfare institutions for Africans and Indians.

# VI.—HOSPITALS, DISPENSARIES AND VENEREAL CLINICS.

An all-round increase again occurred in the numbers of patients admitted to Government hospitals during the year. Existing accommodation is severely strained and although Government is erecting new hospitals either to replace unsatisfactory institutions or to provide facilities in new centres consideration will require to be given to the question as to how provision is to be effected of the additional accommodation which will be necessary if the increasing demands are to be met.

Separate hospitals do not exist for Asiatics though beds are provided in separate wards in connexion with the native hospitals at Mombasa and Nairobi.

## EUROPEAN HOSPITALS.

No structural change has taken place at the three European hospitals, Kisumu, Mombasa and Nairobi, which are maintained by Government.

The comparative table concerning in-patients treated during the past three years at Government hospitals is as follows :—

| | 1927. | 1928. | 1929. |
|---|---|---|---|
| Total Number Treated .. | 967 | 1,031 | 1,249 |
| ,, ,, Discharged .. | 921 | 978 | 1,200 |
| ,, ,, of Deaths .. | 25 | 26 | 23 |
| ,, ,, Remaining .. | 21 | 27 | 26 |

At Mombasa and Kisumu malaria was easily the chief cause of admission to hospital while at Nairobi the number of operations which are performed is the principal feature.

Work on the extensions to non-Government hospitals at Nakuru and Eldoret was commenced during the year. Government is making a contribution of half the capital cost.

## NATIVE HOSPITALS.

The comparative table of admissions and out-patients for the past three years is as follows :—

| | 1927 | | 1928. | | 1929. | |
|---|---|---|---|---|---|---|
| | In. | Out. | In. | Out. | In. | Out. |
| Patients .. .. .. | 20,504 | 173,304 | 21,236 | 186,545 | 22,966 | 191,227 |
| Deaths .. .. .. | 1,237 | | 1,321 | .. | 1,283 | .. |
| Death Rate per 1,000 Admissions .. .. | 59·7 | | 62·2 | .. | 55·8 | .. |

The large numbers of ulcer cases which have to be admitted if patients suffering from this crippling disability are to be cured, constitute a permanent difficulty on account of the long period during which they occupy beds.

The main diseases treated among in-patients are malaria, ulcers and pneumonia. Malaria is by far the most common cause of admission and provides 14.5 per cent of the total number of in-patients. The other diseases follow in the order in which they are mentioned. Among out-patients bronchitis, external injuries and malaria in that order predominate.

The new hospital at Keruguya (forty beds) was completed and opened during the year. Accommodation has been provided for two nursing sisters.

Extension at Machakos have also been completed and the bed accomodation has been increased to eighty. Housing has been provided for two nursing sisters.

The problem of the provision of hospital facilities for employed natives is urgent and requires consideration in all its aspects by Government.

Five mission hospitals receiving financial support from Government were in operation during the year. One other existing mission hospital does not as yet receive any subsidy. A new hospital was under construction in the Coast area and was approaching completion at the end of the year. The site was agreed upon in advance as conforming with the scheme of hospitalization for the country.

### INFECTIOUS DISEASES HOSPITALS.

The two hospitals for infectious diseases maintained respectively at Mombasa and Nairobi are becoming increasingly important institutions. They supply the in-patient accommodation for cases of venereal disease and tuberculosis as well as for cases for which segregation is required.

At Mombasa 511 cases, including thirty contacts, were admitted, of which dysentery (105 cases), gonorrhoea (eighty cases), tuberculosis (seventy-three cases) and syphilis (sixty-four cases) provided the bulk.

At Nairobi 1,030 cases, including fifty-four contacts, were admitted. The main cases of admission were chicken-pox (200 cases), gonorrhoea (199 cases), syphilis (138 cases) and measles (128 cases).

The infectious diseases hospitals are run on the combined system, there being separate quarters for the different communities.

### DISPENSARIES.

There has been no increase in the number of sub-dispensaries maintained in connexion with the various hospitals situated in the Reserves.

Progress is gradually being made in the replacement from Local Native Council funds of temporary and unsatisfactory buildings by permanent structures where work can be carried out in an efficient manner not only by the dressers in charge but by the medical officer on tour.

The main usefulness of sub-dispensaries in the past has been in the provision of centres where treatment for yaws and syphilis can be obtained; at present a constantly increasing amount of educational work by medical officers and others on tour is being carried out there.

Every year very large numbers, so large as to cast doubt on their accuracy, are reported as having received treatment at sub-dispensaries.

### VENEREAL CLINICS.

The main work in dealing with venereal disease, when admission to hospital is not required, is performed as part of the ordinary out-patient activities of the various hospitals. As stated above, however, a large proportion of the patients presenting themselves at maternity and infant welfare centres do so on account of venereal infection. Definite clinics are held for women at the four maternity and child welfare clinics in Nairobi, five sessions taking place weekly. A clinic for men is also in operation at Nairobi.

Attendances are increasing, largely due to the fact that lady medical officers are employed.

At the Mombasa clinics seventy-one cases of syphilis and twelve of gonorrhoea received treatment together with 238 of yaws.

At Nairobi at the female clinics 346 cases of syphilis, seven of gonorrhoea and 210 of yaws were treated, the total attendances being 2,139. Male cases at the Nairobi clinic were syphilis 142, yaws eighty-four and gonorrhoea thirty-eight, with a total attendance of 1,315.

## VII.—PRISONS AND ASYLUMS.

### PRISONS.

Apart from minor improvements no structural alterations have occurred in the prisons of the country and the accommodation remains of the same generally unsatisfactory type as has been commented on in the past.

A detailed report on the Nairobi Prison was compiled during the year by an officer of the Public Works Department in conjunction with a senior health officer. The conclusion reached was that " the present accommodation provided at the Nairobi Prison is inadequate and unsuitable for the number of

prisoners accommodated " and the recommendation submitted was : " We consider that with extensive repairs and alterations the present permanent buildings could be rendered suitable for a district prison but if the site is to be utilized as a central prison more extensive accommodation is required."

The comparative figures for sickness and deaths in prisons for the past three years is :—

| Year. | Daily Average in Prison. | Admissions to Hospital. | Daily Average on Sick List. | Percentage of Total Inmates. | Deaths. |
|---|---|---|---|---|---|
| 1927 | 2,534 | 1,973 | 83·3 | 3·3 | 61 |
| 1928 | 2,368 | 2,202 | 96·0 | 4·1 | 82 |
| 1929 | 2,328 | 1,671 | 81·0 | 3·5 | 83 |

It will be observed that though the sickness rate is at a slightly lower level than in 1929, the death rate remains in the neighbourhood of forty per thousand.

Pneumonia was the cause of thirty-one out of the total of eighty-three deaths which occurred.

The figures for the three largest prisons are :—

| | Nairobi. | | | Mombasa. | | | Kisumu. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1927 | 1928 | 1929 | 1927 | 1928 | 1929 | 1927 | 1928 | 1929 |
| Average Daily Number in Gaol .. .. .. | 847 | 830 | 828 | 317 | 275 | 221 | 349 | 295 | 281 |
| Average Daily Number on Sick List .. .. | 51.4 | 50 | 38 | 7.07 | 5.0 | 9 | 4.4 | 12 0 | 7.0 |
| Percentage of Average Daily Sick to Average Number in Gaol .. .. .. | 6.0 | 6.0 | 4·6 | 2.2 | 1.8 | 4.1 | 1.3 | 4.0 | 2.5 |
| Total Deaths (Excluding Executions) .. .. | 27 | 36 | 36 | 4 | 6 | 6 | 8 | 11 | 16 |
| Percentage of Deaths to Average Daily Number in Gaol .. .. .. | 3.0 | 4 3 | 4.3 | 1.3 | 2.2 | 2.7 | 2.3 | 3.7 | 5.7 |

It will be observed that the Nairobi Prison maintained its bad record for a high sickness and mortality rate. Thirty-nine cases of pneumonia with nine deaths, twenty-one cases of tuberculosis with ten deaths and forty-nine cases of dysentery with seven deaths occurred at that institution.

The figures of cases and deaths from tuberculosis at the Nairobi Prison during the past two years suggest that there may have been a large increase in the incidence of that disease. The position is being examined by a complete medical survey of all prisoners with a view to obtaining detailed information of their physical condition.

The unusually large number of deaths at the Kisumu Gaol was largely accounted for by an increased incidence of pneumonia which accounted for nine deaths. Three of the patients who died were lunatics awaiting transfer to Nairobi.

## MATHARI MENTAL HOSPITAL.

The new buildings which were commenced in 1928 were completed and taken into commission in 1929. A very considerable improvement has been effected. The following has been provided :—

Four small rooms and two dormitories in the female native buildings.

Courtyards for native male and for native female patients.

Sick wards.

Office and consulting room.

New house for Superintendent.

Extra room for staff quarters.

No separate buildings are provided for Indian patients.

The services of a private consultant in mental diseases have been available during the year for European cases.

The comparative table for admissions, discharges and deaths for the past three years is :—

| | Admissions | | | Discharges | | | Deaths | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1927 | 1928 | 1929 | 1927 | 1928 | 1929 | 1927 | 1928 | 1929 |
| Males .. ... .. | 80 | 83 | 110 | 47 | 66 | 75 | 26 | 15 | 19 |
| Females .. .. .. | 25 | 28 | 20 | 10 | 16 | 16 | 6 | 8 | 6 |
| Totals .. .. | 105 | 111 | 130 | 57 | 82 | 91 | 32 | 23 | 25 |

The total number of patients treated during the year was 250, males 189 and females sixty-one, and the average daily number was 127.

The forms of mental disorder for which patients were admitted were classified as follows :—

| | |
|---|---|
| Mania ... ... ... ... ... ... | 61 |
| Melancholia ... ... ... ... ... | 2 |
| Dementia ... ... ... ... ... | 11 |
| Delusional insanity ... ... ... ... | 7 |
| Paranoia ... ... ... ... ... | 1 |
| Other mental diseases ... ... ... | 43 |
| Epileptics ... ... ... ... ... | 5 |
| | 130 |

One hundred and thirty-four patients remained at the end of the year as against 120 at the end of 1928.

**European Section.**

The total number treated during the year was seventeen. The details are :—

| | *Males.* | *Females.* |
|---|---|---|
| Remaining from 1928 ... | 3 ... | 1 |
| Admissions ... ... ... | 7 ... | 6 |
| Discharges ... ... ... | 6 ... | 6 |
| Deaths ... ... ... | 0 ... | 0 |
| Remaining ... ... ... | 4 ... | 1 |

Patients are encouraged to play games if their mental conditions allow. A good supply of magazines and newspapers has been available during the year.

**Asiatic Section.**

The total number treated during the year was nine. The figures are :—

| | *Males.* | *Females.* |
|---|---|---|
| Remaining from 1928 ... | 3 ... | 1 |
| Admissions ... ... ... | 5 ... | 0 |
| Discharges ... ... ... | 1 ... | 0 |
| Deaths ... ... ... | 0 ... | 0 |
| Remaining ... ... ... | 7 ... | 1 |

Asiatic patients are accommodated in a section of the building in general use for natives. The provision of entirely separate housing would relieve the liability to overcrowding of the native patients.

**Native Section.**

The total number treated during the year was 224. The figures for admissions, discharges, etc., are :—

| | *Males.* | *Females.* |
|---|---|---|
| Remaining from 1928 ... | 73 | 39 |
| Admissions ... ... ... | 98 | 14 |
| Discharges ... ... ... | 68 | 10 |
| Deaths ... ... ... | 19 | 6 |
| Remaining ... ... ... | 84 | 37 |

Of the twenty-five deaths which occurred five were due to pneumonia, three to intestinal affections, and two to meningitis.

Native male patients are usually employed in the carpenter's shop when their condition allows or in the grounds in attending to the gardens and the crops which are grown for consumption in the institution. The building operations provided useful and interesting employment which incidentally resulted in a saving of public funds.

Female native patients make baskets which are subsequently sold and the proceeds are expended on small luxuries. Such as can be so employed work in the garden or about the buildings.

## VIII.—METEOROLOGY.

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

JOHN L. GILKS,
*Director of Medical and Sanitary Services.*

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## RETURNS.

### TABLE I.

**Administrative Division.**

Dr. J. L. GILKS .. .. .. Director of Medical and Sanitary Services.
„ A. D. J. B. WILLIAMS, O.B.E. .. Deputy Director of Medical Service.
„ A. R. PATERSON .. .. .. Deputy Director of Sanitary Service.
„ P. F. NUNAN .. .. .. Senior Medical Officer.
„ F. J. C. JOHNSTONE .. .. Senior Sanitation Officer.
Mr. A. P. LING .. .. .. .. Chief Sanitary Inspector.
Capt. J. S. ROBERTSON, M.B.E. .. Medical Storekeeper.
Mr. H. OGDEN .. .. .. .. Office Superintendent.
„ G. E. SCATTERGOOD .. .. Accountant.
„ T. R. WILSON, D.C.M. .. .. Clerk.
„ A. E. WEBB .. .. .. „
„ R. L. O'SHEA .. .. .. „
Mrs. E. L. FEAST .. .. .. „
Mr. W. J. SHEARMAN .. .. .. „
Miss M. E. CAMERON .. .. .. „
„ M. A. CORFE .. .. .. „
Mrs. S. F. STACEY .. .. .. „
Miss T. M. RAPER .. .. .. „
„ J. M. C. MILLETT .. .. „
„ K. L. GRANT .. .. .. „
Mrs. G. E. FREISLICH .. .. .. „
Miss J. WEBSTER .. .. .. „
„ L. E. SHELTON .. .. .. „
„ E. C. GANNON .. .. .. „

## Medical Division.

| | | |
|---|---|---|
| | Dr. N. P. JEWELL, O.B.E., M.C. | .. Resident Surgical Officer. |
| | „ T. H. MASSEY, M.C. .. | .. Senior Medical Officer. |
| | „ V. M. FISHER .. .. .. | „ „ „ |
| | „ D. S. SCOTT .. .. .. | „ „ „ |
| | „ C. B. B. REID .. .. .. | „ „ „ |
| | „ J. H. NEILL .. .. .. | „ „ „ |
| (1) | „ A. S. MACKIE .. .. .. | Medical Officer. |
| | „ R. C. BRISCOE .. .. .. | „ „ |
| | „ C. V. BRAIMBRIDGE .. .. | „ „ |
| | „ K. T. K. WALLINGTON .. .. | „ „ |
| | „ R. A. W. PROCTER, M.C. .. | „ „ |
| | „ R. J. HARLEY-MASON .. .. | „ „ |
| | „ J. C. J. CALLANAN .. .. | „ „ |
| | „ C. H. BRENNAN .. .. .. | „ „ |
| | „ P. MILNE .. .. .. .. | „ „ |
| | „ F. R. L. MILLER .. .. .. | „ „ |
| | „ E. W. C. JOBSON .. .. .. | „ „ |
| | „ A. R. ESLER .. .. .. | „ „ |
| | „ A. J. ENZER .. .. .. | „ „ |
| | „ C. R. PHILIP .. .. .. | „ „ |
| | „ W. WILKINSON .. .. .. | „ „ |
| | „ J. R. DAVIES .. .. .. | „ „ |
| | „ A. G. THOMSON .. .. .. | „ „ |
| | „ J. A. CARMAN .. .. .. | „ „ |
| | „ D. BELL .. .. .. .. | „ „ |
| | „ J. H. H. CHATAWAY .. .. | „ „ |
| | „ H. A. COLE .. .. .. | „ „ |
| | „ R. MCFIGGANS .. .. .. | „ „ |
| | „ P. ROSS .. .. .. .. | „ „ |
| | „ N. MCLEAN .. .. .. | „ „ |
| | „ G. S. HALE .. .. .. | „ „ |
| | „ A. T. HOWELL .. .. .. | „ „ |
| | „ W. A BULLEN .. .. .. | „ „ |
| | „ E. A. TRIM .. .. .. | „ „ |
| | „ W. L. PATERSON .. .. | „ „ |
| | „ T. F. ANDERSON .. .. .. | „ „ |
| | „ C. N. TWINING (MISS) .. .. | „ „ |
| | „ J. D. S. THOMAS .. .. .. | „ „ |
| | „ C. S. DAVIES .. .. .. | „ „ |
| | „ G. D. DRURY .. .. .. | „ „ |
| | „ J. W. BOWDEN .. .. .. | „ „ |
| | „ P. G. PRESTON .. .. .. | „ „ |
| | „ M. A. W. ROBERTS .. .. | „ „ |
| | „ H. A. MCMILLAN .. .. | „ „ |
| | „ J. C. D. CAROTHERS .. .. | „ „ |
| | „ H. C. TROWELL .. .. .. | „ „ |
| | „ A. B SWARBRECK .. .. | „ „ |
| | „ M. S. R. BROADBENT .. .. | „ „ |
| | „ F. L. HENDERSON .. | .. District Surgeon. |
| | „ J. FORBES .. .. .. .. | „ „ |
| | „ C. J. CADDICK .. .. .. | „ „ |
| | „ C. E. COWEN .. .. .. | „ „ |
| | Mr H. L. SARGENT .. .. | .. Assistant Surgeon. |
| | „ W. N. SARGENT .. .. .. | „ „ |
| | „ A. H. BALL .. .. | .. Dispenser. |
| | „ F. E. WELCH .. .. .. | „ |
| | „ W. C. A. SKEDGE .. .. | „ |
| | „ A. LOWE .. .. .. | .. Wardmaster. |
| | „ T. JOHNSTON .. .. | .. Nursing Orderly. |
| | „ F. GALLOWAY .. .. .. | „ „ |
| | Miss I. WILSON .. .. .. | .. Matron. |
| | „ A. E. DAVIS .. .. | .. Nursing Sister. |
| | „ M I. RHIND .. .. .. | „ „ |
| | „ R. ANDERSON .. .. .. | „ „ |
| | „ D. M. KENNY .. .. .. | „ „ |
| | „ F. M. BIGGAR .. .. | .. Nursing Sister. |
| (2) | „ H BAUMANN .. .. .. | „ „ |
| | „ A. K. WILSON .. .. .. | „ „ |
| | „ C. E. EASON .. .. .. | „ „ |
| | „ E. M. BIRCH .. .. .. | „ „ |
| | „ M. E. ROCHE .. .. .. | „ „ |
| | „ S. I. BEAZLEY .. .. .. | „ „ |
| (3) | „ B. A. ROBERTSON .. .. | „ „ |
| | „ I. M. NICOLSON .. .. .. | „ „ |
| (4) | „ P. K. DUTTON .. .. .. | „ „ |
| | „ M. S. NEVILLE .. .. .. | „ „ |

(1) Transferred to Tanganyika Territory, on promotion 28th July, 1929.
(2) Appointment terminated, 26th June, 1929.
(3) Resigned, 27th January, 1929.
(4) Resigned, 31st July, 1929.

**Medical Division.**—*(Contd.)*

| | | |
|---|---|---|
| | Miss S. I. Beazley | Nursing Sister |
| | „ M. McLeod | „ „ |
| (1) | „ C. S. Irvine-Robertson | „ „ |
| | „ S. Johnson | „ „ |
| | „ A. M. Pearton | „ „ |
| | „ M. E. E. Clelland | „ „ |
| | „ M. E. F. Chambers | „ „ |
| | „ V. M. Mordaunt | „ „ |
| | „ R. M. Hook | „ „ |
| | „ R. M Cochrane | „ „ |
| | „ M. D. Kennedy | „ „ |
| | „ M. A. Marshall | „ „ |
| | „ A. M. Thom | „ „ |
| | „ R. F. McLachlan | „ „ |
| | „ F. E. Jackson | „ „ |
| | „ M. V. Todrick | „ „ |
| | „ D. L. Bartlett | „ „ |
| | „ M. E. Bennett | „ „ |
| | „ G. Evans | „ „ |
| | „ D. V. Glanville | „ „ |
| | „ M. Powles | „ „ |
| | „ R. Walpole | „ „ |
| | „ R. M. Reid | „ „ |
| | „ B. J. Mac Manus | „ „ |
| | „ M. G. Allen | „ „ |
| | „ J. Scott | „ „ |
| | „ E. McNab | „ „ |
| | „ G. M. Henery | „ „ |
| | „ E. Seaton | „ „ |
| | Mr. W. G. Howe | Superintendent, Mathari Mental Hospital. |
| | Mrs. A. T. Howe | Matron, Mathari Mental Hospital. |
| | Mr. S. J. Bosch | Warder, Mathari Mental Hospital. |
| | Mrs. M. A. Bosch | Asst. Matron, Mathari Mental Hospital. |
| | Mr. F. M. Smurthwaite | Warder, Mathari Mental Hospital. |

**Sanitation Division.**

| | | |
|---|---|---|
| | Dr. H. S. de Boer, M.C. | Senior Health Officer. |
| | „ R. N. Hunter | „ „ „ |
| | „ J. McP. Campbell | Health Officer. |
| | „ P. C. C. Garnham | „ „ |
| | „ K. A. T. Martin | „ „ |
| | „ P. P. D. Connolly | „ „ |
| (2) | „ W. J. Hutchinson | „ „ |
| | „ N. M. MacLennan | „ „ |
| | „ R. F. G. Dickson | „ „ |
| | „ G. M. Hargreaves | „ „ |
| | „ M. Michael Shaw (Mrs.) | „ „ |
| | „ A. J. W. Wilkins | „ „ |
| | „ I. M. D. Grieve | „ „ |
| | Mr. J. P. Cook | Senior Sanitary Inspector. |
| | „ A. Bunker | „ „ „ |
| | „ D. P. Broad | Sanitary Inspector. |
| | „ R. C. Mills | „ „ |
| | „ H. E. Taylor | „ „ |
| | „ F. Hewitt | „ „ |
| | „ H. O. Salt | „ „ |
| | „ A. C. Arnold | „ „ |
| | „ H. Martin | „ „ |
| | „ R. W. Robinson | „ „ |
| | „ H. H. Rodgers | „ „ |
| | „ D. Mackintosh | „ „ |
| | „ C. A. Lewis | „ „ |
| | „ T. Hughes | „ „ |
| | „ F. Franks | „ „ |
| | „ R. D. Pearson | „ „ |
| | „ F. C. Gaffney | „ „ |
| | „ G. F. Newbury | „ „ |
| | „ H. Jordan | „ „ |
| | „ J. S. Stirton | „ „ |
| | „ F. E. Weaver | „ „ |
| | „ A. C. Anderson | „ „ |
| | Mr. G. E. Shaw | Sanitary Overseer. |
| (3) | „ J. Whyte | „ „ |
| | „ H. Cock | „ „ |
| | „ J. P. Kelly | „ „ |

(1) Resigned, 7th September, 1929.
(2) Appointment terminated, 4th March, 1929.
(3) Appointment terminated, 5th August, 1929.

**Sanitation Division.**—(Contd.)

| | | |
|---|---|---|
| Mr. A. P. Reeve, m.c. | .. .. | Sanitary Overseer. |
| „ R. Franklin | .. .. .. | „ „ |
| Miss R. K. Sharp | .. .. | Nursing Sister. |
| „ E. A. M. Riordan | .. .. | „ „ |
| „ M. G. Rice-Oxley | .. .. | „ „ |
| „ M. A. Perkin | .. .. .. | „ „ |
| „ G. A Donegan | .. .. .. | „ „ |
| „ A. M. Burns | .. .. .. | „ „ |
| „ G. C. Hawkins | .. .. .. | „ „ |
| „ G M. Warrington | .. .. | „ „ |
| „ C. M. Summerfield | .. .. | „ „ |
| Mr. W. J. Henfrey | .. .. | Superintendent, Infectious Diseases Hospital. |

**Laboratory Division.**

| | | |
|---|---|---|
| Dr. W. H. Kauntze, m.b.e. | .. | Deputy Director of Laboratory Services |
| „ R. P. Cormack | .. .. | Senior Bacteriologist. |
| „ F. P. G. de Smidt | .. | Assistant Bacteriologist. |
| „ H. D. Tonking | .. .. .. | „ „ |
| „ F. W. Vint | .. .. .. | „ „ |
| Mr. M. H. Fox | .. .. | Government Analyst. |
| Dr. D. Harvey | .. .. | Chemical Officer. |
| Mr. C. B. Symes | .. .. | Entomologist. |
| (1) „ G. H. E. Hopkins | .. .. | „ |
| „ F. A. Bailey | .. .. | Laboratory Superintendent |
| „ J. A. Bell | .. .. .. | „ Assistant. |
| „ J. S. McDonald | .. .. .. | „ „ |
| „ W. L. Titman | .. .. .. | „ „ |
| „ E. W. Grainger | .. .. .. | „ „ (Learner Grade). |
| „ T. Jones | .. .. .. | „ „ „ „ |
| „ L. Burton | .. .. .. | „ „ „ „ |
| „ S. Moore | .. .. .. | „ „ „ „ |

(1) Transferred to Uganda.

## TABLE II.

### Financial.

The sanctioned Medical Budget for the year 1929 was a total of £248,561 as compared with £210,066 for the preceding twelve months.

Of the 1929 grand total £233,757 was expended leaving an unexpended sum of £14,804.

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

**Medical Department.**

Administrative Division.

| | *Estimates.* | *Actual Expenditure.* |
|---|---|---|
| Personal Emoluments ... | £18,679 ... | £17,612 |

Medical Division.

| | | |
|---|---|---|
| Personal Emoluments ... | £81,849 ... | £76,569 |

Sanitation Division.

| | | |
|---|---|---|
| Personal Emoluments ... | £28,212 ... | £25,443 |

Laboratory Division.

| | | |
|---|---|---|
| Personal Emoluments ... | £14,190 ... | £13,639 |

Medical Department.

| | | |
|---|---|---|
| Other Charges ... ... | £105,631 ... | £100,493 |

**Revenue.**

The total amount of revenue collected was as follows :—

| | | |
|---|---|---|
| Hospital fees ... ... ... ... | £9,272 | |
| Bills of health ... ... ... ... | 729 | |
| Laboratory fees ... ... ... ... | 1,466 | |
| Registration fees ... ... ... ... | 68 | |
| Sale of medicines, etc. ... ... ... | 853 | |
| | | £12,388 |
| Reimbursement from Uganda Government on account of Zanzibar Sanitary Station ... ... ... ... | 425 | |
| Reimbursement from Kenya and Uganda Railway on account of— | | |
| (*a*) Medical services ... ... | 12,430 | |
| (*b*) Dental services ... ... | 472 | |
| Reimbursement from Nairobi Municipality on account of Public Health staff ... | 4,042 | |
| Reimbursement from Mombasa Municipality on account of Public Health staff | 3,939 | |
| Reimbursement on account of messing expenses, European Hospital, Nairobi | 629 | |
| | | £21,937 |
| | | £34,325 |

Last year the total revenue collected amounted to £22,780.

**TABLE III.**

**Return of Statistics of Population for Year 1929.**

| Colony and Protectorate of Kenya | Europeans and Whites | Africans and Others | Asiatics |
|---|---|---|---|
| Number of Inhabitants in 1928 .. .. .. | *12,529 | †2,515,330 | *26,759 |
| Number of Births Registered in 1929 .. .. | 304 | Figures not available | Figures not available |
| Number of Deaths Registered in 1929 .. .. | 73 | Do. | Do. |
| Number of Immigrants during 1929 .. .. | 6,946 | 1,807 | 14,458 |
| Number of Emigrants during 1929 .. .. | 5,998 | 1,611 | 9,543 |
| Number of Inhabitants during 1929 .. .. | *12,529 | †2,515,330 | *26,759 |

* 1926 Census. † Estimated.

## TABLE IV.

### METEOROLOGICAL RETURN FOR THE YEAR 1929.

| Month. | Temperature. | | | | | | Rainfall. | | Winds. | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Maximum on Grass | Shade Maximum. | Range. | Max. and Min. combined. | Shade Minimum. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force 1–10. | |
| **Kabete Reformatory.** | | | | | | | | | | | |
| January .. .. | | | 78.0 | 27.2 | 123.8 | 50.8 | 0.33 | 75 | | 2.84 | |
| February .. .. | | | 81 8 | 31.4 | 132.2 | 50.4 | 0.06 | 69 | | 2.28 | |
| March .. .. | | | 81.5 | 26.8 | 136.1 | 54.7 | 1.12 | 74 | | 2 29 | |
| April .. .. .. | | | 76 3 | 18.9 | 133.7 | 57 4 | 13.60 | 89 | | 1.77 | |
| May .. .. .. | | | 71.9 | 18.1 | 125.7 | 53.8 | 6.06 | 86 | | 0.94 | |
| June .. .. .. | | | 69.6 | 19.8 | 119.4 | 49,8 | 1.38 | 79 | | 1.03 | |
| July .. .. .. | | | 67.4 | 16.3 | 118.5 | 51.1 | 3.21 | 87 | | 1.26 | |
| August .. .. | | | 69.7 | 22.2 | 117.2 | 47.5 | 2.04 | 82 | | 1.00 | |
| September .. .. | | | 72.9 | 22.7 | 123.1 | 50,2 | 2.43 | 80 | | 1.20 | |
| October .. .. | | | 76.9 | 24 5 | 129.3 | 52.4 | 2.92 | 78 | | 1.58 | |
| November .. .. | | | 76.1 | 21.3 | 130.9 | 54.8 | 7.04 | 87 | | 1.66 | |
| December .. .. | | | 75.7 | 21.7 | 129.7 | 54.0 | 8.78 | 84 | | 1.96 | |
| Year Average .. | | | 74·8 | 22.6 | 63.5 | 52.2 | 48.97 | 81 | | 1.65 | |
| **Mombasa:** | | | | | | | | | | | |
| January .. .. | | | 87.0 | 11.0 | 163.0 | 76.0 | 1.11 | 74 | | 1.3 | |
| February .. .. | | | 88.0 | 11.2 | 164.8 | 76.8 | 0.05 | 72 | | 1.2 | |
| March .. .. | | | 88.4 | 10,8 | 166.0 | 77.6 | 1.83 | 75 | | 1.0 | |
| April .. .. .. | | | 85.5 | 9.2 | 161.8 | 76.3 | 16.59 | 82 | | 1.8 | |
| May .. .. .. | | | 83.8 | 9.3 | 158.3 | 74.5 | 5.84 | 80 | | 2.2 | |
| June .. .. .. | | | 80.7 | 9,2 | 152.2 | 71.5 | 6.48 | 84 | | 2.1 | |
| July .. .. .. | | | 80,5 | 9.1 | 151.9 | 71.4 | 4.19 | 81 | | 2.4 | |
| August .. .. | | | 81.0 | 10.5 | 151.5 | 70.5 | 0.88 | 79 | | 2.4 | |
| September .. .. | | | 81.8 | 9.6 | 154.0 | 72.2 | 2.28 | 76 | | 2.3 | |
| October .. .. | | | 83.9 | 9.9 | 157.9 | 74.0 | 5.31 | 78 | | 1.6 | |
| November .. .. | | | 85.5 | 10.6 | 160.4 | 74.9 | 3.65 | 78 | | 1.1 | |
| December .. .. | | | 87.8 | 11.7 | 163.9 | 76.1 | 2.87 | 77 | | 1.1 | |
| Year Average .. | | | 84.5 | 10.2 | 79.4 | 74.3 | 51.08 | 78 | | 1.7 | |
| **Kisumu:** | | | | | | | | | | | |
| January .. .. | | | | | | | 0.15 | | | | |
| February .. .. | | | | | | | 0.31 | | | | |
| March .. .. | | | | | | | 1.50 | | | | |
| April .. .. .. | | | | | | | 9.44 | | | | |
| May .. .. .. | | | | | | | 3.68 | | | | |
| June .. .. .. | | | | | | | 3.54 | | | | |
| July .. .. .. | | | | | | | 3.40 | | | | |
| August .. .. | | | | | | | 1.65 | | | | |
| September .. .. | | | | | | | 2.65 | | | | |
| October .. .. | | | | | | | 1.63 | | | | |
| November .. .. | | | | | | | 1.05 | | | | |
| December .. .. | | | | | | | 5.49 | | | | |
| Year Total .. | | | | | | | 34.49 | | | | |

| Month | Temperature | | | | | | Rainfall | | Winds | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum | Minimum on Grass | Shade Maximum | Range | Max. and Min. combined | Shade Minimum | Amount in Inches | Degree of Humidity | General Direction | Average Force 1–10 | |
| Fort Hall: | | | | | | | | | | | |
| January .. .. | | | | | | | 2.42 | | | | |
| February .. .. | | | | | | | 0.00 | | | | |
| March .. .. | | | | | | | 2.34 | | | | |
| April .. .. .. | | | | | | | 8.70 | | | | |
| May .. .. .. | | | | | | | 3.89 | | | | |
| June .. .. .. | | | | | | | 0.56 | | | | |
| July .. .. .. | | | | | | | 1.36 | | | | |
| August .. .. | | | | | | | 2.95 | | | | |
| September .. .. | | | | | | | 2.12 | | | | |
| October .. .. | | | | | | | 7.69 | | | | |
| November .. .. | | | | | | | 6.72 | | | | |
| December .. .. | | | | | | | 6.59 | | | | |
| Year Total .. | | | | | | | 45.34 | | | | |

(The Department of Agriculture has only taken Rainfall Records for 1929.)

| | Temperature | | | | | | Rainfall | | Winds | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum | Maximum on Grass | Shade Maximum | Range | Max. and Min. combined | Shade Maximum | Amount in Inches | Degree of Humidity | General Direction | Average Force 1–10 | Dept. of Agriculture Rainfall | |
| (Loreto Convent). Nairobi: | | | | | | | | | | | | |
| January .. .. | | | 81.0 | 26.5 | 135.5 | 54.5 | 0·50 | 80 | | 2.6 | 0.20 | |
| February .. .. | | | 84.2 | 29.4 | 139.0 | 54.8 | 0 04 | 64 | | 1.6 | 0.00 | |
| March .. .. | | | 82.9 | 25.2 | 140.6 | 57.7 | 1·14 | 77 | | 1.7 | 1.26 | |
| April .... .. | | | 77.3 | 17.7 | 136.9 | 59.6 | 10·90 | 90 | | 1.7 | 10.25 | |
| May .... .. | | | 73.6 | 16.8 | 130.4 | 56.8 | 5·36 | 87 | | 1.3 | 5.66 | |
| June .... .. | | | 72.8 | 19.4 | 126.2 | 53.4 | 1·29 | 86 | | 0.6 | 1.02 | |
| July .... .. | | | 71.0 | 17.4 | 124.6 | 53.6 | 1·71 | 86 | | 0.6 | 2.43 | |
| August .. .. | | | 74.1 | 24.0 | 124.2 | 50.1 | 2·35 | 76 | | 1.7 | 4.10 | |
| September .. | | | 75.8 | 23.1 | 128·5 | 52.7 | 2·01 | 82 | | 0.9 | 1.77 | |
| October .. .. | | | 79.2 | 23.3 | 135.1 | 55.9 | 3·14 | 83 | | 1.1 | 2.64 | |
| November .. | | | 74.6 | 17 0 | 132.2 | 57.6 | 5·42 | 92 | | 1.5 | 4.32 | |
| December .. | | | 76.3 | 20.8 | 131.8 | 55.5 | 4·05 | 78 | | 1.4 | 5.79 | |
| Year Average .. | | | 76.9 | 21 7 | 66.0 | 55 2 | 37·91 Total | 82 | | 1.4 | 39.44 Total | |

## TABLE SHOWING ANNUAL RAINFALL AT VARIOUS POINTS IN THE DIFFERENT AREAS FOR THE YEAR 1929.

| Station. | Total 1929. |
|---|---|
| **Coast Area.** | |
| Malindi .. | 52·61 Inches. |
| Mombasa .. .. | 51·03 ,, |
| Mazeras .. .. | 42·78 ,, |
| Mackinnon Road .. | 43·63 ,, |
| Voi .. .. .. | 18·45 ,, |
| Taveta .. .. .. | 25·29 No records. |
| **Mountainous Area.** | |
| Masongaleni .. .. | 17·96 ,, |
| Makindu .. .. | 18·53 ,, |
| Kiu .. .. .. | 9·28 ,, |
| Athi River .. .. | 25·14 ,, |
| Nairobi (Department of Agriculture) .. | 39·14 ,, |
| Kabete Reformatory .. | 48·97 ,, |

| Station | Total 1929. |
|---|---|
| **Mountainous Area—(*Contd*).** | |
| Naivasha .. .. .. | 20·80 No records. |
| Nakuru .. .. .. | 28·22 ,, |
| Molo .. .. .. | 37·38 ,, |
| Eldama Ravine .. .. | 45·42 ,, |
| **Nyanza and Kenya Province.** | |
| Lumbwa .. .. .. | 36·81 ,, |
| Muhuroni .. .. .. | 52·62 ,, |
| Kisumu .. .. .. | 34·49 ,, |
| Kakamega .. .. | 71·95 ,, |
| Kericho .. .. .. | 57·91 ,, |
| Nandi (Kipkarren Ests.) | 51·00 ,, |
| Fort Hall .. .. .. | 45·34 ,, |
| Nyeri .. .. .. | 45·23 ,, |
| West Kenya—Kenya Park | 26·78 ,, |

COLONY AND PROTECTORATE OF KENYA.

# RETURN OF DISEASES (In-Patients).

*For the Year* 1929.

| 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| I.—Epidemic, Endemic and Infectious Diseases. | | | | | | | | | | | | | | | | | | | | |
| 1. Enteric Group— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Typhoid Fever | .. | 8 | .. | 8 | .. | .. | 12 | 1 | 12 | .. | .. | 2 | 1 | 2 | .. | 14 | 55 | 18 | 69 | 2 |
| (*b*) Paratyphoid A. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | 8 | 2 | 8 | .. |
| (*c*) Paratyphoid B. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | 6 | 1 | 7 | .. |
| (*d*) Type not defined | .. | 2 | .. | 2 | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | 2 | 4 | 2 | 6 | .. |
| 2. Typhus Fever | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 3. Relapsing Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 38 | 6 | 38 | 1 |
| 4. Undulant Fever | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 5 | .. | .. | 1 | .. | 1 | .. |
| 5. Malaria— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Tertian | .. | 30 | .. | 30 | .. | .. | 15 | .. | 15 | 1 | .. | 90 | .. | 90 | 4 | 13 | 112 | 2 | 125 | .. |
| (*b*) Quartan | .. | 4 | .. | 4 | 1 | .. | 6 | .. | 6 | .. | .. | 23 | .. | 23 | .. | .. | 108 | 2 | 108 | 4 |
| (*c*) Aestivo-autumnal | .. | 86 | .. | 86 | .. | .. | 99 | 2 | 99 | 1 | 1 | 146 | .. | 147 | 1 | 8 | 1,061 | 34 | 1,069 | 18 |
| (*d*) Undifferentiated | 5 | 255 | .. | 260 | 3 | 2 | 121 | 1 | 123 | 1 | 16 | 1,601 | .. | 1,617 | 13 | 41 | 2,155 | 30 | 2,196 | 42 |
| (*e*) Cachexia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | 1 | 33 | 5 | 34 | 2 |
| (*f*) Blackwater | .. | 4 | .. | 4 | .. | 1 | 13 | 4 | 14 | .. | 1 | 8 | 2 | 9 | .. | 1 | 9 | 5 | 10 | .. |
| (*g*) Cerebral | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 6. Smallpox | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | 2 |
| Alastrim | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| 7. Measles | .. | 7 | .. | 7 | .. | .. | 6 | .. | 6 | .. | .. | 2 | .. | 2 | .. | .. | 197 | 3 | 197 | 25 |
| 8. Scarlet Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 9. Whooping Cough | .. | .. | .. | .. | .. | .. | 5 | .. | 5 | .. | .. | .. | .. | .. | .. | 2 | 22 | 1 | 24 | .. |
| 10. Diphtheria | .. | .. | .. | .. | .. | 1 | 3 | .. | 4 | .. | .. | .. | .. | .. | .. | .. | 8 | .. | 8 | .. |
| 11. Influenza | 2 | 196 | .. | 198 | 1 | 1 | 87 | .. | 88 | 2 | 4 | 940 | .. | 944 | 6 | 12 | 585 | 4 | 597 | 14 |
| 12. Military Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 13. Mumps | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | .. | 6 | .. | 3 | 147 | 1 | 150 | 1 |
| 14. Cholera | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 15. Epidemic Diarrhœa | .. | 1 | .. | 1 | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 5 | .. |
| 16. Dysentery— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Amœbic | .. | 1 | .. | 1 | 1 | 3 | 20 | .. | 21 | 3 | .. | 2 | .. | 2 | .. | 1 | 85 | 6 | 86 | 2 |
| (*b*) Bacillary | .. | 5 | .. | 5 | .. | .. | 8 | 1 | 8 | .. | .. | 4 | .. | 4 | .. | 2 | 42 | 5 | 44 | 1 |
| (*c*) Undefined or due to other causes | .. | 10 | .. | 10 | .. | .. | 13 | .. | 13 | .. | .. | 54 | .. | 54 | .. | 11 | 447 | 45 | 458 | 13 |

## 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| I.—EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES—(*Contd.*). | | | | | | | | | | | | | | | | | | | | |
| 17. Plague— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Bubonic .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7 | 5 | 7 | .. |
| (*b*) Pneumonic .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 2 | 2 | .. |
| (*c*) Septicæmic .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 3 | 3 | .. |
| (*d*) Undefined .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 18. Yellow Fever .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 19. Spirochætosis ictero-hæmorrhagica .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 20. Leprosy .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 58 | 170 | 6 | 228 | 38 |
| 21. Erysipelas .. .. .. .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | 1 | .. | 1 | .. | .. | 4 | .. | 4 | .. |
| 22. Acute Poliomyelitis .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 2 | .. |
| 23. Encephalitis Lethargica .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 2 | 4 | .. |
| 24. Epidemic Cerebro-spinal Fever.. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 35 | 17 | 36 | 1 |
| 25. Other Epidemic Diseases— | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*a*) Rubeola (German Measles) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*b*) Varicella (Chicken-pox) .. | .. | 3 | .. | 3 | .. | .. | 1 | .. | 1 | .. | .. | 3 | .. | 3 | .. | 19 | 468 | .. | 487 | 30 |
| (*c*) Kala-azar .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*d*) Phlebotomus Fever .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*e*) Dengue .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*f*) Epidemic Dropsy .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*g*) Yaws .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 69 | 749 | 7 | 818 | 58 |
| (*h*) Trypanosomiasis .. .. | .. | 2 | .. | 2 | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | 67 | 6 | 67 | 8 |
| Mycetoma .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| 26. Glanders .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 27. Anthrax .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 99 | 11 | 101 | 4 |
| 28. Rabies .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 29. Tetanus .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 30 | 17 | 32 | 1 |
| 30. Mycosis .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | 1 |
| 31. Tuberculosis, Pulmonary and Laryngeal .. .. .. | .. | 3 | 1 | 3 | .. | .. | 9 | .. | 9 | .. | .. | 4 | .. | 4 | .. | 38 | 311 | 85 | 349 | 42 |
| 32. Tuberculosis of the Meninges or Central Nervous System .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 2 | 3 | .. |
| 33. Tuberculosis of the Intestines or Peritoneum .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | 3 | 5 | 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| I.—Epidemic, Endemic and Infectious Diseases—(*Contd.*). | | | | | | | | | | | | | | | | | | | | |
| 34. Tuberculosis of the Vertebral Column | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | .. | 10 | 4 |
| 35. Tuberculosis of Bones and Joints | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | 29 | 1 | 35 | 8 |
| 36. Tuberculosis of other Organs— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Skin or Subcutaneous Tissue (Lupus) | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 7 | .. | 7 | .. |
| (*b*) Bones | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | 2 |
| (*c*) Lymphatic System | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | 28 | 1 | 29 | 9 |
| (*d*) Genito-urinary | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*e*) Other Organs | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 8 | 2 | 9 | .. |
| 37. Tuberculosis disseminated— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Acute | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 1 | 3 | .. |
| (*b*) Chronic | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 38. Syphilis— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Primary | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 14 | 649 | .. | 663 | 61 |
| (*b*) Secondary | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 25 | 240 | 7 | 265 | 23 |
| (*c*) Tertiary | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 82 | 7 | 85 | 12 |
| (*d*) Hereditary | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 29 | 7 | 30 | 1 |
| (*e*) Period not indicated | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 29 | 34 | 1 | 63 | 3 |
| 39. Soft Chancre | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 9 | .. | 9 | .. |
| 40. *A.*—Gonorrhœa and its complications | .. | 2 | .. | 2 | .. | .. | 1 | .. | 1 | .. | .. | 1 | .. | 1 | .. | 19 | 559 | 6 | 578 | 48 |
| *B.*—Gonorrhœal Ophthalmia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | 1 |
| *C.*—Gonorrhœal Arthritis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 14 | .. | 14 | 2 |
| *D.*—Granulomo Venereum | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | 1 |
| 41. Septicæmia | .. | .. | .. | .. | .. | .. | 3 | 1 | 3 | 1 | .. | .. | .. | .. | .. | .. | 34 | 24 | 34 | 1 |
| 42. Other Infectious Diseases | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 7 | .. |
| II.—General Diseases not mentioned above. | | | | | | | | | | | | | | | | | | | | |
| 43. Cancer or other Malignant Tumours of the Buccal Cavity | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. |
| 44. Cancer or other Malignant Tumours of the Stomach or Liver | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. | .. | 1 | 1 | 1 | .. | .. | 11 | 2 | 11 | .. |

## 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| II.—General Diseases not mentioned above—(*Contd.*). | | | | | | | | | | | | | | | | | | | | |
| 45. Cancer or other Malignant Tumours of the Peritoneum Intestines, Rectum | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| 46. Cancer or other Malignant Tumours of the Female Genital Organs | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 4 | 4 | .. |
| 47. Cancer or other Malignant Tumours of the Breast | .. | 4 | .. | 4 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. |
| 48. Cancer or other Malignant Tumours of the Skin | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 1 | 3 | .. |
| 49. Cancer or other Malignant Tumours of Organs not specified | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | 3 | 30 | 12 | 33 | 1 |
| 50. Tumours, Non-malignant | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | .. | .. | 1 | .. | 1 | .. | 4 | 98 | 2 | 102 | 4 |
| 51. Acute Rheumatism | .. | 6 | .. | 6 | .. | 1 | 6 | .. | 7 | .. | .. | 36 | .. | 36 | 1 | 3 | 116 | 2 | 119 | 2 |
| 52. Chronic Rheumatism | .. | 4 | .. | 4 | .. | .. | 9 | .. | 9 | .. | .. | 32 | .. | 32 | .. | 3 | 131 | .. | 134 | 4 |
| 53. Scurvy (including Barlow's Disease) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | 83 | 10 | 92 | 1 |
| 54. Pellagra | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 55. Beri-beri | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 12 | 3 | 13 | .. |
| 56. Rickets | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 1 | 4 | .. |
| 57. Diabetes (not including Insipidus) | .. | 2 | .. | 2 | .. | .. | 2 | .. | 2 | .. | .. | 4 | 1 | 4 | .. | .. | 1 | 1 | 1 | .. |
| 58. Anæmia— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Pernicious | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | 3 | 6 | .. |
| (*b*) Other Anæmias and Chlorosis | .. | 8 | .. | 8 | .. | .. | 5 | .. | 5 | .. | .. | 2 | .. | 2 | .. | .. | 35 | 4 | 35 | 2 |
| 59. Diseases of the Pituitary Body | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 60. Diseases of the Thyroid Gland— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Exophthalmic Goitre | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. |
| (*b*) Other Diseases of the Thyroid Gland, Myxœdema | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. |
| 61. Diseases of the Para-thyroid Glands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 62. Diseases of the Thymus | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |

## 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| II.—General Diseases not mentioned Above—(*Contd.*). | | | | | | | | | | | | | | | | | | | | |
| 63. Diseases of the Supra-renal Glands | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 1 |
| 64. Diseases of the Spleen | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 1 | .. | 2 | .. | 2 | .. | 1 | 53 | 6 | 54 | 3 |
| 65. Leukæmia— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Leukæmia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 2 | .. |
| (*b*) Hodgkin's Disease | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | 2 | .. |
| 66. Alcoholism | .. | 1 | .. | 1 | .. | .. | 3 | 1 | 3 | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | . |
| 67. Chronic poisoning by mineral substances (Lead, Mercury, etc.) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 68. Chronic poisoning by organic substances (Morphia, Cocaine, etc.) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | . |
| 69. Other General Diseases— | | | | | | | | | | | | | | | | | | | | |
| Auto-intoxication | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | 17 | 1 | 17 | .. |
| Purpura Hæmorrhagica | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hæmophilia | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Diabetes Insipidus | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| III.—Affections of the Nervous System and Organs of the Senses. | | | | | | | | | | | | | | | | | | | | |
| 70. Encephalitis (not including Encephalitis Lethargica) | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | 8 | 1 | 8 | 2 |
| 71. Meningitis (not including Tuberculous Meningitis or Cerebro-spinal Meningitis) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | 15 | 13 | .. |
| Cerebellar Disease | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 72. Locomotor Ataxia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 73. Other affections of the Spinal Cord | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | 11 | .. | 12 | .. | 1 | 2 | .. | 3 | .. |
| 74. Apoplexy— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Hæmorrhage | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | 3 | 3 | 3 | 1 |
| (*b*) Embolism | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| (*c*) Thrombosis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 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 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 | Cases remaining in Hospital from previous year | Total Admission | 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 | .. | 5 | 24 | 1 | 29 | 3 |
| (*b*) Other Paralyses | .. | 1 | .. | 1 | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 36 | 7 | 36 | 3 |
| 76. General Paralysis of the Insane | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 1 | 3 | .. |
| 77. Other forms of Mental Alienation | .. | 2 | .. | 2 | .. | 4 | 13 | .. | 17 | 5 | .. | 5 | .. | 5 | .. | 113 | 143 | 26 | 261 | 126 |
| 78. Epilepsy | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | 10 | 66 | 3 | 76 | 4 |
| 79. Eclampsia Convulsions (non-puerperal) 5 years or over | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 80. Infantile Convulsions | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 81. Chorea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | 1 |
| 82. *A.*—Hysteria | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | 1 | .. | 1 | .. | .. | 8 | 1 | 8 | .. |
| *B.*—Neuritis | .. | 5 | .. | 5 | .. | .. | 5 | .. | 5 | 1 | .. | 22 | .. | 22 | .. | 2 | 46 | .. | 48 | 1 |
| *C.*—Neurasthenia | .. | 5 | .. | 5 | .. | .. | 3 | .. | 3 | .. | .. | 12 | .. | 12 | .. | 1 | 2 | .. | 3 | .. |
| *D.*—Neuralgia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 83. Cerebral Softening | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. |
| 84. Other affections of the Nervous System, such as Paralysis Agitans | .. | 10 | .. | 10 | .. | .. | 1 | .. | 1 | .. | .. | 19 | .. | 19 | .. | 2 | 40 | .. | 42 | 3 |
| 85. Affections of the Organs of Vision | | | | | | | | | | | | | | | | | | | | |
| (*a*) Conjunctivitis | .. | 10 | .. | 10 | .. | .. | 2 | .. | 2 | .. | .. | 44 | .. | 44 | .. | 8 | 172 | .. | 180 | 5 |
| (*b*) Trachoma | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 5 | .. | .. | 32 | .. | 32 | 2 |
| (*c*) Tumours of the Eye | .. | .. | .. | .. | .. | .. | 5 | .. | 5 | .. | .. | 6 | .. | 6 | .. | .. | 12 | .. | 12 | 1 |
| (*d*) Other affections of the Eye | .. | 5 | .. | 5 | .. | .. | 2 | .. | 2 | .. | 1 | 32 | .. | 33 | 1 | 5 | 124 | .. | 129 | 7 |
| 86. Affections of the Ear or Mastoid Sinus | .. | 11 | .. | 11 | .. | .. | 4 | .. | 4 | .. | .. | 7 | .. | 7 | .. | 5 | 97 | 5 | 102 | 3 |
| Other Diseases—Nose | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| IV.—Affections of the Circulatory System. | | | | | | | | | | | | | | | | | | | | |
| 87. Pericarditis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | 2 | .. |
| 88. Acute Endocarditis or Myocarditis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. | .. | 6 | 1 | 6 | .. |
| 89. Angina Pectoris | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 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 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 | 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— | .. | 4 | .. | 4 | .. | .. | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mitral | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | 1 | 33 | 12 | 34 | 3 |
| Aortic | .. | .. | .. | .. | .. | .. | 3 | 1 | 3 | .. | .. | 1 | .. | 1 | .. | .. | 6 | .. | 6 | .. |
| Tricuspid | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pulmonary | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| (*b*) Myocarditis | .. | 2 | .. | 2 | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 14 | 10 | 14 | .. |
| (*c*) Tachycardia | .. | 3 | .. | 3 | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | 1 |
| 91. Diseases of the Arteries— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Aneurism | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*b*) Arterio-sclerosis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*c*) Other Diseases | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 92. Embolism or Thrombosis (non-cerebral) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. |
| 93. Diseases of the Veins— | | | | | | | | | | | | | | | | | | | | |
| Hæmorrhoids | .. | 1 | .. | 1 | .. | .. | 6 | .. | 6 | .. | .. | 5 | .. | 5 | .. | .. | 9 | .. | 9 | .. |
| Varicose Veins | .. | .. | .. | .. | .. | .. | 3 | .. | 5 | .. | .. | 2 | .. | 2 | .. | .. | 2 | .. | 2 | .. |
| Phlebitis | .. | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| 94. Diseases of the Lymphatic System— | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lymphangitis | 1 | .. | .. | 1 | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | 2 | 30 | 2 | 32 | .. |
| Lymphadenitis, Bubo (non-specific) | .. | 3 | .. | 3 | .. | .. | 1 | .. | 1 | .. | .. | 9 | .. | 9 | .. | 4 | 115 | .. | 119 | 4 |
| 95. Hæmorrhage of undetermined cause | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | 2 | .. | 2 | .. |
| 96. Other affections of the Circulatory System | .. | 4 | .. | 4 | .. | .. | 6 | .. | 6 | .. | .. | 18 | 1 | 18 | .. | .. | 17 | 5 | 17 | .. |
| V.—Affections of the Respiratory System. | | | | | | | | | | | | | | | | | | | | |
| 97. Diseases of the Nasal Passages— | | | | | | | | | | | | | | | | | | | | |
| Adenoids | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Polypus | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | 2 | .. | 2 | .. |
| Rhinitis | .. | 4 | .. | 4 | 1 | .. | 4 | .. | 4 | .. | .. | 7 | .. | 7 | .. | .. | 2 | .. | 2 | 1 |
| Coryza | .. | 13 | .. | 13 | .. | | 3 | .. | 3 | .. | .. | 39 | .. | 39 | .. | .. | 25 | .. | 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 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 remaing in Hospital fro 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 |
| V.—Affections of the Respiratory System—(*Contd.*). | | | | | | | | | | | | | | | | | | | | |
| 98. Affections of the Larynx— | | | | | | | | | | | | | | | | | | | | |
| Laryngitis .. .. .. | .. | 2 | .. | 2 | .. | .. | 17 | .. | 17 | .. | .. | 16 | .. | 16 | .. | .. | 100 | .. | 100 | .. |
| 99. Bronchitis— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Acute .. .. .. | .. | 46 | .. | 46 | .. | 1 | 12 | .. | 13 | .. | 1 | 202 | .. | 202 | .. | 13 | 667 | 10 | 680 | 8 |
| (*b*) Chronic .. .. .. | .. | 1 | .. | 1 | .. | .. | 1 | .. | 1 | .. | .. | 4 | .. | 4 | .. | .. | 42 | 3 | 42 | 5 |
| 100. Broncho-pneumonia .. .. | .. | 3 | .. | 3 | .. | .. | 3 | .. | 3 | .. | .. | 6 | .. | 6 | .. | 4 | 159 | 43 | 163 | 1 |
| 101. Pneumonia— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Lobar .. .. .. | .. | 1 | 1 | 1 | .. | .. | 7 | 1 | 7 | .. | 1 | 11 | 3 | 12 | .. | 14 | 1,291 | 305 | 1,305 | 33 |
| (*b*) Unclassified .. .. | .. | 8 | .. | 8 | .. | .. | 10 | 3 | 10 | .. | .. | 2 | .. | 2 | .. | 33 | 89 | 43 | 122 | 4 |
| 102. Pleurisy, Empyema .. .. | .. | 5 | .. | 5 | .. | .. | 5 | .. | 5 | .. | .. | 5 | .. | 5 | .. | 2 | 48 | 9 | 50 | 1 |
| 103. Congestion of the Lungs .. | .. | 1 | .. | 1 | 1 | .. | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | 6 | 1 | 6 | .. |
| 104. Gangrene of the Lungs.. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 105. Asthma .. .. .. .. | .. | 7 | .. | 7 | .. | .. | 10 | .. | 10 | .. | .. | 61 | 1 | 61 | 1 | .. | 40 | 2 | 40 | .. |
| 106. Pulmonary Emphysema .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. | .. | 3 | 2 | 3 | .. |
| 107. Other affections of the Lungs .. | .. | 2 | .. | 2 | .. | .. | 1 | .. | 1 | .. | 1 | 2 | .. | 3 | .. | 2 | 17 | 1 | 19 | .. |
| Pulmonary Spirochætosis .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. | .. | 2 | 1 | 2 | .. |
| Emphysema .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| VI.—Diseases of the Digestive System. | | | | | | | | | | | | | | | | | | | | |
| 108. *A*.—Diseases of Teeth or Gums— | .. | 3 | .. | 3 | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Caries .. .. .. .. | .. | 1 | .. | 1 | .. | .. | 7 | .. | 7 | .. | .. | 25 | .. | 25 | .. | .. | 27 | .. | 27 | .. |
| Pyorrhœa .. .. .. | .. | 1 | .. | 1 | .. | .. | 3 | .. | 3 | .. | .. | 8 | .. | 8 | .. | .. | 10 | .. | 10 | .. |
| *B*.—Other affections of the Mouth | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Stomatitis .. .. .. | .. | 2 | .. | 2 | .. | .. | 2 | .. | 2 | .. | .. | 4 | .. | 4 | .. | 1 | 16 | .. | 17 | 1 |
| Glossitis .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. |
| 109. Affections of the Pharynx or Tonsils— | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonsilitis .. .. .. | .. | 57 | .. | 57 | .. | .. | 40 | .. | 40 | .. | .. | 28 | .. | 28 | .. | 1 | 73 | .. | 74 | 4 |
| Pharyngitis .. .. .. | .. | 5 | .. | 5 | .. | .. | 3 | .. | 3 | .. | .. | 12 | .. | 12 | .. | .. | 48 | .. | 48 | .. |

## 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| VI.—DISEASES OF THE DIGESTIVE SYSTEM—(*Contd.*). | | | | | | | | | | | | | | | | | | | | |
| 110. Affections of the Oesophagus .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| 111. *A.*—Ulcer of the Stomach .. | .. | 6 | .. | 6 | .. | .. | 10 | .. | 10 | .. | .. | 2 | .. | 2 | .. | .. | 3 | 1 | 3 | .. |
| *B.*—Ulcer of the Duodenum .. | .. | 6 | .. | 6 | .. | .. | 2 | .. | 2 | 1 | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. |
| 112. Other affections of the Stomach— | .. | 3 | .. | 3 | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Gastritis .. .. .. .. | .. | 45 | .. | 45 | .. | .. | 20 | .. | 20 | .. | .. | 56 | .. | 56 | .. | 1 | 38 | .. | 39 | .. |
| Dyspepsia .. .. .. .. | .. | 11 | .. | 11 | 1 | .. | 4 | .. | 4 | .. | .. | 14 | .. | 14 | .. | 1 | 50 | .. | 51 | .. |
| Colic .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. |
| 113. Diarrhœa and Enteritis— Under two years .. .. | .. | 15 | .. | 15 | .. | .. | 11 | .. | 11 | .. | .. | 8 | .. | 8 | .. | 1 | 52 | 10 | 53 | .. |
| 114. Diarrhœa and Enteritis— Two years and over .. .. | .. | 27 | .. | 27 | .. | .. | 36 | .. | 36 | .. | .. | 77 | .. | 77 | .. | 2 | 217 | 15 | 219 | 8 |
| Colitis .. .. .. .. | .. | 7 | .. | 7 | .. | .. | 3 | .. | 3 | .. | .. | 64 | .. | 64 | 1 | 3 | 142 | 1 | 145 | 1 |
| Ulceration .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. |
| 114A. Sprue .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 115. Ankylostomiasis .. .. .. | .. | 3 | .. | 3 | .. | .. | 4 | .. | 4 | .. | .. | 4 | .. | 4 | .. | 7 | 286 | 17 | 293 | 8 |
| 116. Diseases due to Intestinal Parasites .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*a*) Cestoda (Tænia) .. .. | .. | 2 | .. | 2 | .. | .. | 3 | .. | 3 | .. | .. | 3 | .. | 3 | .. | 1 | 456 | 1 | 457 | 5 |
| (*b*) Trematoda (Flukes) .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 6 | 1 | 7 | .. |
| (*c*) Nematoda (other than Ankylostoma) .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| Ascaris .. .. .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | 3 | 309 | .. | 312 | 4 |
| Trichocephalus dispar. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | .. | 6 | 2 |
| Trichina .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | .. | 6 | .. |
| Dracunculus.. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | 1 | 9 | .. |
| Strongylus .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 16 | .. | 16 | 1 |
| Oxyuris .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| (*d*) Coccidia .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*e*) Other Parasites .. .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 83 | 2 | 83 | 8 |
| (*f*) Unclassified .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 38 | .. | 39 | .. |
| 117. Appendicitis .. .. .. | 1 | 33 | .. | 34 | 1 | 1 | 89 | .. | 90 | .. | .. | 8 | .. | 8 | .. | .. | 11 | 2 | 11 | 2 |
| 118. Hernia .. .. .. .. | .. | 9 | .. | 9 | .. | .. | 15 | .. | 15 | .. | .. | 2 | .. | 2 | .. | 3 | 78 | 5 | 81 | 5 |
| 119. *A.*—Affections of the Anus .. | .. | 1 | .. | 1 | .. | .. | 1 | .. | 1 | .. | .. | 6 | .. | 6 | .. | .. | .. | .. | .. | .. |
| Fistula .. .. .. .. | .. | 4 | .. | 4 | 1 | .. | 7 | .. | 7 | .. | .. | 2 | .. | 2 | .. | .. | 9 | 3 | 9 | 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| VI.—DISEASES OF THE DIGESTIVE SYSTEM—(*Contd.*). | | | | | | | | | | | | | | | | | | | | |
| *B.*—Other affections of the Intestines— | .. | 2 | .. | 2 | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 4 | 1 | 4 | .. |
| Enteroptosis | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Constipation | 1 | 8 | .. | 9 | .. | .. | 10 | .. | 10 | .. | .. | 64 | .. | 64 | .. | 1 | 115 | .. | 116 | .. |
| 120. Acute Yellow Atrophy of the Liver | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. |
| 121. Hydatid of the Liver | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 2 | 3 | .. |
| 122. Cirrhosis of the Liver— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Alcoholic | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 1 | 3 | .. |
| (*b*) Other forms | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 17 | 4 | 20 | 1 |
| 123. Biliary Calculus | .. | 3 | .. | 3 | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. |
| 124. Other affections of the Liver— | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Abscess | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 12 | 5 | 12 | 2 |
| Hepatitis | .. | 8 | .. | 8 | .. | .. | 2 | .. | 2 | .. | 1 | 8 | .. | 9 | .. | 2 | 31 | 2 | 33 | .. |
| Cholecystitis | .. | 4 | .. | 4 | .. | .. | 5 | .. | 5 | .. | .. | .. | .. | .. | .. | .. | .. | . | .. | .. |
| Jaundice | 1 | 3 | .. | 4 | .. | .. | 4 | .. | 4 | .. | .. | .. | .. | .. | .. | 3 | 5 | .. | 8 | .. |
| 125. Diseases of the Pancreas | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 126. Peritonitis (ot unknown cause) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 14 | 9 | 14 | .. |
| 127. Other affections of the Digestive System | 1 | 15 | .. | 16 | 1 | 1 | 11 | .. | 12 | .. | .. | 83 | .. | 83 | .. | 5 | 35 | 8 | 40 | 1 |
| VII.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL). | | | | | | | | | | | | | | | | | | | | |
| 128. Acute Nephritis | .. | 1 | .. | 1 | .. | .. | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | 1 | 39 | 14 | 40 | 3 |
| 129. Chronic Nephritis | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | .. | .. | 3 | .. | 3 | .. | 4 | 20 | 4 | 24 | 3 |
| 130. *A.*—Chyluria | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| *B.*—Schistisomiasis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 120 | 1 | 122 | 7 |
| 131. Other affections of the Kidneys— | .. | 1 | .. | 1 | .. | .. | 3 | .. | 3 | .. | .. | 3 | .. | 3 | .. | 1 | .. | .. | 1 | .. |
| Pyelitis | .. | 1 | .. | 1 | .. | .. | 9 | .. | 9 | .. | .. | .. | .. | .. | .. | .. | 13 | .. | 13 | 1 |
| Renal Colic | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 132. Urinary Calculus | .. | 1 | .. | 1 | .. | .. | 2 | .. | 2 | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. |
| 133. Diseases of the Bladder— | | | | | | | | | | | | | | | | | | | | |
| Cystitis | 1 | 4 | .. | 5 | .. | .. | 12 | .. | 12 | 1 | .. | 3 | .. | 3 | .. | 1 | 18 | 1 | 19 | 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 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 | Cases remaining in Hospital from previous year | Total Admission | 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 | .. | 1 | 28 | 3 | 29 | .. |
| (*b*) Other | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. | .. | 1 | .. | 1 | .. | .. | 16 | .. | 16 | .. |
| 135. Diseases of the Prostate— | | | | | | | | | | | | | | | | | | | | |
| Hypertrophy | .. | 3 | .. | 3 | 1 | .. | 1 | 1 | 1 | .. | .. | 1 | .. | 1 | .. | .. | 2 | 2 | 2 | .. |
| Prostatitis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | 3 | 8 | .. |
| 136. Diseases (Non-venereal) of the Genital Organs of Man | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Epididymitis | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | 12 | .. | 12 | .. |
| Orchitis | .. | 3 | .. | 3 | .. | .. | 1 | .. | 1 | .. | .. | 6 | .. | 6 | .. | 2 | 61 | .. | 63 | 2 |
| Hydrocele | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | 1 | 65 | 1 | 66 | 3 |
| Ulcer of Penis | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | 2 | .. | 2 | .. | .. | 30 | .. | 30 | 1 |
| Paraphymosis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 137. Cysts or other Non-malignant Tumours of the Ovaries | .. | 1 | 1 | 1 | .. | .. | 5 | 1 | 5 | .. | .. | 1 | .. | 1 | .. | 2 | 14 | .. | 16 | 1 |
| 138. Salpingitis— | | | | | | | | | | | | | | | | | | | | |
| Abscess of the Pelvis | .. | .. | .. | .. | .. | .. | 6 | .. | 6 | .. | .. | .. | .. | .. | .. | 1 | 10 | 1 | 11 | 2 |
| 139. Uterine Tumours (Non-malignant) | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | .. | .. | .. | .. | .. | .. | .. | 13 | 1 | 13 | .. |
| 140. Uterine Hæmorrhage (Non-puerperal) | .. | 5 | .. | 5 | .. | .. | 5 | .. | 5 | .. | .. | .. | .. | .. | .. | 3 | 6 | .. | 9 | .. |
| 141. *A.*—Metritis | .. | 2 | .. | 2 | .. | 2 | 9 | .. | 11 | .. | .. | .. | .. | .. | .. | .. | 15 | .. | 15 | 1 |
| *B.*—Other affections of the Female Genital Organs | .. | .. | .. | .. | .. | .. | 9 | .. | 9 | .. | .. | .. | .. | .. | .. | .. | 9 | .. | 9 | 1 |
| Displacement of Uterus | .. | 1 | .. | 1 | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | 1 | 12 | .. | 13 | .. |
| Amenorrhœa | .. | .. | .. | .. | .. | 1 | 2 | .. | 3 | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | .. |
| Leucorrhœa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. |
| Dysmennorhœa | .. | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. |
| Ovaritis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 142. Diseases of the Breast (Non-puerperal)— | | | | | | | | | | | | | | | | | | | | |
| Mastitis | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | 1 | .. | .. | .. | .. | .. | .. | 8 | 1 | 8 | .. |
| Abscess of Breast | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. |
| Vulvo Vaginitis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| VIII.—Puerperal State. | | | | | | | | | | | | | | | | | | | | |
| 143. *A.*—Normal Labour | .. | .. | .. | .. | .. | .. | 7 | .. | 7 | .. | .. | .. | .. | .. | .. | .. | 20 | .. | 20 | .. |
| *B.*—Accidents of Pregnancy— | | | | | | | | | | | | | | | | | | | | |
| (*a*) Abortion | .. | .. | .. | .. | .. | .. | 16 | .. | 16 | .. | .. | .. | .. | .. | .. | 1 | 32 | 3 | 33 | 2 |
| (*b*) Ectopic Gestation | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| (*c*) Other accidents of Pregnancy | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | 1 | .. | .. | .. | .. | .. | 1 | 24 | 2 | 25 | 1 |
| 144. Puerperal Hæmorrhage | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 145. Other accidents of Parturition | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | .. | 10 | 1 |
| 146. Puerperal Septicæmia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11 | 6 | 11 | .. |
| 147. Phlegmasia Dolens | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. |
| 148. Puerperal Eclampsia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | 2 | .. |
| 149. Sequelæ of Labour | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11 | .. | 11 | 1 |
| 150. Puerperal affections of the Breast | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. |
| IX.—Affections of the Skin and Cellular Tissues. | | | | | | | | | | | | | | | | | | | | |
| 151. Gangrene | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 1 | .. | 1 | .. | 1 | .. | .. | 8 | 4 | 8 | 3 |
| 152. Boil | .. | 7 | .. | 7 | .. | .. | 4 | .. | 4 | .. | 1 | 34 | .. | 35 | .. | .. | 68 | .. | 68 | 3 |
| Carbuncle | .. | 2 | .. | 2 | .. | 1 | 4 | .. | 5 | .. | .. | 2 | .. | 2 | .. | .. | 3 | .. | 3 | 1 |
| 153. Abscess | .. | 12 | .. | 12 | .. | 1 | 16 | .. | 17 | .. | .. | 35 | .. | 35 | 1 | 29 | 412 | 7 | 441 | 28 |
| Whitlow | .. | 1 | .. | 1 | .. | .. | 1 | .. | 1 | .. | .. | 2 | .. | 2 | .. | .. | 22 | 1 | 22 | .. |
| Cellulitis | .. | 15 | .. | 15 | .. | .. | 21 | .. | 21 | .. | .. | 29 | .. | 29 | .. | 14 | 279 | 4 | 293 | 11 |
| 154. *A.*—Tinea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | 2 | 6 | .. | 8 | .. |
| *B.*—Scabies | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 7 | .. | 8 | .. | 3 | 104 | .. | 107 | 6 |
| 155. Other Diseases of the Skin— | .. | 7 | .. | 7 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Erythema | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. | .. | 8 | .. | 8 | .. | 2 | 19 | .. | 21 | 1 |
| Urticaria | .. | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | 13 | .. | 13 | .. | .. | 18 | .. | 18 | .. |
| Eczema | .. | 2 | .. | 2 | .. | .. | 4 | .. | 4 | 1 | .. | 16 | .. | 16 | 1 | 1 | 25 | .. | 26 | 3 |
| Herpes | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 3 | .. | 4 | .. | .. | 9 | .. | 9 | .. |
| Psoriasis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | .. |
| Elephantiasis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | 34 | 2 | 43 | 3 |
| Myiasis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 1 |
| Chigoes | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | .. | 1 | 27 | .. | 28 | .. |
| Cutaneous Leishmaniasis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 118 | .. | 118 | 32 |
| Ulcers | .. | 3 | .. | 3 | .. | 1 | 9 | .. | 10 | .. | .. | 10 | .. | 10 | .. | 201 | 1,682 | 11 | 1,883 | 169 |
| Sebaceous Cyst | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| Other Diseases—Skin | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Filariasis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |

## 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| X.—Diseases of Bones and Organs of Locomotion (other than Tuberculous). | | | | | | | | | | | | | | | | | | | | |
| 156. Diseases of Bones— | | | | | | | | | | | | | | | | | | | | |
| Osteitis | .. | 3 | .. | 3 | .. | .. | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | 10 | 49 | 1 | 59 | 9 |
| Osteomyelitis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | .. | 2 | .. |
| Ainhum | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| 157. Diseases of Joints— | | | | | | | | | | | | | | | | | | | | |
| Arthritis | .. | 4 | .. | 4 | .. | .. | 1 | .. | 1 | .. | .. | 4 | .. | 4 | .. | 9 | 141 | 3 | 150 | 11 |
| Synovitis | .. | 13 | .. | 13 | 2 | .. | 2 | .. | 2 | .. | .. | 9 | .. | 9 | .. | 3 | 157 | .. | 160 | 12 |
| 158. Other Diseases of Bones or Organs of Locomotion | .. | 21 | .. | 21 | .. | .. | 5 | .. | 5 | .. | 3 | 88 | .. | 91 | .. | 16 | 283 | 1 | 299 | 14 |
| XI.—Malformations. | | | | | | | | | | | | | | | | | | | | |
| 159. Malformations | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. |
| Hydrocephalus | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 2 | .. | 3 | .. |
| Hypospadias | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Spina Bifida | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| XII.—Diseases of Infancy. | | | | | | | | | | | | | | | | | | | | |
| 160. Congenital Debility | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 161. Premature Birth | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 162. Other affections of Infancy | .. | .. | .. | .. | .. | .. | 2 | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | 3 | 1 | 3 | .. |
| 163. Infant neglect (infants of three months or over) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | .. |
| XIII.—Affections of Old Age. | | | | | | | | | | | | | | | | | | | | |
| 164. Senility— | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | 1 | 6 | .. |
| Senile Dementia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | 7 | 5 | 7 | .. |

## 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| XIV.—Affections produced by External Causes. | | | | | | | | | | | | | | | | | | | | |
| 165. Suicide by Poisoning | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. |
| 166. Corrosive Poisoning (intentional) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 167. Suicide by Gas Poisoning | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 168. Suicide by Hanging or Strangulation | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. |
| 169. Suicide by Drowning | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 170. Suicide by Firearms | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 171. Suicide by Cutting or Stabbing Instruments | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. |
| 172. Suicide by jumping from a height | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 173. Suicide by Crushing | | | | | | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 174. Other Suicides | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 175. Food Poisoning | .. | .. | .. | .. | .. | .. | 6 | .. | 6 | .. | .. | .. | .. | .. | .. | .. | 23 | 4 | 23 | .. |
| 176. Attacks of Poisonous Animals | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Snake Bite | .. | 2 | .. | 2 | .. | .. | 1 | .. | 1 | .. | .. | 1 | .. | 1 | .. | 1 | 41 | 1 | 42 | 1 |
| Insect Bite | .. | 1 | .. | 1 | .. | .. | 1 | .. | 1 | .. | .. | 8 | .. | 8 | .. | .. | 9 | 1 | 8 | .. |
| 177. Other Accidental Poisonings | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | .. | 6 | .. |
| 178. Burns (by Fire) | .. | 10 | .. | 10 | .. | .. | 1 | .. | 1 | .. | .. | 17 | .. | 17 | 2 | 7 | 151 | 40 | 158 | 13 |
| 179. Burns (other than by Fire) | .. | 1 | .. | 1 | .. | .. | 4 | .. | 4 | .. | .. | 3 | .. | 3 | .. | 1 | 135 | 1 | 136 | 6 |
| 180. Suffocation (Accidental) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 181. Poisoning by Gas (Accidental) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 182 Drowning (Accidental) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 183. Wounds (by Firearms, War excepted) | .. | 3 | .. | 3 | .. | .. | 5 | .. | 5 | .. | .. | .. | .. | .. | .. | 3 | 65 | 3 | 68 | 5 |
| 184. Wounds (by Cutting or Stabbing Instruments) | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | 3 | .. | 3 | .. | 22 | 484 | 10 | 506 | 37 |
| 185. Wounds (by Fall) | .. | 4 | .. | 4 | .. | .. | 5 | .. | 5 | .. | .. | 24 | .. | 24 | .. | 11 | 158 | .. | 169 | 5 |
| 186. Wounds (in Mines or Quarries) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | .. | 6 | 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| XIV.—Affections produced by External Causes—(*Contd.*). | | | | | | | | | | | | | | | | | | | | |
| 187. Wounds (by Machinery) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 15 | .. | 15 | 1 | 7 | 286 | 5 | 293 | 13 |
| 188. Wounds (Crushing, *e.g.*, Railway Accidents, etc.) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 52 | 5 | 52 | 1 |
| 189. Injuries inflicted by Animals, Bites, Kicks, etc. | .. | 3 | .. | 3 | .. | .. | 6 | .. | 6 | .. | .. | 8 | .. | 8 | .. | 12 | 166 | 6 | 178 | 14 |
| 190. Wounds inflicted on Active Service | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| 191. Executions of Civilians by Belligerents | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 192. *A.*—Over Fatigue | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| *B.*—Hunger or Thirst | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 135 | 8 | 135 | 78 |
| 193. Exposure to Cold, Frostbite, etc. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 194. Exposure to Heat | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Heatstroke | .. | 2 | .. | 2 | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | 1 |
| Sunstroke | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 195. Lightning Stroke | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 2 | .. |
| 196. Electric Shock | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | .. |
| 197. Murder by Firearms | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 198. Murder by Cutting or Stabbing Instruments | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 199. Murder by other means | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 200. Infanticide (Murder of an Infant under one year | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 201. *A.*—Dislocation | .. | 5 | .. | 5 | .. | .. | 11 | .. | 11 | 1 | .. | 4 | .. | 4 | .. | 1 | 27 | .. | 28 | 1 |
| *B.*—Sprain | .. | 6 | .. | 6 | .. | .. | .. | .. | .. | .. | 1 | 13 | .. | 14 | .. | .. | 51 | .. | 51 | .. |
| *C.*—Fracture | .. | 16 | .. | 16 | .. | .. | 13 | 1 | 13 | 1 | .. | 14 | .. | 14 | 2 | 30 | 327 | 24 | 357 | 34 |
| 202. Other External Injuries | 2 | 78 | .. | 80 | 1 | 1 | 46 | .. | 47 | 1 | 4 | 358 | .. | 362 | 3 | 173 | 1,231 | 16 | 1,404 | 79 |
| 203. Deaths by Violence of unknown cause | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |

## 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 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 | Cases remaining in Hospital from previous year | Total Admission | Total Deaths | Total Cases Treated | Remaining in Hospital at end of year |
| XV.—Ill Defined Diseases. | | | | | | | | | | | | | | | | | | | | |
| 204. Sudden Death (cause unknown) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | .. |
| 205. *A.*—Diseases not already specified or ill-defined .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | .. | 2 | 1 |
| Ascites .. .. .. .. | .. | 8 | .. | 8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 49 | 4 | 50 | 2 |
| Oedema .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | 19 | 5 | 19 | .. |
| Asthenia .. .. .. | .. | 5 | .. | 5 | 1 | .. | 8 | .. | 8 | .. | .. | 3 | .. | 3 | .. | 2 | 17 | 2 | 19 | .. |
| Shock .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hyperpyrexia .. .. .. | .. | 4 | .. | 4 | .. | .. | 14 | .. | 14 | .. | .. | .. | .. | .. | .. | .. | 7 | .. | 7 | .. |
| Sun Traumatism .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Food Deficiency Diseases .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 5 | .. | 7 | .. |
| Torticollis .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| P.U.O. .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 75 | .. | 75 | .. |
| N.Y.D. .. .. .. .. | .. | 2 | .. | 2 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 5 | .. |
| *B.*—Malingering .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | 5 | .. | 5 | .. |
| XVI.—Diseases, the Total of which have not Caused 10 Deaths. | | | | | | | | | | | | | | | | | | | | |
| GRAND TOTAL .. | 15 | 1,376 | 3 | 1,391 | 19 | 23 | 1,241 | 25 | 1,264 | 23 | 40 | 4,782 | 11 | 4,822 | 39 | 1,300 | 22,966 | 1,283 | 24,266 | 1,418 |
| Surgical Operations— | | | | | | | | | | | | | | | | | | | | |
| Under General Anæsthesia .. | .. | 101 | .. | 101 | .. | .. | 238 | .. | 238 | .. | .. | .. | .. | .. | .. | .. | 1,700 | .. | 1,700 | .. |
| Others .. .. .. .. | .. | 19 | .. | 19 | .. | .. | 28 | .. | 28 | .. | .. | .. | .. | .. | .. | .. | 127 | .. | 127 | .. |

COLONY AND PROTECTORATE OF KENYA.

# RETURN OF DISEASES (Out-Patients).

NUMBERS TREATED DURING THE YEAR 1929.

| 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 | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| (*b*) Paratyphoid A. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*c*) Paratyphoid B. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 |
| (*d*) Type not defined | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 1 | .. | 1 |
| 2. Typhus | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 3. Relapsing Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | 7 | 20 |
| 4. Undulant Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 5. Malaria— | | | | | | | | | | | | |
| (*a*) Tertian | 4 | .. | 4 | 3 | 1 | 4 | .. | .. | .. | 1,013 | 212 | 1,225 |
| (*b*) Quartan | .. | .. | .. | 4 | 1 | 5 | 4 | .. | 4 | 201 | 105 | 306 |
| (*c*) Aestivo-autumnal | 8 | 1 | 9 | 10 | 7 | 17 | 6 | .. | 6 | 801 | 220 | 1,021 |
| (*d*) Undifferentiated | 15 | .. | 15 | 29 | 9 | 38 | 254 | .. | 254 | 14,682 | 2,571 | 17,253 |
| (*e*) Cachexia | .. | .. | .. | 1 | .. | 1 | 13 | .. | 13 | 277 | 62 | 339 |
| (*f*) Blackwater | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 |
| 6. Smallpox | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Alastrim | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 7. Measles | .. | .. | .. | .. | .. | .. | .. | .. | .. | 30 | 12 | 42 |
| 8. Scarlet Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 9. Whooping Cough | .. | .. | .. | .. | .. | .. | .. | .. | .. | 41 | 36 | 77 |
| 10. Diphtheria | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 11. Influenza | 31 | .. | 31 | 7 | 8 | 15 | 292 | .. | 292 | 5,954 | 375 | 6,329 |
| 12. Military Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 13. Mumps | .. | .. | .. | .. | .. | .. | .. | .. | .. | 120 | 4 | 124 |
| 14. Cholera | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 15. Epidemic Diarrhœa | .. | .. | .. | .. | .. | .. | .. | .. | .. | 42 | .. | 42 |
| 16. Dysentery— | | | | | | | | | | | | |
| (*a*) Amœbic | .. | .. | .. | 3 | 1 | 4 | .. | .. | .. | 62 | 30 | 92 |
| (*b*) Bacillary | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 67 | 4 | 71 |
| (*c*) Undefined or due to other causes | 1 | .. | 1 | 1 | 1 | 2 | .. | .. | .. | 470 | 50 | 520 |

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 |
| I.—Epidemic, Endemic and Infectious Diseases—(*Contd.*). | | | | | | | | | | | | |
| 17. Plague— | | | | | | | | | | | | |
| (*a*) Bubonic | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | | 3 |
| (*b*) Pneumonic | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*c*) Septicæmic | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 |
| (*d*) Undefined | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 18. Yellow Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 19. Spirochætosis ictero-hæmorrhagica | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 20. Leprosy | .. | .. | .. | .. | .. | .. | .. | .. | .. | 27 | 3 | 30 |
| 21. Erysipelas | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 8 | 11 |
| 22. Acute Poliomyelitis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 3 | 4 |
| 23. Encephalitis Lethargica | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 24. Epidemic Cerebro-spinal Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | 18 | 26 |
| 25. Other Epidemic Diseases— | | | | | | | | | | | | |
| (*a*) Rubeola (German Measles) | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| (*b*) Varicella (Chicken-pox) | .. | .. | .. | 2 | 1 | 3 | .. | .. | .. | 86 | 5 | 91 |
| (*c*) Kala-azar | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*d*) Phlebotomus Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*e*) Dengue | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*f*) Epidemic Dropsy | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*g*) Yaws | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5,309 | 4,411 | 9,720 |
| (*h*) Trypanosomiasis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| 26. Glanders | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 27. Anthrax | .. | .. | .. | .. | .. | .. | .. | .. | .. | 32 | 9 | 41 |
| 28. Rabies | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 29. Tetanus | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 1 | 5 |
| 30. Mycosis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 31. Tuberculosis, Pulmonary and Laryngeal | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | 127 | 44 | 171 |
| 32. Tuberculosis of the Meninges or Central Nervous System | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 8 | 9 |
| 33. Tuberculosis of the Intestines or Peritoneum | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| 34. Tuberculosis of the Vertebral Column | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 2 | 5 |
| 35. Tuberculosis of Bones and Joints | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | 3 | 11 |

## 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 |
| I.—Epidemic, Endemic and Infectious Diseases—(*Contd.*). | | | | | | | | | | | | |
| 36. Tuberculosis of other Organs— | | | | | | | | | | | | |
| (*a*) Skin or Subcutaneous Tissue (Lupus) .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | 2 | 12 |
| (*b*) Bones .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | .. | 10 |
| (*c*) Lymphatic System .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | 11 | 21 |
| (*d*) Genito-urinary .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| (*e*) Other Organs .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 |
| 37. Tuberculosis disseminated— | | | | | | | | | | | | |
| (*a*) Acute .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7 | .. | 7 |
| (*b*) Chronic .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| 38. Syphilis— | | | | | | | | | | | | |
| (*a*) Primary .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 380 | 158 | 538 |
| (*b*) Secondary .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 826 | 544 | 1,370 |
| (*c*) Tertiary .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 154 | 113 | 267 |
| (*d*) Hereditary .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 167 | 121 | 288 |
| (*e*) Period not indicated .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 49 | 45 | 94 |
| 39. Soft Chancre .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 18 | 1 | 19 |
| 40. *A.*—Gonorrhœa and its complications .. .. .. .. | .. | .. | .. | 3 | .. | 3 | 4 | .. | 4 | 728 | 24 | 752 |
| *B.*—Gonorrhœal Ophthalmia .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 5 |
| *C.*—Gonorrhœal Arthritis .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 12 | 1 | 13 |
| *D.*—Granulomo Venereum .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 3 | .. | 3 |
| 41. Septicæmia .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 25 | 3 | 28 |
| 42. Other Infectious Diseases .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Trypanosomiasis .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| II.—General Diseases not mentioned above. | | | | | | | | | | | | |
| 43. Cancer or other Malignant Tumours of the Buccal Cavity .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 |
| 44. Cancer or other Malignant Tumours of the Stomach or Liver | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 |
| 45. Cancer or other Malignant Tumours of the Peritoneum Intestines, Rectum .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |

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 |
| II.—General Diseases not mentioned above—(*Contd.*). | | | | | | | | | | | | |
| 46. Cancer or other Malignant Tumours of the Female Genital Organs | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| 47. Cancer or other Malignant Tumours of the Breast | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 48. Cancer or other Malignant Tumours of the Skin | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 3 |
| 49. Cancer or other Malignant Tumours of Organs not specified | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 5 |
| 50. Tumours, Non-malignant | .. | .. | .. | .. | .. | .. | .. | .. | .. | 73 | 20 | 93 |
| 51. Acute Rheumatism | 4 | .. | 4 | 2 | 2 | 4 | 2 | .. | 2 | 1,239 | 352 | 1,591 |
| 52. Chronic Rheumatism | 3 | .. | 3 | 2 | .. | 2 | 13 | .. | 13 | 1,843 | 649 | 2,492 |
| 53. Scurvy (including Barlow's Disease) | .. | .. | .. | .. | .. | .. | .. | .. | .. | 24 | 1 | 25 |
| 54. Pellagra | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 55. Beri-beri | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 56. Rickets | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | 6 | .. | 6 |
| 57. Diabetes (not including Insipidus) | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 19 | 1 | 20 |
| 58. Anæmia— | | | | | | | | | | | | |
| (*a*) Pernicious | .. | .. | .. | .. | .. | .. | .. | .. | .. | 15 | 4 | 19 |
| (*b*) Other Anæmias and Chlorosis | 5 | .. | 5 | 8 | 13 | 21 | 3 | .. | 3 | 300 | 167 | 467 |
| 59. Diseases of the Pituitary Body | .. | .. | .. | .. | .. | .. | .. | .. | .. | 40 | .. | 40 |
| 60. Diseases of the Thyroid Gland— | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| (*a*) Exophthalmic Goitre | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| (*b*) Other Diseases of the Thyroid Gland, Myxœdema | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 6 | 7 |
| 61. Diseases of the Para-thyroid Glands | .. | .. | .. | .. | .. | .. | .. | .. | .. | 17 | 12 | 29 |
| 62. Diseases of the Thymus | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 63. Diseases of the Supra-renal Glands | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| 64. Diseases of the Spleen | .. | .. | .. | .. | .. | .. | .. | .. | .. | 242 | 46 | 288 |
| 65. Leukæmia— | | | | | | | | | | | | |
| (*a*) Leukæmia | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 5 |
| (*b*) Hodgkin's Disease | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |

## 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 |
| II.—General Diseases not mentioned above—(*Contd.*). | | | | | | | | | | | | |
| 66. Alcoholism | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 |
| 67. Chronic poisoning by mineral substances (Lead, Mercury, etc.) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 68. Chronic poisoning by organic substances (Morphia, Cocaine, etc.) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 69. Other General Diseases— | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 |
| Auto-intoxication | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 5 |
| Purpura Hæmorrhagica | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hæmophilia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Diabetes Insipidus | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| III.—Affections of the Nervous System and Organs of the Senses. | | | | | | | | | | | | |
| 70. Encephalitis (not including Encephalitis Lethargica) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 71. Meningitis (not including Tuberculous Meningitis or Cerebro-spinal Meningitis) | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| 72. Locomotor Ataxia | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 |
| 73. Other affections of the Spinal Cord | .. | .. | .. | .. | .. | .. | .. | .. | .. | 75 | 4 | 79 |
| 74. Apoplexy— | | | | | | | | | | | | |
| (*a*) Hæmorrhage | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| (*b*) Embolism | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*c*) Thrombosis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 75. Paralysis— | | | | | | | | | | | | |
| (*a*) Hemiplegia | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11 | 8 | 19 |
| (*b*) Other Paralyses | .. | .. | .. | .. | .. | .. | .. | .. | .. | 21 | 5 | 26 |
| 76. General Paralysis of the Insane | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 77. Other forms of Mental Alienation | 1 | .. | 1 | .. | 1 | 1 | .. | .. | .. | 103 | 3 | 106 |
| 78. Epilepsy | .. | .. | .. | .. | .. | .. | .. | .. | .. | 42 | 16 | 58 |
| 79. Eclampsia Convulsions (non-puerperal) 5 years or over | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 80. Infantile Convulsions | .. | .. | .. | .. | .. | .. | .. | .. | .. | 19 | 3 | 22 |
| 81. Chorea | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 1 | 4 |

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 |
| III.—Affections of the Nervous System and Organs of the Senses.—(*Contd.*) | | | | | | | | | | | | |
| 82. *A.*—Hysteria | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 30 | 31 |
| *B.*—Neuritis | 4 | .. | 4 | 2 | 2 | 4 | 7 | .. | 7 | 411 | 64 | 475 |
| *C.*—Neurasthenia | 1 | 2 | 3 | 1 | 4 | 5 | 2 | .. | 2 | 28 | 1 | 29 |
| *D.*—Headache | .. | .. | .. | .. | .. | .. | .. | .. | .. | 310 | 31 | 341 |
| 83. Cerebral Softening | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 84. Other affections of the Nervous System, such as Paralysis Agitans | 1 | .. | 1 | .. | 1 | 1 | 7 | .. | 7 | 740 | 122 | 862 |
| 85. Affections of the Organs of Vision | | | | | | | | | | | | |
| (*a*) Conjunctivitis | 12 | .. | 12 | 2 | 3 | 5 | 107 | .. | 107 | 4,495 | 2,034 | 6,529 |
| (*b*) Trachoma | .. | .. | .. | 1 | .. | 1 | 3 | .. | 3 | 56 | 17 | 73 |
| (*c*) Tumours of the Eye | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 13 | .. | 13 |
| (*d*) Other affections of the Eye | 19 | .. | 19 | 4 | .. | 4 | 83 | .. | 83 | 686 | 213 | 899 |
| 86. Affections of the Ear or Mastoid Sinus | 36 | 1 | 37 | 2 | 9 | 11 | 54 | .. | 54 | 2,362 | 588 | 2,950 |
| Other Diseases—Nose | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| IV.—Affections of the Circulatory System. | | | | | | | | | | | | |
| 87. Pericarditis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 |
| 88. Acute Endocarditis or Myocarditis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 |
| 89. Angina Pectoris | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | 2 | 8 |
| 90. Other Diseases of the Heart— | | | | | | | | | | | | |
| (*a*) Valvular— | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | 1 | 9 |
| Mitral | .. | .. | .. | .. | .. | .. | .. | .. | .. | 31 | 11 | 42 |
| Aortic | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 1 | 4 |
| Tricuspid | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pulmonary | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| (*b*) Myocarditis | .. | .. | .. | 1 | 1 | 2 | .. | .. | .. | 52 | 55 | 107 |
| (*c*) Tachycardia | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 2 | .. | 2 |
| 91. Diseases of the Arteries— | | | | | | | | | | | | |
| (*a*) Aneurism | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| (*b*) Arterio-sclerosis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*c*) Other Diseases | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 92. Embolism or Thrombosis (non-cerebral) | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |

## 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 to the Veins— | | | | | | | | | | | | |
| Hæmorrhoids | 3 | .. | 3 | 3 | .. | 3 | 3 | .. | 3 | 58 | 2 | 60 |
| Varicose Veins | .. | .. | .. | .. | .. | .. | .. | .. | .. | 31 | 13 | 44 |
| Phlebitis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 |
| 94. Diseases of the Lymphatic System— | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lymphangitis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 56 | 4 | 60 |
| Lymphadenitis, Bubo (non-specific) | 1 | .. | 1 | 1 | .. | 1 | 2 | .. | 2 | 332 | 22 | 354 |
| 95. Hæmorrhage of undetermined cause | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 5 |
| 96. Other affections of the Circulatory System | 1 | .. | 1 | .. | .. | .. | 1 | .. | 1 | 34 | 7 | 41 |
| V.—Affections of the Respiratory System. | | | | | | | | | | | | |
| 97. Diseases of the Nasal Passages— | .. | .. | .. | .. | .. | .. | .. | .. | .. | 20 | 2 | 22 |
| Adenoids | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 3 |
| Rhinitis | 1 | .. | 1 | .. | .. | .. | 4 | .. | 4 | 150 | 16 | 166 |
| Coryza | 41 | 1 | 42 | 7 | 5 | 12 | 186 | .. | 186 | 1,759 | 434 | 2,193 |
| Frontal Sinus | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 98. Affections of the Larynx— | | | | | | | | | | | | |
| Laryngitis | 3 | .. | 3 | 1 | .. | 1 | 3 | .. | 3 | 118 | 21 | 139 |
| 99. Bronchitis— | | | | | | | | | | | | |
| (*a*) Acute | 23 | .. | 23 | 9 | 4 | 13 | 296 | .. | 296 | 18,122 | 2,389 | 20,511 |
| (*b*) Chronic | 7 | .. | 7 | 1 | 2 | 3 | 12 | .. | 12 | 2,416 | 820 | 3,236 |
| 100. Broncho-pneumonia | .. | .. | .. | .. | .. | .. | .. | .. | .. | 179 | 70 | 249 |
| 101. Pneumonia— | | | | | | | | | | | | |
| (*a*) Lobar | .. | .. | .. | .. | .. | .. | .. | .. | .. | 185 | 28 | 213 |
| (*b*) Unclassified | .. | .. | .. | .. | .. | .. | .. | .. | .. | 111 | 12 | 123 |
| 102. Pleurisy, Empyema | .. | 1 | 1 | .. | .. | .. | 1 | .. | 1 | 73 | 3 | 76 |
| 103. Congestion of the Lungs | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| 104. Gangrene of the Lungs | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 105. Asthma | 1 | .. | 1 | 3 | 1 | 4 | 19 | .. | 19 | 297 | 90 | 337 |
| 106. Pulmonary Emphysema | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 107. Other affections of the Lungs | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 1,677 | 309 | 1,986 |
| Pulmonary Spirochætosis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pleurodynia | .. | .. | .. | .. | .. | .. | .. | .. | .. | 38 | .. | 38 |

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 |
| VI.—Diseases of the Digestive System. | | | | | | | | | | | | |
| 108. *A.*—Diseases of Teeth or Gums— | 1 | .. | 1 | 1 | .. | 1 | .. | .. | .. | 82 | 21 | 103 |
| Caries | 16 | .. | 16 | 8 | 5 | 13 | 92 | .. | 92 | 3,849 | 957 | 4,806 |
| Pyorrhœa | .. | .. | .. | .. | 2 | 2 | 23 | .. | 23 | 479 | 199 | 678 |
| *B.*—Other affections of the Mouth | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | 5 | 14 |
| Stomatitis | .. | .. | .. | .. | .. | .. | 17 | .. | 17 | 593 | 233 | 831 |
| Glossitis | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 46 | 3 | 49 |
| 109. Affections of the Pharynx or Tonsils | .. | .. | .. | 4 | .. | 4 | .. | .. | .. | .. | .. | .. |
| Tonsilitis | 17 | .. | 17 | 3 | 5 | 8 | 77 | .. | 77 | 1,002 | 191 | 1,193 |
| Sore Throat | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pharyngitis | 9 | 2 | 11 | 9 | 4 | 13 | 11 | .. | 11 | 1,016 | 103 | 1,119 |
| 110. Affections of the Œsophagus | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. |
| 111. *A.*—Ulcer of the Stomach | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 |
| *B.*—Ulcer of the Duodenum | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 1 | .. | 1 |
| 112. Other affections of the Stomach | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Gastritis | 5 | .. | 5 | 4 | 2 | 6 | 6 | .. | 6 | 531 | 166 | 697 |
| Dyspepsia | 23 | .. | 23 | 6 | 7 | 13 | 88 | .. | 88 | 1,376 | 383 | 1,759 |
| Colic | 4 | 1 | 5 | .. | .. | .. | .. | .. | .. | 413 | 57 | 470 |
| 113. Diarrhœa and Enteritis—Under two years | .. | .. | .. | 5 | 2 | 7 | 12 | .. | 12 | 884 | 300 | 1,184 |
| 114. Diarrhœa and Enteritis—Two years and over | 12 | .. | 12 | 8 | 1 | 9 | 5 | .. | 5 | 2,192 | 255 | 2,447 |
| Colitis | 7 | .. | 7 | 2 | 1 | 3 | 14 | .. | 14 | 644 | 37 | 681 |
| Ulceration | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 114A. Sprue | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 115. Ankylostomiasis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 530 | 169 | 699 |
| 116. Diseases due to Intestinal Parasites— | | | | | | | | | | | | |
| (*a*) Cestoda (Tænia) | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 4,497 | 1,159 | 5,656 |
| (*b*) Trematoda (Flukes) | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | 2 | 10 |
| (*c*) Nematoda (other than Ankylostoma) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Ascaris | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 3,077 | 2,456 | 5,533 |
| Trichocephalus dispar. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 113 | 113 |
| Trichina | .. | .. | .. | .. | .. | .. | .. | .. | .. | 91 | 21 | 112 |
| Dracunculus | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 |
| Strongylus | .. | .. | .. | .. | .. | .. | .. | .. | .. | 32 | 5 | 37 |
| Oxyuris | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | 18 | 10 | 28 |
| (*d*) Coccidia | .. | .. | .. | .. | .. | .. | .. | .. | .. | 12 | 8 | 20 |
| (*e*) Other Parasites | .. | .. | .. | .. | .. | .. | .. | .. | .. | 97 | 4 | 101 |
| (*f*) Unclassified | .. | .. | .. | .. | .. | .. | .. | .. | .. | 428 | 76 | 504 |

## 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 |
| VI.—Diseases of the Digestive System—(*Contd.*). | | | | | | | | | | | | |
| 117. Appendicitis | 1 | .. | 1 | 1 | 1 | 2 | .. | .. | .. | 7 | 1 | 8 |
| 118. Hernia | .. | .. | .. | .. | .. | .. | .. | .. | .. | 65 | .. | 65 |
| 119. *A.*—Affections of the Anus | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. |
| Fistula | 1 | .. | 1 | .. | .. | .. | 2 | .. | 2 | 11 | 2 | 13 |
| *B.*—Other affections of the Intestines— | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 3 |
| Enteroptosis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Constipation | 39 | .. | 39 | 16 | 7 | 23 | 442 | .. | 442 | 10,366 | 2,231 | 12,597 |
| 120. Acute Yellow Atrophy of the Liver | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| 121. Hydatid of the Liver | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 |
| 122. Cirrhosis of the Liver— | | | | | | | | | | | | |
| (*a*) Alcoholic | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| (*b*) Other forms | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | 2 | 11 |
| 123. Biliary Calculus | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 3 |
| 124. Other affections of the Liver— | | | | | | | | | | | | |
| Abscess | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 7 | .. | 7 |
| Hepatitis | 1 | .. | 1 | .. | .. | .. | 1 | .. | 1 | 62 | 6 | 68 |
| Cholecystitis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 |
| Jaundice | .. | .. | .. | .. | .. | .. | .. | .. | .. | 27 | 6 | 33 |
| 125. Diseases of the Pancreas | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 126. Peritonitis (of unknown cause) | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| 127. Other affections of the Digestive System | 11 | .. | 11 | .. | 2 | 2 | 45 | .. | 45 | 861 | 167 | 1,028 |
| VII.—Diseases of the Genito-urinary System (Non-venereal). | | | | | | | | | | | | |
| 128. Acute Nephritis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | 9 | 22 |
| 129. Chronic Nephritis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | 1 | 7 |
| 130. *A.*—Chyluria | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| *B.*—Schistisomiasis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 64 | 1 | 65 |
| 131. Other affections of the Kidneys— | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pyelitis | .. | .. | .. | 3 | 2 | 5 | .. | .. | .. | 3 | 1 | 4 |
| Renal Colic | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 132. Urinary Calculus | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7 | 1 | 8 |
| 133. Diseases of the Bladder— | | | | | | | | | | | | |
| Cystitis | .. | .. | .. | .. | 2 | 2 | .. | .. | .. | 38 | 5 | 43 |

## 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 |
| VII.—Diseases of the Genito-urinary System (Non-venereal) —(*Contd.*). | | | | | | | | | | | | |
| 134. Diseases of the Urethra— | | | | | | | | | | | | |
| (*a*) Stricture | .. | .. | .. | .. | .. | .. | .. | .. | .. | 31 | 1 | 32 |
| (*b*) Other | .. | .. | .. | 2 | .. | 2 | .. | .. | .. | 32 | 4 | 36 |
| 135. Diseases of the Prostate— | | | | | | | | | | | | |
| Hypertrophy | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Prostatitis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 |
| 136. Diseases (Non-venereal) of the Genital Organs of Man— | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Epididymitis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 18 | .. | 18 |
| Orchitis | .. | .. | .. | .. | 1 | 1 | 2 | .. | 2 | 192 | .. | 192 |
| Hydrocele | .. | .. | .. | .. | .. | .. | .. | .. | .. | 110 | .. | 110 |
| Ulcer of Penis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 19 | .. | 19 |
| Phymosis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 137. Cysts or other Non-malignant Tumours of the Ovaries | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | 4 | 4 |
| 138. Salpingitis— | | | | | | | | | | | | |
| Abscess of the Pelvis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 4 |
| 139. Uterine Tumours (Non malignant) | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | 6 | 6 |
| 140. Uterine Hæmorrhage (Non-puerperal) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 26 | 26 |
| 141. *A.*—Metritis | .. | .. | .. | .. | 2 | 2 | .. | .. | .. | .. | 21 | 21 |
| *B.*—Other affections of the Female Genital Organs— | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | 6 | 6 |
| Displacement of Uterus | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Amenorrhœa | .. | .. | .. | .. | 4 | 4 | .. | .. | .. | .. | 28 | 28 |
| Dysmennorhœa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 85 | 85 |
| Leucorrhoea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | 9 |
| 142. Diseases of the Breast (Non-puerperal)— | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mastitis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 40 | 40 |
| Abscess of Breast | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | 8 |
| VIII.—Puerperal State. | | | | | | | | | | | | |
| 143. *A.*—Normal Labour | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 53 | 53 |
| *B.*—Accidents of Pregnancy— | | | | | | | | | | | | |
| (*a*) Abortion | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | 38 | 38 |
| (*b*) Ectopic Gestation | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. |
| (*c*) Other accidents of Pregnancy | .. | .. | .. | .. | 3 | 3 | .. | .. | .. | .. | 8 | 8 |

## 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 |
| VIII.—Puerperal State—(*Contd.*). | | | | | | | | | | | | |
| 144. Puerperal Hæmorrhage | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 4 |
| 145. Other accidents of Parturition | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | 10 |
| 146. Puerperal Septicæmia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | 5 |
| 147. Phlegmasia Dolens | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| 148. Puerperal Eclampsia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 149. Sequelæ of Labour | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 3 |
| 150. Puerperal affections of the Breast | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| IX.—Affections of the Skin and Cellular Tissues. | | | | | | | | | | | | |
| 151. Gangrene | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 |
| 152. Boil | 17 | 2 | 19 | 8 | 2 | 10 | 76 | .. | 76 | 929 | 120 | 1,049 |
| Carbuncle | 1 | .. | 1 | 2 | .. | 2 | .. | .. | .. | 10 | .. | 10 |
| 153. Abscess | 8 | .. | 8 | 3 | 3 | 6 | 18 | .. | 18 | 918 | 110 | 1,028 |
| Whitlow | 1 | .. | 1 | 1 | .. | 1 | .. | .. | .. | 141 | 20 | 161 |
| Cellulitis | 3 | .. | 3 | 1 | 1 | 2 | 12 | .. | 12 | 1,268 | 104 | 1,372 |
| 154. *A.*—Tinea | 2 | .. | 2 | .. | .. | .. | .. | .. | .. | 504 | 121 | 625 |
| *B.*—Scabies | .. | .. | .. | .. | .. | .. | 18 | .. | 18 | 3,124 | 808 | 3,932 |
| 155. Other Diseases of the Skin— | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. |
| Erythema | 8 | .. | 8 | 10 | 3 | 13 | 17 | .. | 17 | 79 | 34 | 113 |
| Urticaria | 4 | .. | 4 | 1 | 2 | 3 | 13 | .. | 13 | 146 | 16 | 162 |
| Eczema | 1 | 1 | 2 | 1 | 1 | 2 | 34 | .. | 34 | 524 | 117 | 641 |
| Herpes | .. | .. | .. | .. | .. | .. | 7 | .. | 7 | 53 | 8 | 61 |
| Psoriasis | 1 | .. | 1 | .. | .. | .. | 1 | .. | 1 | 28 | 6 | 34 |
| Elephantiasis | .. | .. | .. | .. | .. | .. | .. | .. | .. | 35 | 14 | 49 |
| Myiasis | .. | .. | .. | 2 | .. | 2 | .. | .. | .. | 3 | 1 | 4 |
| Chigoes | 1 | .. | 1 | .. | 3 | 3 | 5 | .. | 5 | 719 | 188 | 907 |
| Cutaneous Leishmaniasis | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | 9 | 1 | 10 |
| Prickly Heat | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Ulcers | 4 | .. | 4 | 3 | 3 | 6 | 3 | .. | 3 | 9,355 | 862 | 10,217 |
| Other Diseases—Skin | .. | .. | .. | .. | .. | .. | .. | .. | .. | 249 | 4 | 253 |

## 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 |
| X.—Diseases of Bones and Organs of Locomotion (other than Tuberculous). | | | | | | | | | | | | |
| 156. Diseases of Bones— | | | | | | | | | | | | |
| Osteitis .. .. .. .. | .. | .. | .. | .. | .. | .. | . | .. | .. | 120 | 31 | 151 |
| 157. Diseases of Joints— | | | | | | | | | | | | |
| Arthritis .. .. .. .. | .. | .. | .. | 4 | .. | 4 | 4 | .. | 4 | 674 | 118 | 792 |
| Synovitis .. .. .. | 1 | .. | 1 | .. | .. | .. | 3 | .. | 3 | 487 | 29 | 516 |
| Bursitis .. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 158. Other Diseases of Bones or Organs of Locomotion .. .. .. | 27 | .. | 27 | 4 | 3 | 7 | 167 | .. | 167 | 3,987 | 781 | 4,768 |
| Other Diseases—Connective Tissue.. .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| XI.—Malformations. | | | | | | | | | | | | |
| 159. Malformations— | | | | | | | | | | | | |
| Hydrocephalus .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hypospadias .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Spina Bifida .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | |
| XII.—Diseases of Infancy. | | | | | | | | | | | | |
| 160. Congenital Debility .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | 4 | 12 |
| 161. Premature Birth .. .. .. | .. | .. | .. | .. | 2 | 2 | .. | .. | .. | .. | 2 | 2 |
| 162. Other affections of Infancy .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 30 | 38 | 68 |
| 163. Infant neglect (infants of three months or over) .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | |
| XIII.—Affections of Old Age. | | | | | | | | | | | | |
| 164. Senility— | | | | | | | | | | | | |
| Senile Dementia .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | .. | 6 |

## 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 |
| XIV.—Affections produced by External Causes. | | | | | | | | | | | | |
| 165. Suicide by Poisoning | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 166. Corrosive Poisoning (intentional) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 167. Suicide by Gas Poisoning | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 168. Suicide by Hanging or Strangulation | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | . |
| 169. 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— | | | | | | | | | | | | |
| Botulism | 1 | .. | 1 | .. | .. | . | .. | .. | .. | 8 | 2 | 10 |
| 176. Attacks of Poisonous Animals— | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | 6 | .. | 6 |
| Snake Bite | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | 37 | 7 | 44 |
| Insect Bite | .. | .. | .. | 3 | .. | 3 | 3 | .. | 3 | 79 | 5 | 84 |
| 177. Other Accidental Poisonings | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| 178. Burns (by Fire) | 3 | .. | 3 | 1 | .. | 1 | 71 | .. | 71 | 1,158 | 288 | 1,446 |
| 179. Burns (other than by Fire) | 4 | .. | 4 | 4 | .. | 4 | 1 | .. | 1 | 259 | 48 | 307 |
| 180. Suffocation (Accidental) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 181. Poisoning by Gas (Accidental) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 182. Drowning (Accidental) | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 |
| 183. Wounds (by Firearms, War excepted) | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 4 | .. | 4 |
| 184. Wounds (by Cutting or Stabbing Instruments) | 2 | .. | 2 | 4 | 1 | 5 | 7 | .. | 7 | 2,664 | 796 | 3,460 |
| 185. Wounds (by Fall) | 1 | .. | 1 | 1 | .. | 1 | 24 | .. | 24 | 2,615 | 371 | 2,986 |
| 186. Wounds (in Mines or Quarries) | .. | .. | .. | .. | .. | .. | 33 | .. | 33 | 148 | .. | 148 |
| 187. Wounds (by Machinery) | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 495 | .. | 495 |
| 188. Wounds (Crushing, *e.g.*, Railway Accidents, etc.) | .. | .. | .. | 3 | .. | 3 | .. | .. | .. | 302 | 10 | 312 |
| 189. Injuries inflicted by Animals, Bites, Kicks, etc. | .. | .. | .. | .. | 1 | 1 | 1 | .. | 1 | 523 | 102 | 625 |

## 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 |
| XIV.—Affections produced by External Causes—(*Contd.*). | | | | | | | | | | | | |
| 190. Wounds inflicted on Active Service | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 191. Executions of Civilians by Belligerents | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 192. *A.*—Over Fatigue | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 |
| *B.*—Hunger or Thirst | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 193. Exposure to Cold, Frostbite, etc. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 28 | 9 | 37 |
| 194. Exposure to Heat— | | | | | | | | | | | | |
| Heatstroke | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Sunstroke | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 1 | 5 |
| 195. Lightning Stroke | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 5 |
| 196. Electric Shock | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 197. Murder by Firearms | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 198. Murder by Cutting or Stabbing Instruments | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| 199. Murder by other means | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 200. Infanticide (Murder of an Infant under one year | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 201. *A.*—Dislocation | 3 | .. | 3 | .. | .. | .. | 1 | .. | 1 | 47 | 1 | 48 |
| *B.*—Sprain | 5 | .. | 5 | .. | .. | .. | 4 | .. | 4 | 461 | 15 | 476 |
| *C.*—Fracture | 1 | .. | 1 | 13 | 1 | 14 | .. | .. | .. | 87 | 14 | 101 |
| 202. Other External Injuries | 127 | .. | 127 | 6 | 4 | 10 | 711 | .. | 711 | 19,472 | 1,628 | 21,100 |
| 203. Deaths by Violence of unknown cause | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| XV.—Ill. Defined Diseases. | | | | | | | | | | | | |
| 204. Sudden Death (cause unknown) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| 205. *A.*—Diseases not already specified or ill-defined— | .. | .. | .. | .. | .. | .. | .. | .. | .. | 23 | .. | 23 |
| Ascites | .. | .. | .. | .. | .. | .. | .. | .. | .. | 14 | 14 | 28 |
| Oedema | 10 | .. | 10 | .. | .. | .. | .. | .. | .. | 4 | 5 | 9 |
| Asthenia | .. | .. | .. | .. | .. | .. | .. | .. | .. | 66 | .. | 66 |
| Shock | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| Hyperpyrexia | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 |
| Debility | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 5 | .. | 5 |
| P.U.O. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 22 | 1 | 23 |
| N.Y.D. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7 | 11 | 18 |
| Sun Traumatism | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| *B.*—Malingering | .. | .. | .. | .. | .. | .. | .. | .. | .. | 32 | .. | 32 |

## 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 |
| XVI.—Diseases, the Total of which have not Caused 10 Deaths. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| GRAND TOTAL .. | 622 | 13 | 635 | 268 | 167 | 435 | 3,459 | .. | 3,459 | 156,690 | 34,537 | 191,227 |
| Surgical Operations— | | | | | | | | | | | | |
| Under General Anæsthesia .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 18 | 6 | 24 |
| Others .. .. .. .. | 3 | .. | 3 | 3 | .. | 3 | 1 | .. | 1 | 757 | 202 | 959 |

TABLE VII.—STATISTICS REGARDING ENTERIC FEVER AMONG EUROPEAN RESIDENTS IN THE COLONY AND PROTECTORATE OF KENYA DURING 1929.

| Total number admitted on account of Enteric. | | | | Number admitted who had been previously inoculated against Enteric. | | Number of cases who died. | | | | Total number inoculated against Enteric Fever during the year. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Inoculated. | | Not inoculated | | | |
| Officials. | | Non-Officials. | | Officials | Non-Officials | Officials | Non-Officials | Officials | Non-Officials | Officials | Non-Officials |
| Cases | Deaths | Cases | Deaths | | | | | | | | |
| 11 | .. | 18 | 1 | .. | .. | .. | .. | Unknown. | | .. | .. |

The occurrence of the cases was as follows:—

| | |
|---|---|
| Mombasa .. .. | 6 |
| Kisumu .. .. | 1 |
| Nairobi .. .. | 19 |
| Eldoret .. .. | 3 |
| TOTAL .. | 29 |

# Report of the School Medical Officer for 1929

## INTRODUCTION.

The medical supervision of school children in this Colony was first started in 1924, but it is only since 1929 that a separate and whole-time staff has been allotted to this branch of the work of the Medical Department. Its institution and aims have yet to be communicated to a large number of persons, many of whom are likely to take part in its activities. Portions of this report are therefore written with the object of explaining the practice and purposes of school medical inspection, rather than in the form of a record of the work carried out during the year.

2. The purposes of a medical service to schools are not only to detect the sick and ailing, but to seek for anomalies of growth and development, so that measures may be taken to prevent not only ill health, but also its causes. In order to carry out these aims it is necessary that a doctor should examine all school children at regular intervals. At first sight this may appear to be a somewhat elaborate method or the separation of the unfit from the fit. It is, however, the only course to adopt, since the dividing line between the robust child and the unhealthy one is often very slight. The ailments of childhood are largely of a minor character, and often remain unnoticed by parents or teachers who are unskilled in the detection of such ills.

School children, since they are collected together for fixed and definite periods, form a section of the community whose health conditions are comparatively easy to ascertain.

3. The medical examination of school children is a detailed and exacting procedure; the clerical work involved in preparing permanent records, advising parents, and noting results of treatment is, of necessity, tedious, but it all results in obtaining the health index of a relatively large and representative section of the community, who can be observed over a period of years. Moreover, within certain limits, the state of the children's health is analogous to that of the community. Is Kenya a "healthy" country? Are there any conditions that operate against normal growth and development? The study of normal and abnormal children over a period of years may result in definite answers to these questions, and the material for study is available in the many European, Asiatic and African schools throughout the Colony.

4. As already stated, the basis of medical service to schools is the medical examination of school children. A brief account of the procedure may conveniently be given here.

A list of the schools to be inspected during any given period is scrutinised by the Director of Education, and arrangements for medical examinations are made to suit the convenience of his officers.

Prior to the doctor's visit to some of the schools, headmasters are asked to distribute to parents School Medical Inspection Forms B and C, copies of which are shown in Appendices 1 and 2 respectively. Parents are advised of the inspection by means of the former, which also contains a request to fill up and return one copy of Form C in respect of each child. The data given in the latter represent the personal and family histories of the child concerned; this information is of immense value to the doctor, and is always regarded as confidential.

The physical examination includes the usual measurements of weight, height, and chest expansion, and, where possible, special examinations, as for the detection of intestinal worms or malarial parasites, are also carried out.

All defects sufficiently severe to require treatment or observation are notified to the parents of European and Indian children. The form shown in Appendix 3 is used when addressing Europeans, and a similar one, printed in Gujerati, is employed in advising Indian parents. The last paragraph on this form reads thus: "I shall be glad if you will advise me, through the principal of the school, when the defect has been treated". It is essential

that the doctor should obtain the results of treatment so that he may be able to keep his records complete and up to date. Only parents can supply such information, since frequent visits to each school are, at the present time, impossible.

Clinics for the treatment of minor medical ailments have been established at a few Indian and African schools in the Colony, and have, so far, met with success. They serve the useful purpose of keeping parents constantly aware of the conditions that require treatment elsewhere, and also allow of the examination of persons and the treatment of ailments between the periods of a routine inspection. In addition, special examinations, such as that required or the detection of intestinal worms, can more conveniently be carried out at a school clinic than at the time of a routine inspection of school children.

5. There are numerous schools—European, Asiatic and African—throughout the Colony. The following figures, taken from the annual report of the Education Department for 1928, show the number of schools registered and the number of pupils attending during the year :—

| | Number of Schools | Number of Pupils |
|---|---|---|
| GOVERNMENT— | | |
| European .. .. .. .. .. | 15 | 740 |
| Indian .. .. .. .. .. | 8 | 1,543 |
| African .. .. .. .. .. | 28 | 2,007 |
| NON-GOVERNMENT (Assisted or Private)— | | |
| European .. .. .. .. .. | 13 | 348 |
| Indian .. .. .. .. .. | 36 | 1,535 |
| African (77 Central and 2,459 Village Schools) .. .. .. .. | 2,536 | 83,549 |

6. The staff employed in the medical supervision of schools consists in one school medical officer, two nursing sisters, one European assistant (learner grade), and one African dresser.

In addition to these, three medical officers devote part of the time to the examination and treatment of school children.

7. The number of children of all races examined during the year amounts to 2,241. This figure does not include those children examined at school clinics on account of complaints arising between the periods of routine school inspections.

## RESULT OF ROUTINE MEDICAL INSPECTIONS.

### A.—EUROPEANS.

8. The schools visited and the number of scholars examined are listed below :—

| | Boys | Girls | Total |
|---|---|---|---|
| TRANS-NZOIA AND UASIN GISHU DISTRICTS— | | | |
| Government School, Kitale .. .. .. .. | 15 | 10 | 25 |
| Government School, Eldoret .. .. .. .. | 59 | 61 | 120 |
| Seven Government Farm Schools in Uasin Gishu .. | 66 | 51 | 117 |
| NAKURU DISTRICT— | | | |
| Government School, Nakuru .. .. .. | 60 | 62 | 122 |
| | 200 | 184 | 384 |

Abnormal conditions found during the inspections are listed in Appendix 4.

In a total of 384 children, 264 (or 68.7 per cent) required medical or dental treatment on account of 355 conditions, details of which are shown in the first column in Appendix 9.

## B.—INDIANS.

9. The following list shows the schools that were visited and the number of students examined :—

| | Boys | Girls | Total |
|---|---|---|---|
| TRANS-NZOIA AND UASIN GISHU DISTRICTS— | | | |
| Kitale School | 18 | 5 | 23 |
| Eldoret School | 30 | 11 | 41 |
| NAKURU AND NAIVASHA DISTRICTS— | | | |
| Nakuru School | 51 | 9 | 60 |
| Gilgil School | 6 | 7 | 13 |
| Naivasha School | 9 | 4 | 13 |
| MOMBASA DISTRICT— | | | |
| Allidina Visram High School: | | | |
| Early 1929 | 125 | 0 | 125 |
| Late 1929 | 240 | 0 | 240 |
| Ismailia Boys' School | 161 | 0 | 161 |
| LAMU DISTRICT— | | | |
| Government School | 28 | 6 | 34 |
| Bohra Mosque School | 22 | 21 | 43 |
| | 690 | 63 | 753 |

Defective conditions are listed in Appendix 5. Records obtained from the up-country schools are grouped into one column. Owing to the dissimilarity of results obtained at the Alladina Visram High School and the Ismailia Boys' School, both in the Mombasa District, each has been allotted a separate column. A fourth column contains the records of the two Lamu schools.

In a total of 628 Indian children (125 examined early in 1929 are not included in this statement) 392 (or 62.4 per cent) were suffering from defects sufficiently severe to require treatment or observation on account of 542 conditions. The necessity for vaccination—found in 111 instances—is included in this statement, but helminthic infestations are omitted, as examinations for the latter complaint were only made in a limited number of instances.

## C.—ARABS AND AFRICANS.

10. Examinations of Arab and African scholars were carried out at the following schools :—

| | Males | Females | Total |
|---|---|---|---|
| ELGEYO DISTRICT— | | | |
| Government School, Tambach | 28 | 0 | 28 |
| KYAMBU DISTRICT— | | | |
| Native Industrial Training Depot, Kabete | 234 | 0 | 234 |
| NAIROBI DISTRICT— | | | |
| All Nairobi Schools | 338 | 22 | 360 |
| MOMBASA DISTRICT— | | | |
| Government Arab School (Dr. Dickson) | 38 | 0 | 38 |
| Church Missionary Society Boys' School (Dr. Dickson) | 26 | 0 | 26 |
| Church Missionary Society Girls' School (Dr. Twining) | 0 | 50 | 50 |
| Church Missionary Society School, Freretown (Dr. Twining) | 57 | 42 | 99 |
| MALINDI DISTRICT— | | | |
| Malindi and Ganda Government Schools (Dr. McFiggans) | 96 | 0 | 96 |
| LAMU DISTRICT— | | | |
| Government Arab Night School | 28 | 0 | 28 |
| Arab and Swahili Mosque Schools | 91 | 0 | 91 |
| | 936 | 114 | 1,050 |

Defects found during the routine medical inspection of Arab and African scholars are tabulated in Appendix 6.

Of 507 scholars examined at the Nairobi Schools, the Tambach School, and the Arab and Swahili Schools at Lamu, 313 (or 61.9 per cent) required medical attention on account of 418 conditions.

Clinics were established at the Nairobi Schools in April, 1929. Since that date 516 persons presented themselves for medical examination. They were nearly all ailing, so their records are omitted from the statement in Appendix 6. Had they been included, a false impression of the incidence of disease might have been created.

## D.—MISCELLANEOUS.

11. The Convent School in Mombasa is attended chiefly by Goans and Seychellois, although other races are represented. Eighteen boys and thirty-four girls were examined, making a total of fifty-two children. Details of the findings are given in Appendix 7.

The number of persons referred for medical or dental treatment was forty-three (or 79 per cent) while the number of defects amounted to sixty-seven.

### Special Examinations.

12. It is an easy matter to obtain blood smears during the course of a routine medical inspection, but the collection of material to be examined for intestinal worms is somewhat difficult. Investigations into the latter condition are best dealt with over a long period, and a school clinic is the ideal place at which collections may be made.

Results of laboratory examinations are not included in the records of the routine inspections, as they were only carried out in a limited number of instances. They are given separately in Appendix 8.

I have to thank the Deputy Director of Laboratory Services for the figures from Mombasa schools and the Medical Officer of Kilifi District for those from Malindi school children.

### Commentaries on the more Important defects.

#### Absence of Vaccination.

13. A perusal of the tables in Appendices 4 to 7 shows that the first defect of any magnitude is the lack of vaccination. In the absence of satisfactory marks no child is given a clean bill of health unless a certificate of successful vaccination is forthcoming.

It will be seen that 37.2 per cent of all Europeans and 14.7 per cent of the Indians are unprotected. The latter figure is lowered owing to the comparatively high proportion of vaccinated children in the Mombasa district. The majority of the unvaccinated children were born in Kenya and have never left the country.

After the routine inspection of up-country European and Indian schools, the parents of all unprotected children were advised to have vacccination carried out at the earliest opportunity, but the results, as will be shown later, were hardly as satisfactory as they might have been. The plan of insisting on a certificate of successful vaccination in respect of every child stated by the School Medical Officer to be unprotected would produce a better state of affairs. It would be an easy matter to vaccinate all children in a wholesale manner during the routine examinations, but I deprecate such a course, except in urgent circumstances, for it might easily give rise to antagonistic feelings towards school work.

#### Teeth, Gums and Alveolus.

14. The incidence of decayed teeth, either past or present, amounts to 47.3 per cent among European children. Of the total number examined, 33.3 per cent required immediate attention, while 11.7 per cent were adequately treated by conservative methods: the remainder—2.3 per cent—showed evidence of wholesale extractions. The incidence was much higher among the children belonging to the lower age-groups than among the older ones.

The figures naturally vary in the different schools, Kitale and Nakuru schools giving the highest incidence—44 per cent and 42.6 per cent respectively—of untreated caries. Evidence of treatment by conservative methods is comparatively high—21.3 per cent at Nakuru, but considering the type of child attending there, even this figure is low.

Results of previous examinations are available. In 1924, Dr. de Boer, investigating the health conditions of Nairobi children, found that 27 per cent had decayed teeth, while Dr. F. J. C. Johnstone, who examined the Nakuru school children in 1928, estimated the incidence at 31 per cent, and found that 21 per cent showed signs of conservative treatment.

None of the Kenya figures are comparable with those obtained from public elementary schools in Britain, since the living and social conditions of both groups so widely differ. Nevertheless, untreated caries is alarmingly common in Kenya, even among the more well-to-do classes.

Twenty-eight per cent of all dental defects found among European school children were found to be treated, either by conservation or extraction, seven months after the routine inspection.

In a total of 753 Indian students, 220 (or 30.5 per cent) had caries, either past or present, while only 10 (or 1.3 per cent) were adequately treated. It will be seen from the tables in Appendix 5, that the former figure is considerably lowered owing to the fact that only 16.9 per cent of the Allidina Visram High School students had untreated dental decay. This led to a further analysis of the records in which Hindus were treated separately from Mohamedans. The former predominate at the Allidina Visram School, while all the students of the Ismailia Boys' School are Mohamedans. The percentage of dental decay among the scholars attending both schools is tabulated below :—

| Age Groups | Ismailia Boys' School | Allidina Visram High School | | |
|---|---|---|---|---|
| | *Per cent* | | *Per cent* | |
| 5 to 10 years .. .. | 61 | Hindus .. .. .. | 21·6 | |
| | | Mohammedans and others.. | 5·4 | |
| | | | —— | 27 |
| 11 to 15 years .. .. | 34·3 | Hindus .. .. .. | 6·5 | |
| | | Mohammedans and others.. | 7·3 | |
| | | | —— | 13·8 |
| 16 years and over .. .. | — | Hindus .. .. .. | 2·2 | |
| | | Mohammedans and others.. | 20·4 | |
| | | | —— | 22·6 |

The Mohammedan community are all eaters of meat. Strict Hindus eat no animal product other than milk, the remainder of their diet being composed largely of cereals and vegetable fats. They are very fond of sweetmeats, which they take in quantities that would appear abnormally large to the average European. Hindus also make a habit of cleansing the mouth and teeth on rising and before every meal.

The incidence of decayed teeth among Arabs and Africans varies with the district. Most of the children living in the coast areas have been accustomed to town life since birth, and are more affected than those living in the up-country districts. The majority of the latter have been exposed to town life for a much shorter period.

An analysis was made of the records of some 440 boys from the Kikuyu and Kavirondo districts, all of whom had their early upbringing in the reserves, followed by a period of town life, the average duration of which was five years. The percentage of caries among both groups is shown in the following table :—

| | Under 10 Years | 11 to 15 Years | 16 years and over | Total |
|---|---|---|---|---|
| | *Per cent* | *Per cent* | *Per cent* | *Per cent* |
| Kavirondo Tribes .. .. .. | 0·0 | 2·8 | 2·5 | 2·2 |
| Kikuyu Tribe .. .. .. | 0·0 | 8·8 | 11·4 | 10·1 |

The male members of the Kavirondo tribes are eaters of meat and milk, sometimes uncooked. Many of the Wa-Kikuyu on the other hand exist largely on cereals. It is said that only the more affluent members of the latter tribe are able to procure meat, milk or animal fats.

Even the Wa-Kikuyu are free from dental decay in the earlier ages, but, with advancing age, they become more affected than the Kavirondo tribes. It is usual to find that caries among African progresses as the subjects grow older, whereas the reverse condition obtains among European and Indian children.

At one of the new Government boarding schools, that at Tambach, where the boys are recruited from a tribe of blood- and milk-eaters, no cases of decayed teeth were discovered.

It is a very difficult matter to ascertain the composition of "town" diets of Africans, but the probability is that they are extremely unsatisfactory. The diet scales of two schools examined during the year contained an excess of carbohydrate over the proportion it should bear to the other constituents. At the same time both were deficient in calcium and in calcifying and anti-scorbutic vitamins.

Conservation of the teeth is a matter of great importance. Lists of ills that can be caused by decayed teeth are given in numerous text-books, which also express different views in regard to its causes. It is, I think, generally accepted that such decay is usually due to faulty development and structure, uncleanliness and bacterial invasion being secondary evils.

As regards Europeans and Indians, decayed teeth are more commonly found among the younger children, and are probably due to imperfect development before the ages of school life. As these children grow older they appear to form better developed teeth, and a little more attention seems to be paid to conservation. The diet scales at European schools are now under investigation, but an urgent need at present is more conservative treatment of the teeth, so that exising flaws may be remedied.

Young African children of the Kavirondo and Kikuyu tribes who have been brought up in the reserves have well-developed teeth, but dental decay soon makes its appearance as they grow older and come more into contact with town life. As large numbers of natives are leaving their reserves to seek work or education elsewhere, one wonders what will be the state of their teeth in future years. In one of the West Indian islands, where civilisation has been present for many years, affections of the teeth and alveolus, with their attendant ills, are very common indeed.

At boarding schools in Kenya one has ample opportunities for studying the factors that influence dental development.

Hypoplasia of the teeth has been recorded in Appendices 5 to 7, but the standard employed throughout the year was not very critical. A new form of examination has been planned and will be followed during 1930.

Affections of the gums—softened gums that are retracted and often bleeding, or when actual gingivitis is present—are grouped into one column owing to their close association. At the time of the visit of the British Association to this country I was present when one of the members, well known in physiological circles, examined the gums of a number of native boys. A very critical examination was made, and the incidence of defects was higher than that obtained by my standard.

Abnormalities of the gums are commonly caused by incipient scurvy. The Tambach school records showed that nearly half the number of scholars were suffering from softened and bleeding gums. At the time of the examination they were on a diet scale that was markedly deficient in antiscorbutic vitamin. Six months after the scale had been amended, the incidence was found to be enormously reduced.

During the routine examination pyorrhoea is only diagnosed when an exudate is present, and the tooth can be moved in its socket. It was not encountered to any great extent.

### After Effects of Malaria Fever.

15. This refers to the condition labelled " spleen enlarged with or without secondary anaemia."

Among Europeans the highest incidence was obtained at the farm schools in the Uasin Gishu. This was only to be expected as the inspection was made towards the end of the rainy season, at a time when malaria was epidemic in that area. The recommendation that quinine should be taken regularly during the rains was adopted to a certain extent. Further examinations of the same group of children were carried out towards the end of the dry period six months after the first inspection, and it was interesting to note that many of the spleens had become reduced in size. This was, I think, more due to the absence of mosquitoes, and consequent repeated infections, than to the quinine.

Among Indians the Lamu schools gave the highest proportion of enlarged spleens. At the two Mombasa schools—the Allidina Visram High School and the Ismailia Boys' School—the records were 2.7 per cent and 6.8 per cent respectively. It would appear that the infections were not contracted in Mombasa. Of the ten children attending the former school, eight gave definite histories of having recently lived in Uganda or on the mainland of the coast; no definite statements could be obtained from the remaining two. Eleven students of the Ismailia Boys' School had enlarged spleens; seven of them had recently come from Tanganyika, Kavirondo, or the mainland of the coast. The remaining four were uncertain as to their movements.

Spleen rates among Africans varied considerably in the different districts. Freretown, on the mainland north of Mombasa, Malindi and Nairobi districts, gave the highest figures—33.3 per cent, 34.3 per cent and 16.4 per cent respectively.

An analysis prepared from the Nairobi school children shows that the children under ten years of age are much more affected than the older ones :—

| Age Group | Percentage with Enlarged Spleens |
|---|---|
| | *Per cent* |
| Under 10 years .. .. .. | 30·2 |
| 11 to 15 years .. .. .. .. | 13·3 |
| 16 years and over .. .. .. | 5·9 |

### Circulatory System.

16. Part of the routine physical examination consists in counting the normal pulse rate, after which the subject steps on and off a chair or form at knee height five times in fifteen seconds. The pulse rate is counted immediately after exercise, and then at intervals of fifteen sconds. Should the rate after exercise exceed the normal by more than thirty beats per minute and fail to return in sixty seconds, the condition is described as " irritable heart muscle ". Sometimes an obvious cause can be discovered, the heart muscle may be diseased, or the subject may be suffering from a febrile attack or an inflammatory process, but more frequently no reason can be assigned. This is the only physiological test of physical efficiency that has been employed during the year.

Measurements of the pulse rates before and after exercise were used to test the efficiency of R.A.F. pilots. Stepping on a chair and down again five times in fifteen seconds was the standard exercise. The rate of a normal person was not expected to rise more than twenty beats after exercise, or to return to normal in more than twenty seconds.

17. A perusal of the tables in Appendices 4 to 7 might suggest that minor surgical ailments such as cuts, ulcers, external diseases of the eye, or skin diseases are somewhat uncommon. This is, however, not the case as far as Africans are concerned. Attendance, even for a short time, at one or two school clinics shows that these diseases are very common indeed.

The presence of venereal disease or sequalae thereof in an obvious form are included under "Surgical Conditions". Twelve cases were encountered among the older African boys.

Diseases of the heart, eye, bones, or throat of probable syphilitic origin were present in five Africans and four Indians.

### Vision.

18. Three hundred and forty-eight European children were examined for visual acuity and 6.8 per cent had defective vision on account of refractive errors or squints. Of these slightly less than a sixth had any correction. Nakuru school heads the list in regard to refractive errors.

Defective vision due to refractive errors or squints was present in 7.7 per cent of all Indian children examined for visual acuity, and about one seventh had their errors adequately corrected. Myopia was by far the commonest error of refraction.

Among 465 African I failed to find any cases of defective vision caused by refractive errors, but I am told that students attending the schools of high literary standard do occasionally suffer from the effects of astigmatism, but there is no record of any cases of myopia.

### Results of Special Examinations.

19. These are all recorded in Appendix 8. (Only the results of routine examinations are given; those from cases specially selected for laboratory diagnosis are not included.)

It was found convenient to make estimations of haemoglobin when taking smears to be examined for the presence of malarial parasites. The records shown are not of any great value.

Malarial parasite rates are highest amongst those attending African schools in Freretown on the coast north of Mombasa, Malindi and Lamu, all of which districts had comparatively high spleen rates.

Spleen rates are also high among the European children attending farm schools in the Uasin Gishu, and among African children in Nairobi, but corresponding parasite rates are low, either owing to the tendency to take quinine or to the examination of selected cases.

The routine examination of specimens for eggs of intestinal worms was only started in the middle of the year, and it is a subject that requires further pursuit.

Treatment of intestinal worms was extensively carried out at the Native Industrial Training Depot, and among the children at the Nairobi African schools. The drugs employed were Oil of Chenopodium, liquid extract of Male Fern, Santonin, and Thymol. As far as possible, all stools passed after treatment were examined for the presence of adult worms, and, in cases of Taenia infestations, the heads. Further examinations for eggs were made three months after treatment. The results were disappointing. The majority of the subjects, particularly those infested with Taenia Saginata, had recurrences three months after treatment that were obviously not re-infections. This might have been due to inadequate preparation of the patients, insufficient dosage, or to the fact that Carbon Tetrachloride was not employed. Many of the Nairobi children are under nourished, and cannot be controlled in any way, so one is somewhat chary of pushing treatment to any great extent. To combat these difficulties, a central clinic was established at the Infectious Diseases Hospital with the idea of treating as in-patients school children and others infested with worms. Subjects with positive stool results were given medicine under observation after a period of preparation. All stools passed within twenty-four hours of treatment were examined for the presence of adult worms. As an additional check most of the subjects have a microscopic examination made three months after discharge. The fact that one is dealing with school children makes it comparatively easy to follow up the cases. Owing to the heavy rains the clinic was temporarily abandoned, but it will be revived at an early date.

### The Treatment of Ailing School Children.

20. As stated in paragraph 4, most defective conditions sufficiently severe to require medical or dental treatment or observation were notified to parents. A few were referred direct to the doctors who attend the Government schools for the purpose of treating boarders. The table given in Appendix 9 shows details in regard to treatment. Of a total of 384 children, 264 (or 68.7 per cent) required attention on account of 365 defects. 343 defects were notified to parents either by means of School Medical Inspection Form E (*see* Appendix 3) or by letter. Form E contains a request that parents should advise the School Medical Officer of any treatment that has been carried out, and the conditions so returned are listed in the third column in Appendix 9. I will be seen that only twenty-six defects, representing roughly 7 per cent of the total number, were so reported. Fortunately this very low figure does not represent the actual proportion of children who received attention. A further examination was made seven months after the routine inspection in order to ascertain the full extent of treatment, and 226 of the original 264 children were seen. It was then found that 150 defects, or slightly more than two-fifths of the original number, were either attended or no longer required observation.

Of the thirty-three cases of enlarged spleen, twenty-five are reported as " no longer requiring treatment or observation ". The second examination was made towards the end of the dry season, and a great many spleens had become reduced in size, chiefly owing to the temporary absence of repeated infections. A few of the subjects had, of course, benefited by the use of quinine taken regularly during the rainy season.

#### Indians.

21. At the up-country schools 150 children were examined, and 91 (or 60.6 per cent) needed medical or dental treatment on account of 129 defects. The details are shown in Appendix 10, and from the tables it will be seen that 125 conditions were notified to parents. During a further examination carried out six to seven months after the routine inspection, it was found that thirty-five conditions had been attended. Notices to parents were sent either through the headmasters of the schools or through secretaries of the local Indian Associations, who were asked to collect and forward to the School Medical Officer all information regarding treatment. No returns of this nature were received.

The inspection of Indian students at the coast schools was carried out during the latter part of the year, and it is too soon to ascertain correctly the extent of treatment. School clinics have been established at the Allidina Visram High School and at the Ismailia Boys' School, and information regarding the work will be included in the annual report of the Medical Officer in charge.

#### Africans.

2. At the conclusion of the routine inspection of Nairobi school children, it was decided to inaugurate energetic treatment of minor ailments. The idea of a central clinic was mooted, but was discarded, in favour of clinics at the individual schools, for the reason that a daily walk of a couple of miles does away with the beneficial effects of treatment, besides causing the loss of some hours of school time. Clinics were therefore established at four Nairobi schools and attended daily by a nursing sister and an African dresser.

After the routine inspection of 360 scholars, 198 (or 55 per cent) were found to require medical treatment on account of 293 conditions. (Dental defects and helminthiasis are excluded from this statement.) Since the period of the routine inspection 516 scholars were examined and 1,119 conditions treated at the clinics, details of which are noted in Appendix 11. Many of the commoner ailments appeared to be comparatively rare at the time of the routine inspection, but afterwards occurred with great frequency.

A central school clinic has been established at the Health Office at Mombasa for a considerable period, and a report of the work will be made by the Medical Officer in charge. During the latter part of the year arrangements were made to establish clinics at each of the more important schools.

## SUMMARY.

23. The work carried out during 1929 has been in the nature of a survey of health conditions prevailing among children and others attending schools in Kenya. This survey has included representative sections of the European, Asiatic and African communities, and has extended over the more important areas of the country.

Naturally the first question to be asked is: " What is the state of the children's health? " Now nearly all the abnormal conditions encountered during the survey can be placed in the category of minor ailments, that occur without much bodily discomfort to the subjects. Children of all races suffering from more serious ailments, and those who are blind or mentally defective, are only rarely seen, probably because they are not required to attend school. A comparison of the results obtained in Kenya with those recorded elsewhere is not of great value, because living, social, and racial conditions so widely differ. There is in fact only one real standard for comparative purposes—the person whose rate of growth and physiological reactions are normal; who presents no pathological signs whatsoever and where possible, has been made immune to prevailing diseases.

### Europeans.

24. As will be seen from the tables in Appendix 12, European children as a whole conform to normal standards of weight and height. These records are compared with similar measurements made by Dr. de Boer in 1924 (Kenya Medical Journal, Vol. 1, No. 9, December, 1924). In his contribution to the journal Dr. de Boer makes the following remarks :—

" . . . A study . . . shows :—

(2) That in Britain boys are taller and heavier than girls up to twelve years of age, and that soon after that they lose their superiority for two years in height and three years in weight, regaining it after those periods.

(3) That in Kenya boys are taller than girls up to seven years of age, but are equalled by girls at eight, are left behind at nine and only regain their superiority after fourteen.

In weight, girls are heavier than boys at six, are lighter at seven, but equal up to eight, and remain after that superior up to fourteen, when the boys shoot ahead.

(4) That in Britain the greatest annual increase in weight occurs in boys from fourteen to sixteen; in girls from twelve to fifteen.

In Kenya the greatest increase occurs in boys between fourteen and fifteen; in girls between ten and eleven.

(5) That in Britain the greatest annual increase in height occurs in boys between fourteen and fifteen; in girls about twelve.

In Kenya the greatest annual increases occur in boys between nine and ten, and fourteen and fifteen; in girls between eight and nine; and ten and eleven.

. . . the remarkable finding that girls so early gain superiority to boys, and that the maximum increases in height and weight in girls occur so early in life compared with girls in Britain, gives one cause to think seriously whether climate conditions in this country are not tending to develop girls too rapidly, and whether this is altogether satisfactory from a racial point of view . . . "

There are probably some differences between the communities examined in 1924 and those seen in 1929. The latter almost certainly contain a larger proportion of children who have had their early up-bringing in Kenya, and is composed of children who have been longer exposed to local conditions.

The 1929 records show that Kenya girls surpass boys in weight from before age eight, and remain so up to sixteen years. Girls are also taller than boys from seven years up to fourteen years. The increase in weight and height of girls over boys may be due to preparation for maturity, a period that seems to begin at an early age in Kenya, although records show that puberty, as evidenced by the onset of menstruation, occurs at the average age of thirteen years and eight months, not very much before the average

age in temperate climates. We may take it that the onset of maturity, a critical period, is much longer in this country than it is in Britain, a point that requires careful consideration.

Records of weight and height are of course useful in estimating the development of a particular section of the community. But a more instructive observation is the rate of growth as indicated by measurements made at frequent intervals throughout the year. Such observations would show the difference, if any, between children who are permanently resident in Kenya, and those who have periods of their lives spent in Europe. At the same time, failure to attain a reasonable rate of growth, often the first sign of disease, would be noticed immediately.

The Director of Education proposes to institute such measurements throughout Government schools, and it is strongly recommended that private and assisted schools should follow this example.

Tests of physiological efficiency have not, as yet, been carried out as a routine measure, but it is hoped that they will be instituted in future years.

Sixty-eight per cent of all European children have failed to reach the normal standard of health, either because they are suffering from pathological defects or because they are unprotected from smallpox. Had laboratory investigations been carried out as a routine measure, the figure would probably have been much higher. Nearly 60 per cent of the original number of defects remained unattended seven months after the first examination. Perhaps facilities for treatment are not readily available, or there may be inability on the part of parents to incur doctors' and dentists' bills. On the other hand, a possible reason is apathy.

**Indians.**

25. Weight and height tables of Indian children are given in Appendix 13. I received from the Medical Inspector of the Bombay Municipal Schools a statement showing the average weights and heights of school children in that city, and it is included in the table for comparison. It will be seen that the Kenya boys and girls are superior in weight and height to those living in the densely populated city of Bombay.

Indian girls in Kenya are heavier than the boys, age for age, up to ten years, after which no girls were examined. The boys are taller than girls, irrespective of age periods.

Kenya boys are divided into two groups, (*a*) those living at the coast, and (*b*) those at schools up-country. The graph of the coast boys' weights is sometimes below and sometimes above that of the up-country boys up to the age of twelve years, after which it rises and remains higher.

Sixty-two per cent of all Indian children examined during the year were below the standard of normal health. Laboratory examinations of the Mombasa children were carried out separately from the routine physical examination, and positive results are therefore omitted from the table of defects. But since the incidence of helminthic infestation is high, the figure indicated above (62 per cent) is probably on the low side.

It is, of course, too early to estimate the extent of treatment among all Indian children, but, as stated in paragraph 21, about a quarter of the total number of defects found among the up-country children had been treated seven months after their detection. The proportion of defects that received attention falls short of a satisfactory standard.

**Africans.**

26. Fifty-five per cent of the Nairobi scholars required medical attention as against 72 per cent of those attending Lamu schools. Again these figures do not take into account the high incidence of helminthic infestations which undoubedly contribute to the causes of debility.

Their main anomaly of health appears to be their susceptibility to prevailing infections, particularly those affecting the lungs. A short attendance at some of the school clinics shows that they have very little resistance to such

infections, and one naturally wonders why. The causes of debility are legion, and probably increase in number as the subjects leave their reserves and come to live under town conditions.

There are two subjects that would easily bear further investigation—(*a*) the influence of diet on growth and resistance to bacterial infections, and (*b*) a tuberculosis survey by means of the intradermic tuberculin reaction, co-related with physical diagnoses.

27. The tables in Appendix 14 show the average weights of the Kenya school-going population of different communities in relation to heights.

Figures representing the weights of Africans who are 150 centimetres or more in height were prepared from a group containing many fully-grown persons. They are therefore incomparable with similar figures representing the weights of European and Indian scholars.

28. The school is obviously an ideal ground for instruction in the principles of hygiene.

During the latter part of the year a cinematograph film was prepared with the object of making the African community understand the reasons for school medical inspections as well as some of the methods employed for the prevention and cure of the more common ailments encountered in this country.

Numerous text books and pamphlets are issued to schools from time to time explaining the cause and effect of disease. The value of such literature is great, but I think that even greater value would be attained if a small monthly pamphlet, consisting in a series of lectures on health subjects, including the life histories of the commoner disease-carrying parasites, followed by a brief account of preventable diseases, and concluding with methods that may be employed for their prevention, were issued to all European and Indian schools and to some of the African schools. In such a pamphlet the methods for carrying out practical demonstrations would be specially explained. This is intended to augment, rather than to replace the present system of teaching hygiene; to bring in subjects of local interest, and to emphasise the necessity for practical demonstrations.

29. In short, the medical supervision of Kenya schools is a necessary procedure, and one that ought to yield valuable results when it is placed on a firm basis, more especially since there is such a close association between education and the practice of public health.

APPENDIX I.

SCHOOL MEDICAL INSPECTION, FORM B.

.....SCHOOL.

.....

TO THE PARENTS OR GUARDIANS OF :—

.....

## MEDICAL INSPECTION OF SCHOOL CHILDREN.

EDUCATION ORDINANCE (1924) CHAPTER 2, SECTION 20 :—

"At all Government, assisted or private schools governed by this Ordinance, a compulsory medical inspection of all children attending at such schools may be held by a duly appointed medical officer whenever ordered by the Director, and a record of such medical inspection shall be kept by the principal, manager, or managing body in such a manner and in such form as shall from time to time be prescribed by the Director."

DEAR SIR OR MADAM,

The Director of Education has decided that a medical inspection shall be held at the above-mentioned School. The examination will be carried out by the School Medical Officer working in conjunction with the Education Department.

In order that statistics of some value may be complied, it is desired to make the examination as complete as possible. In this connexion information in regard to the previous history of the child is of importance, and you are requested to complete the attached form and to return it, through me, to the School Medical Officer within ten days.

All information received will be treated as confidential, and it is hoped that you will co-operate in this matter by giving as complete and accurate information as possible.

You will, of course, be notified of any defects which may be found.

I have the honour to be,
Sir or Madam,
Your obedient servant,

*Principal.*

APPENDIX II.

FORM C.

COLONY AND PROTECTORATE OF KENYA.

SCHOOL MEDICAL INSPECTION.

.....SCHOOL.

Name of pupil in full (*surname first*).....

.....

Sex..... Date of month and year of birth.....

Places and countries of residence since birth, and approximate periods spent in each place.....

.....

.....

Previous illnesses (*answer* " Yes " *or* " No ") : Measles.....

Mumps..... Scarlet fever..... Whooping cough.....

Chickenpox..... Diphtheria..... Malaria.....

Typhoid fever..... Rheumatism.....

Other illnesses.....

.....

Previous complaints (*answer* " Yes " *or* " No ") : Fits.....

Passing worms..... Excessive diarrhoea..... Excessive coughing..... Spitting blood..... Loss of weight.....

Breathlessness on slight exertion..... Defective Eyesight.....

Any other complaints you may care to indicate.....

If a girl, has menstruation started?..... If so, when?

..... Occupation of parents.....

Religion..... Family history (*state illnesses which have occurred in the immediate family—Father, Mother, Brothers, Sisters*) :

.....

.....

.....

## APPENDIX III.

### SCHOOL MEDICAL INSPECTION FORM E (TEMPORARY)

.....SCHOOL.

.....

TO THE PARENTS OR GUARDIAN OF :—

.....

Dear Sir or Madam,

At a recent medical inspection of the scholars, your child was found to be suffering from.....

You are strongly advised to consult your $\frac{\text{Doctor}}{\text{Dentist}}$ in order that he may advise you regarding treatment of the defect.

I shall be grateful if you will advise me, through the Principal of the School, when the defect has been treated.

I am,

Yours faithfully,

*School Medical Officer.*

## APPENDIX IV.

### DETAILS OF ABNORMAL CONDITIONS FOUND AMONG EUROPEAN SCHOOL CHILDREN.

| | Kitale School | Eldoret School | Farm Schools in the Uasin Gishu | Nakuru School | Total |
|---|---|---|---|---|---|
| Number Examined | 25 | 120 | 117 | 122 | 384 |
| Males | 15 | 59 | 66 | 60 | 200 |
| Females | 10 | 61 | 51 | 62 | 184 |
| Unvaccinated | 8 (32·8%) | 34 (28·3%) | 73 (62·9%) | 28 (22·9%) | 143 (37·2%) |
| Born Kenya | 6 | 24 | 65 | 22 | 117 |
| Born Abroad | 2 | 10 | 8 | 6 | 26 |
| Teeth— | | | | | |
| Caries either untreated or inadequately treated | 11 (44·0%) | 31 (25·8%) | 34 (29·0%) | 52 (42·6%) | 128 (33·3%) |
| Evidence of past caries adequately treated by conservative methods | 1 (4·0%) | 17 (14·1%) | 1 (0·8%) | 26 (21·3%) | 45 (11·7%) |
| Caries treated by wholesale removal of teeth | 0 (0·0%) | 4 (3·3%) | 0 (0·0%) | 5 (4·0%) | 9 (2·3%) |
| Calculus or markedly dirty | 0 | 4 | 2 | 7 | 13 |
| Gums— | | | | | |
| Retracted and soft | 0 | 4 | 2 | 1 | 7 |
| Tonsils— | | | | | |
| Simple hypertrophy | 5 | 10 | 26 | 5 | 46 |
| Diseased | 0 (0·0%) | 12 (10·0%) | 12 (10·2%) | 11 (9·0%) | 35 (9·1%) |
| Adenoids | 0 | 0 | 12 | 0 | 12 |
| Spleen enlarged with or without a secondary anæmia | 2 (8·0%) | 6 (5·0%) | 27 (23·0%) | 0 (0·0%) | 35 (9·1%) |
| Circulatory System— | | | | | |
| Physiological irregulatities of pulse rythm | 10 | 20 | 23 | 23 | 76 |
| "Irritable" heart muscle | 1 | 4 | 15 | 8 | 28 |
| Functional murmurs | 0 | 2 | 0 | 0 | 2 |
| Disease of the heart muscle | 1 | 0 | 4 | 1 | 6 |
| Respiratory System— | | | | | |
| Abnormal shape of chest | 1 | 9 | 3 | 10 | 23 |
| Bronchitis | 4 | 5 | 17 | 9 | 35 |
| Asthma | 0 | 0 | 0 | 1 | 1 |
| Affections of the Nervous System | 0 | 3 | 1 | 0 | 4 |
| Skin Diseases | 1 | 3 | 4 | 0 | 8 |
| Surgical Conditions | 0 | 9 | 2 | 1 | 12 |
| Diseases of the Ear | 0 | 2 | 71 | 0 | 73 |
| External Diseases of the Eye | 0 | 0 | 3 | 0 | 3 |
| Catarrhal Jaundice | 0 | 0 | 0 | 1 | 1 |
| Disorders of the Ductless Glands | 1 | 0 | 0 | 0 | 1 |
| Number examined for Visual Acuity | 25 | 112 | 116 | 95 | 348 |
| Number with Vision less than 6/6 in either Eye, due to— | | | | | |
| Refractive errors | 1 (4·0%) | 6 (5·6%) | 2 (1·7%) | 12 (12·6%) | 21 (5·4%) |
| Injury | 0 | 2 | 0 | 0 | 2 |
| Disease | 0 | 0 | 0 | 0 | 0 |
| Squint | 0 (0·0%) | 3 (2·6%) | 0 (0·0%) | 2 (2·1%) | 5 (1·4%) |
| Squints, early with good vision, or adequately corrected | 0 | 2 | 0 | 2 | 4 |
| Number of Refractive Errors adequately corrected | 0 | 1 | 0 | 3 | 4 |
| Clinical Signs of Eyestrain with Normal Vision | 0 | 1 | 0 | 3 | 4 |

## APPENDIX ..

NATURE AND NUMBER OF DEFECTS FOUND AMONG INDIAN SCHOOL CHILDREN.

| | Upcountry Schools | Allidina Visram High School | Ismailia Boys' School | Lamu Schools | Total |
|---|---|---|---|---|---|
| Number Examined .. .. | 150 | 365 | 161 | 77 | 753 |
| Males .. .. .. .. | 114 | 365 | 161 | 50 | 690 |
| Females .. .. .. | 36 | 0 | 0 | 27 | 63 |
| Unvaccinated .. .. .. | 50 (33·3%) | 13 (3·5%) | 25 (15·5%) | 23 (29·8%) | 111 (14·7%) |
| Born Kenya .. .. .. | 30 | 10 | 18 | 23 | 81 |
| Born Abroad .. .. .. | 12 | 1 | 6 | 0 | 19 |
| Birthplace unknown .. .. | 8 | 2 | 1 | 0 | 11 |
| Teeth— | | | | | |
| Untreated caries .. .. | 57 (38·0%) | 62 (16·9%) | 74 (45·9%) | 27 (35·0%) | 220 (29·2%) |
| Caries treated by conservative methods .. .. .. | 4 (2·6%) | 2 (1·3%) | 1 (0·6%) | 0 (0·0%) | 10 (1·3%) |
| Calculus or markedly dirty .. | 7 | 28 | 16 | 13 | 64 |
| Hypoplasia .. .. .. | 0 | 13 | 28 | 11 | 52 |
| Gums— | | | | | |
| Retracted and soft with or without a marginal gingivitis .. | 7 (4·6%) | 39 (10·6%) | 29 (18·0%) | 8 (10·3%) | 83 (11·0%) |
| Alveolus— | | | | | |
| Pyorrhœa .. .. .. | 0 | 3 | 0 | 0 | 3 |
| Tonsils— | | | | | |
| Simple hypertrophy .. .. | 23 | 79 | 14 | 11 | 127 |
| Diseased .. .. .. | 9 (6·0%) | 21 (5·7%) | 16 (9·9%) | 6 (7·7%) | 52 (6·9%) |
| Adenoids .. .. .. .. | 6 | 3 | 4 | 0 | 13 |
| Spleen enlarged with or without signs of secondary anæmia .. | 8 (5·3%) | 10 (2·7%) | 11 (6·8%) | 13 (16·8%) | 42 (5·5%) |
| Circulatory System— | | | | | |
| Physiological irregularities of pulse rhythm .. .. | 17 | 23 (total 240) | 29 | 3 (total 34) | 72 (total 585) |
| "Irritable" heart muscle .. | 12 | 16 (total 240) | 4 | 2 (total 34) | 34 (total 585) |
| Functional murmurs .. .. | 1 | 5 | 7 | 3 | 16 |
| Disease of the heart muscle .. | 1 | 3 | 0 | 0 | 4 |
| Respiratory System— | | | | | |
| Abnormal shape of chest .. | 14 | 33 | 13 | 6 | 66 |
| Bronchitis .. .. .. | 15 | 15 | 16 | 0 | 46 |
| Physical signs suggestive of early tuberculosis .. .. | 2 | 8 | 7 | 4 | 21 |
| Affections of the Nervous System | 0 | 1 | 3 | 0 | 4 |
| Skin Diseases .. .. .. | 7 | 12 | 9 | 11 | 39 |
| Surgical Conditions (only Males examined) .. .. .. | 4 | 9 | 2 | 5 | 20 |
| Diseases of the Ear .. .. | 1 | 4 | 0 | 0 | 5 |
| External Diseases of the Eye .. | 3 | 7 | 3 | 16 | 29 |
| Disorders of the Ductless Glands | 0 | 2 | 2 | 1 | 5 |
| Severe Anæmia .. .. .. | 0 | 0 | 2 | 4 | 6 |
| Number examined for Visual Acuity .. .. .. .. | 115 | 336 | 122 | 34 | 607 |
| Number with vision in either eye less than 6/6, due to— | | | | | |
| Refractive Errors .. .. | 5 (4·3%) | 30 (8·9%) | 8 (6·5%) | 0 (0·0%) | 43 (7·0%) |
| Disease .. .. .. .. | 3 | 1 | 1 | 2 | 7 |
| Injury .. .. .. .. | 0 | 2 | 1 | 2 | 5 |
| Squint .. .. .. .. | 0 | 2 | 0 | 2 | 4 |
| Undiagnosed .. .. .. | 1 | 9 | 2 | 0 | 12 |
| Squints, early with good vision.. | 0 | 2 | 0 | 1 | 3 |
| Analysis of refractive errors and squints with defective vision— | | | | | |
| Total number .. .. .. | 5 | 32 | 8 | 2 | 47 |
| Number adequately corrected | 0 | 6 | 1 | 0 | 7 |
| Number imperfectly corrected | 0 | 7 | 0 | 0 | 7 |
| Number uncorrected .. .. | 5 | 19 | 7 | 2 | 33 |

## APPENDIX VI.

### LIST OF DEFECTS FOUND AMONG AFRICAN CHILDREN AND OTHERS ATTENDING SCHOOL.

| | Total number examined | Males | Females | Unvaccinated | Teeth—Caries | Teeth—Calculus | Teeth—Hypoplasia | Gums—Soft retracted with or without marginal gingivitis | Pyorrhœa | Tonsils—Simple hypertrophy | Tonsils, diseased | Adenoids | Affections of nasal passages | Abnormal shape of chest | Bronchitis | Asthma | Physical signs suggestive of early tuberculosis | Pulmonary tuberculosis |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KYAMBU—Native Industrial Traing Depot, Kabete .. | 234 | 234 | 0 | 42<br>17·9% | 16<br>6·7% | 0 | 4 | 75<br>32·0% | 17 | 17 | 16 | 5 | 5 | 1 | 9 | 0 | 2 | 1 |
| NAIROBI—African Schools in Nairobi .. .. .. | 360 | 338 | 22 | 125<br>34·8% | 23<br>6·3% | 1 | 3 | 52<br>14·4% | 6 | 15 | 15 | 2 | 14 | .. | 51 | 0 | 8 | 0 |
| ELGEYO—Government School, Tambach .. .. .. | 28 | 28 | 0 | 28<br>100% | 0<br>0·0% | 0 | 0 | 13<br>46·4% | 0 | 4 | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| MOMBASA—Government Arab School, Mombasa (Dr. Dickson) .. .. .. .. .. .. | 38 | 38 | 0 | 3<br>7·8% | 3<br>7·8% | 0 | 0 | .. | 0 | 8 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 |
| Church Missionary Society Boys' School (Dr. Twining) | 26 | 26 | 0 | 1<br>3·8% | 4<br>15·3% | 0 | 0 | .. | 0 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Church Missionary Society Girls' School (Dr. Twining) | 50 | 0 | 50 | 25<br>50% | 16<br>32% | 0 | 0 | .. | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Church Missionary Society School, Freretown (Dr. Twining) .. .. .. .. .. .. | 99 | 57 | 42 | 40<br>40·4% | 10<br>10·1% | 5 | 0 | .. | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALINDI—Malindi and Ganda Arab Schools (Dr. McFiggans) | 96 | 96 | 0 | 28<br>29·1% | 9<br>9·3% | 10 | 6 | 15<br>15·6% | 2 | 19 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| LAMU—Arab and Swahili Schools .. .. .. .. | 91 | 91 | 0 | 38<br>41·7% | 9<br>9·8% | 1 | 4 | 1<br>1·09% | 0 | 7 | 6 | 0 | 0 | 1 | 4 | 0 | 4 | 0 |
| Arab Night School .. .. .. .. .. | 28 | 28 | 0 | 1<br>3·5% | 4<br>14·2% | 3 | 1 | 4<br>14·2% | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 |
| TOTAL .. | 1,050 | 936 | 114 | 331<br>31·5% | 94<br>8·9% | 20 | 18 | 160<br>19·1% | 26 | 88 | 38 | 10 | 19 | 7 | 68 | 1 | 16<br>1·5% | 2<br>0·19% |

## APPENDIX VI.—(*Contd.*)

### LIST OF DEFECTS FOUND AMONG AFRICAN CHILDREN AND OTHERS ATTENDING SCHOOL—(*Continued*).

| | Alimentary disorders | Spleen enlarged | Physiological irregularities of pulse rhythm | Irritable heart muscle | Functional murmurs of heart | Disease of heart | Disorders of nervous system | Diseases of the skin | Surgical conditions | Diseases of the ear | External diseases of the Eye | Number examined for visual acuity | Vision less than 6/6 in either eye due to— | | | | Nephritis | Marked anæmia |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Refractive errors | Injury | Disease | Squint | | |
| KYAMBU—Native Industrial Training Depot, Kabete .. | 0 | 11<br>4·7% | 30 | 3 | 0 | 2 | 2 | 3 | 16 | 0 | 5 | 186 | 0 | 4 | 0 | 0 | 0 | 0 |
| NAIROBI—African Schools in Nairobi .. .. .. | 4 | 59<br>16·4% | 36 | 26 | 6 | 3 | 1 | 15 | 39 | 1 | 11 | 239 | 0 | 6 | 1 | 0 | 1 | 2 |
| ELGEYO—Government School, Tambach .. .. .. | 0 | 3<br>10·7% | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MOMBASA—Government Arab School, Mombasa (Dr. Dickson) .. .. .. .. .. .. | 0 | 0<br>0·0% | 1 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 |
| Church Missionary Society Boys' School (Dr. Twining) | 0 | 2<br>7·7% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Church Missionary Society Girls' School (Dr. Twining) | 0 | 6<br>12% | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Church Missionary Society School, Freretown (Dr. Twining) .. .. .. .. .. .. | 0 | 33<br>33·3% | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | p | 14 |
| MALINDI—Malindi and Ganda Arab Schools (Dr. McFiggans) | 0 | 33<br>34·3% | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| LAMU—Arab and Swahili Schools .. .. .. .. | 0 | 11<br>12·1% | 0 | 0 | 1 | 3 | 1 | 6 | 15 | 0 | 4 | 2 | 0 | 0 | 0 | 2 | 0 | 8 |
| Arab Night School .. .. .. .. .. | 1 | 2<br>7·7% | 1 | 2 | 3 | 1 | 1 | 2 | 21 | 0 | 0 | 0 | 0 | 0 | v | 0 | 0 | 0 |
| TOTAL .. | 5 | 160 | 70 | 32 | 12 | 10 | 8 | 27 | 97 | 6 | 20 | 465 | 0 | 10 | 1 | 2 | 1 | 26 |

## APPENDIX VII.

NATURE AND NUMBER OF DEFECTS REVEALED DURING THE ROUTINE INSPECTION OF SCHOLARS ATTENDING THE CONVENT SCHOOL, MOMBASA (GOANS AND SEYCHELLOIS).

| | | |
|---|---|---|
| Number examined | 52 | |
| Males | 18 | |
| Females | 34 | |
| Vaccination required | 10 | 19·2% |
| Born Kenya | 5 | |
| Born Abroad | 3 | |
| Birthplace Unknown | 2 | |
| Teeth— | | |
| Caries | 33 | 63·4% |
| Hypoplasia | 23 | |
| Calculus | 7 | |
| Badly erupted | 3 | |
| Showing signs of conservative treatment | 1 | 1·9% |
| Gums— | | |
| Retracted with or without marginal gingivitis | 19 | |
| Tonsils— | | |
| Simple hypertrophy | 5 | |
| Diseased | 8 | |
| Adenoids | 2 | |
| Other Affections of the Nasal Passages | 6 | |
| Spleen enlarged with or without Secondary Anæmia | 9 | 17·3% |
| Respiratory System— | | |
| Abnormal shape of chest | 4 | |
| Bronchitis | 2 | |
| Physical signs suggestive of early tuberculosis | 3 | |
| Circulatory System— | | |
| Physiological irregularities of pulse rhythm | 12 | |
| "Irritable" heart muscle | 2 | |
| Functional murmurs | 1 | |
| Surgical conditions | 1 | |
| Diseases of the skin | 2 | |
| Number tested for visual acuity | 29 | |
| Acuity less than 6/6 due to refractive errors | 2 | |
| Refractive errors adequately corrected | 1 | |

## APPENDIX VIII.

### DETAILS OF SPECIAL EXAMINATIONS MADE AMONG THE CHILDREN AND OTHERS ATTENDING SCHOOLS.

| | Trans-Nzoia | Uasin Gishu | | Elgeyo |
|---|---|---|---|---|
| | Indian School, Kitale | Indian School, Eldoret | European Farm Schools, Uasin Gishu | African School, Tambach |
| **Blood Examinations—** | | | | |
| Average percentage of Hæmoglobin, estimated at Tallquist's Scale .. .. | 70·2 per cent | 81·4 per cent | 78·0 per cent | 87·0 per cent |
| Malaria Parasite Rate .. .. | 3·1 per cent | | 3·3 per cent | All taking prophylactic quinine. |
| Spleen Rate .. .. .. .. | 10·9 per cent | | 23·1 per cent | 10·7 per cent |
| Average composition of a number of differential leucocyte counts selected at random .. .. .. .. | .. | .. | *Poly* .. .. 53·9 per cent<br>*Lympho* .. .. 37·7 „<br>*L. Mono* .. 5·6 „<br>*Eosin* .. .. 2·8 „ | *Poly* .. .. 38·9 per cent<br>*Lympho* .. .. 48·8 „<br>*L. Mono* .. 8·7 „<br>*Eosin* .. .. 3·7 „ |
| **Stool Examinations—** | | | | |
| Number examined .. .. .. .. | .. | .. | .. | .. |
| Number positive .. .. .. .. | — | — | — | — |
| Type of ova found and number of times each variety occurred .. .. | — | — | — | — |

## APPENDIX VIII.—(*Contd*)

| | KYAMBU | NAIROBI | MOMBASA | | |
|---|---|---|---|---|---|
| | Native Industrial Training Depot, Kabete | African Schools in Nairobi | C.M.S. Girls' School (African) | C.M.S. School Freretown (African) | Other Schools in Mombasa |
| BLOOD EXAMINATIONS— | | | | | |
| Average percentage of Hæmoglobin estimated by Tallquist's Scale .. .. | 88·7 per cent | 77·3 per cent | — | — | — |
| Malaria Parasite Rate .. .. .. | 1·4 per cent (March) | 2·5 per cent (Many cases were selected for diagnosis.) | .. | 47·1 per cent | Not recorded, cases were selected for diagnosis. |
| Spleen Rate .. .. .. .. | 4·7 per cent | 16·4 per cent | 12·0 per cent | 33·3 per cent | — |
| Average composition of a number of differential leucocyte counts selected at random .. .. .. | — | — | — | — | — |
| STOOL EXAMINATIONS— | | | | | |
| Number examined .. .. .. .. | 209 | 126 | 40 | .. | 444 |
| Number positive .. .. .. .. | 104 (47·7%) | 83 (65·3%) | 39 (97·5%) | .. | 350 (78·8%) |
| Type of ova found and number of times each variety occurred .. .. | *Anchy.* .. 41 (19·6%)<br>*Asc.* .. 20 ( 9·5%)<br>*Trich.* .. 30 (14·3%)<br>*Tænia* .. 45 (21·5%)<br>*S. Mansoni.* 3 ( 1·4%)<br>*H. nana* .. 2 ( 0·9%) | *Anchy.* .. 17 (13·5%)<br>*Asc.* .. 19 (14·2%)<br>*Trich.* .. 25 (19·8%)<br>*Tænia* .. 36 (28·5%)<br>*Strong.* .. 5 ( 3·9%)<br>*S. Mansoni.* 1 ( 0·8%)<br>*Oxyuris* .. 1 ( 0·8%) | *Anchy.* .. 26 (65·0%)<br>*Asc.* .. 27 (67·5%)<br>*Trich.* .. 34 (85·0%)<br>*Tænia* .. 3 ( 7·5%) | .. | *Anchy.* .. 99 (22·2%)<br>*Asc.* .. 288 (51·3%)<br>*Trich.* .. 226 (51·2%)<br>*Tænia* .. 8 ( 1·8%)<br>*Strong.* .. 13 ( 2·9%)<br>*S. Mansoni.* 1 ( 0·2%)<br>*Oxyuris* .. 1 ( 0·2%) |

## APPENDIX VIII.—(*Contd*)

| | Malindi | Lamu | | |
|---|---|---|---|---|
| | Malindi and Ganda Arab School | Government Indian School, Lamu | Arab Koran Schools in Lamu | Arab Night School, Lamu |
| **Blood Examinations—** | | | | |
| Average percentage of Hæmoglobin estimated by Tallquist's Scale | 11·0 per cent | 0·0 per cent | 72·6 per cent | 83·3 per cent |
| Malaria Parasite Rate | 34·0 ,, | 9·0 ,, | 6·6 ,, | 0·0 ,, |
| Spleen Rate | | | 12·1 ,, | 7·1 ,, |
| Average composition of a number of differential leucocyte counts selected at random | | | | |
| *Poly.* | 37·2 ,, | 47·5 ,, | 35·4 ,, | 48·0 ,, |
| *Lympho.* | 38·9 ,, | 37·0 ,, | 39·3 ,, | 42·3 ,, |
| *L. Mono.* | 3·2 ,, | 3·9 ,, | 4·7 ,, | 2·3 ,, |
| *Eosin* | 20·7 ,, | 11·6 ,, | 20·6 ,, | 7·4 ,, |
| **Stool Examinations—** | | | | |
| Number examined | 87 | 28 | — | — |
| Number positive | 81 (93·1%) | 22 (78·5%) | — | — |
| Type of ova found and number of times each variety occurred | | | | |
| *Anchy.* | 45 (51·7%) | 1 ( 3·5%) | | |
| *Ascaris* | 43 (49·2%) | 14 (50·0%) | | |
| *Trich.* | 42 (48·2%) | 15 (53·5%) | | |
| *Strong.* | 1 ( 1·1%) | | | |
| *S. Hæmatobium* | 1 ( 1·1%) | | | |
| *Oxyuris* | 7 ( 8·0%) | | | |
| *S. Mansoni* | | 1 ( 3·5%) | | |

## APPENDIX IX.

TABLE SHOWING THE EXTENT OF TREATMENT OF DEFECTS FOUND AMONG EUROPEAN SCHOOL CHILDREN.

| | Nature and number of defects found on routine medical examination, to require treatment or observation. | Nature and number of defects referred to parents by means of School Medical Inspection Form E. | Number of replies received from parents stating the results of treatment. | Nature and number of defects found to have been treated or no longer requiring observation seven months after the routine inspection. |
|---|---|---|---|---|
| Requiring Vaccination .. .. | 143 | 139 | 17 | 58 (41%) |
| Dental Defects .. .. .. | 128 | 122 | 5 | 36 (28%) |
| Affections of the Nasal Passages.. | 25 | 24 | 1 | 12 |
| Respiratory Diseases .. .. | 3 | 1 | 0 | 3 |
| Circulatory Diseases .. .. | 4 | 4 | 0 | 1 |
| Enlarged Spleen with or without Secondary Anæmia .. .. | 33 | 33 | 0 | 25 |
| Diseases of the Skin .. .. | 2 | 1 | 0 | 2 |
| Surgical Conditions .. .. | 4 | 1 | 0 | 3 |
| Diseases of the Ear .. .. | 1 | 1 | 0 | 0 |
| Diseases of the Eye .. .. | 1 | 0 | 0 | 1 |
| Defective Vision .. .. .. | 17 | 14 | 3 | 5 |
| Miscellaneous .. .. .. | 4 | 3 | 0 | 4 |
| | 365 | 343 | 26 | 150 |

NOTE.—The total number examined amounted to 384; of these 264 required attention on account of the defects tabulated in the first column. Of the latter number 226 were seen when the second examination was made.

## APPENDIX X.

TABLE SHOWING THE EXTENT OF TREATMENT OF DEFECTS FOUND AMONG INDIAN SCHOOL CHILDREN.

| | Nature and number of defects found on routine medical examination, to require treatment or observation. | Nature and number of defects referred to parents by means of School Medical Inspection Form E. | Number of replies received from parents or headmasters stating results of treatment. | Nature and number of defects found to have been treated or no longer requiring observation seven months after the routine inspection. |
|---|---|---|---|---|
| Requiring Vaccination .. .. | 46 | 46 | 0 | 25 (54·3%) |
| Dental Defects .. .. .. | 56 | 56 | 0 | 2 (3·3%) |
| Affections of Throat and Nasal Passages .. .. .. | 10 | 9 | 0 | 1 |
| Respiratory Diseases .. .. | 2 | 2 | 0 | 0 |
| Diseases of the Ear .. .. | 1 | 1 | 0 | 0 |
| Diseases of the Skin .. .. | 1 | 0 | 0 | 1 |
| Defective Vision .. .. .. | 5 | 3 | 0 | 1 |
| Enlarged Spleen with or without Secondary Anæmia .. .. | 8 | 8 | 0 | 5 |
| | 129 | 125 | 0 | 35 |

NOTE.—This table refers only to the up-country school children, 150 of whom were examined during the early part of 1929. Of these, 91 required attention on account of the conditions listed in the first column. When a second examination was made 76 of the latter number were seen.

# APPENDIX XI

## TABLE SHOWING DETAILS OF TREATMENT CARRIED OUT AT NAIROBI SCHOOL CLINICS DURING THE PERIOD, APRIL–DECEMBER, 1929.

| | Nature and number of defects detected at the routine medical inspection that were attended at the school clinics. | Nature and number of defects detected and treated subsequent to the routine inspection. | Total number of conditions treated at Nairobi School clinics. | Three hundred and sixty scholars were examined in February and March, 1929, and 198 were found to require medical attention on account of the following conditions :— |
|---|---|---|---|---|
| Requiring Vaccination .. .. | 125 | 48 | 2 | 50 |
| Dental Defects .. .. .. | 12 | 0 | 4 | 4 |
| Affections of the Throat and Nasal Passages .. .. .. | 5 | 2 | 24 | 26 |
| Alimentary Disorders .. .. | 3 | 3 | 127 | 130 |
| "After effects of malaria" .. | 59 | 35 | 6 | 41 |
| Respiratory Disease (other than Tuberculosis) .. .. .. | 19 | 18 | 222 | 240 |
| Tuberculosis or suspected Tuberculosis .. .. .. .. | 3 | 2 | 1 | 3 |
| Circulatory Diseases .. .. | 2 | 0 | 0 | 0 |
| Nervous Diseases .. .. .. | 1 | 0 | 1 | 1 |
| Diseases of the Eye .. .. | 12 | 7 | 62 | 69 |
| Diseases of the Ear .. .. | 0 | 0 | 14 | 14 |
| Surgical Conditions .. .. | 5 | 2 | 32 | 34 |
| Cuts, Ulcers and Burns .. .. | 9 | 4 | 309 | 313 |
| Skin Diseases .. .. .. | 4 | 3 | 71 | 74 |
| Intestinal Worms .. .. .. | 17 | 12 | 69 | 81 |
| Debility .. .. .. .. | 9 | 9 | 32 | 41 |
| Fever, Undifferentiated .. .. | 4 | 4 | 110 | 114 |
| Malaria Fever .. .. .. | 1 | 1 | 13 | 14 |
| Nephritis .. .. .. .. | 1 | 1 | 0 | 1 |
| Yaws .. .. .. .. | 2 | 2 | 11 | 13 |
| Miscellaneous .. .. .. | 0 | 0 | 9 | 9 |
| | 293 | 153 | 1,119 | 1,272 |

## APPENDIX XII.

TABLE SHOWING AVERAGE WEIGHTS AND HEIGHTS OF INDIAN CHILDREN ATTENDING SCHOOLS IN KENYA, COMPARED WITH SIMILAR MEASUREMENTS OF CHILDREN ATTENDING BOMBAY MUNICIPAL SCHOOLS.

| Age in Years | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Average Weights in Kilograms of:—** | | | | | | | | | | | | | |
| All Kenya boys | .. | 18·7 | 19·2 | 22·2 | 22·9 | 24·4 | 27·4 | 29·3 | 32·3 | 36·7 | 41·6 | 46·6 | 48·8 |
| Kenya boys attending Coast Schools | .. | .. | 18·7 | 21·4 | 22·8 | 24·3 | 27·8 | 29·1 | 32·5 | 36·9 | 42·5 | 46·6 | 48·8 |
| Kenya boys attending up-country Schools | .. | 18·7 | 19·8 | 20·9 | 23·1 | 25·1 | 25·2 | 30·2 | 30·1 | 31·1 | 39·6 | — | — |
| All Kenya girls | 16·3 | 20·5 | 21·1 | 23·0 | 25·2 | 27·2 | — | — | — | — | — | — | — |
| Boys attending Bombay Municipal Schools | 15·0 | 16·4 | 17·3 | 19·1 | 21·4 | 23·6 | 25·9 | 28·1 | 29·0 | 30·9 | 33·6 | 36·8 | — |
| Girls attending Bombay Municipal Schools | 16·4 | 17·3 | 19·1 | 21·8 | 24·1 | 26·3 | 29·0 | 30·2 | 31·3 | 33·6 | 36·9 | — | — |
| **Average Heights in Centimetres of:—** | | | | | | | | | | | | | |
| All Kenya boys | 101·2 | 105·8 | 111·2 | 118·4 | 122·1 | 126·0 | 131·5 | 134·0 | 140·3 | 145·6 | 151·2 | 155·4 | 158·6 |
| All Kenya girls | 97·5 | 105·0 | 105·0 | 111·2 | 118·0 | 119·1 | — | — | — | — | — | — | — |
| Boys attending Bombay Municipal Schools | 97·5 | 102·5 | 107·5 | 112·5 | 117·5 | 122·5 | 127·5 | 132·5 | 135·0 | 140·0 | 145·0 | 150·0 | — |
| Girls attending Bombay Municipal Schools | 97·5 | 100·0 | 105·0 | 110·0 | 117·5 | 125·0 | 132·5 | 135·0 | 137·5 | 140·0 | 140·0 | 142·5 | — |

## APPENDIX XIII.

### TABLE SHOWING AVERAGE WEIGHTS AND HEIGHTS OF EUROPEAN SCHOOL CHILDREN.

| Age in years | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Records Prepared in 1929— | | | | | | | | | | | | | |
| Average weights in kilograms— | | | | | | | | | | ·2 | | | |
| Boys | 19·3 | 23·4 | 24·1 | 25·0 | 28·8 | 31·5 | 33·5 | 34·4 | 40·1 | 43 | 50·4 | 51·1 | 63·9 |
| Girls | 19·2 | 22·0 | 23·0 | 25·6 | 29·1 | 32·8 | 35·9 | 42·0 | 46·0 | 47·5 | 52·6 | 57·6 | 58·0 |
| Average heights in centimetres— | | | | | | | | | | | | | |
| Boys | 111·8 | 114·4 | 119·6 | 122·3 | 129·0 | 131·1 | 139·2 | 145·0 | 149·7 | 152·0 | 160·7 | — | — |
| Girls | 108·3 | 114·1 | 118·1 | 123·4 | 132·1 | 132·7 | 138·7 | 149·6 | 154·0 | 155·9 | 157·1 | 158·7 | 160·0 |
| Records Prepared in 1924 (de Boer)— | | | | | | | | | | | | | |
| Average weights in kilograms— | Under 7 years | | | | | | | | | | | | |
| Boys | 20·6 | | 23·4 | 26·1 | 27·9 | 31·8 | 34·1 | 38·1 | 43·6 | 43·6 | 52·9 | 52·6 | — |
| Girls | 21·1 | | 23·0 | 26·2 | 30·5 | 32·0 | 38·6 | 39·; | 44·2 | 45·7 | 50·8 | 52·0 | — |
| Average heights in centimetres— | | | | | | | | | | | | | |
| Boys | 113·0 | | 117·5 | 120·0 | 122·5 | 132·5 | 135·0 | 142·5 | 145·0 | 147·5 | 157·5 | — | — |
| Girls | 112·5 | | 115·0 | 120·0 | 127·5 | 132·5 | 140·0 | 145·0 | 145·0 | 152·5 | 155·0 | 152·5 | — |

## APPENDIX XIV.

TABLE SHOWING THE AVERAGE WEIGHTS OF THE KENYA SCHOOL-GOING POPULATION OF DIFFERENT COMMUNITIES IN RELATION TO HEIGHTS.

| Heights in Centimetres | Europeans | | Indians | Africans | | |
|---|---|---|---|---|---|---|
| | Males | Females | All Males | All Nairobi Children | Wa-Ki-kuyu at the N.I.T.D. | All Kavi-rondo Tribes at N.I.T.D |
| 107·5 .. .. | 22·1 | 17·1 | 18·9 | 20·1 | — | — |
| 110 .. .. .. | 20·1 | 18·4 | 18·7 | 20·6 | — | — |
| 112·5 .. .. | 20·9 | 21·5 | 19·7 | 20·1 | — | — |
| 115 .. .. .. | 22·3 | 22·6 | 20·4 | 20·3 | — | — |
| 117·5 .. .. | 23·9 | 23·4 | 22·2 | 22·9 | — | — |
| 120 .. .. .. | 24·4 | 23·4 | 22·7 | 22·7 | — | — |
| 122·5 .. .. | 24·5 | 25·8 | 23·5 | 26·6 | — | — |
| 125 .. .. .. | 27·6 | 25·6 | 24·1 | 24·6 | — | — |
| 127·5 .. .. | 28·2 | 30·7 | 25·3 | 26·5 | — | — |
| 130 .. .. .. | 29·1 | 38·2 | 26·7 | 28·2 | — | — |
| 132·5 .. .. | 30·0 | 31·7 | 27·6 | 28·9 | — | — |
| 135 .. .. .. | 31·0 | 27·8 | 29·6 | 30·2 | — | — |
| 137·5 .. .. | 29·3 | 31·9 | 30·0 | 31·0 | — | — |
| 140 .. .. .. | 34·0 | 34·1 | 31·8 | 34·5 | — | — |
| 142·5 .. .. | 36·9 | 36·6 | 34·5 | 34·4 | — | — |
| 145 .. .. .. | 37·8 | 39·8 | 34·5 | 39·6 | — | — |
| 147·5 .. .. | 40·9 | 40·9 | 37·5 | 41·3 | 47·4 | 45·0 |
| 150 .. .. .. | .. | 47·0 | 40·0 | 44·1 | 48·1 | 40·7 |
| 152·5 .. .. | 44·7 | 47·0 | 41·3 | 47·9 | 50·3 | 44·6 |
| 155 .. .. .. | 49·5 | 49·0 | 43·0 | 48·5 | 51·2 | 47·0 |
| 157·5 .. .. | 51·3 | 52·6 | 45·7 | 51·9 | 52·4 | 50·8 |
| 160 .. .. .. | 50·1 | 49·0 | 48·0 | 53·5 | 55·0 | 54·4 |
| 162·5 .. .. | 52·8 | 53·7 | 50·8 | 54·9 | 56·8 | 55·6 |
| 165 .. .. .. | 49·5 | 50·4 | 49·3 | 57·1 | 59·0 | 56·3 |
| 167·5 .. .. | 55·6 | .. | 63·1 | 59·5 | 62·3 | 62·1 |
| 170 .. .. .. | 55·3 | .. | 55·9 | 62·5 | 63·4 | 62·9 |

# MEDICAL RESEARCH LABORATORY
# ANNUAL REPORT 1929

By

W. H. KAUNTZE, M D , D.P.H.
*Deputy Director of Laboratory Services.*

# CONTENTS

# ANNUAL REPORT OF THE MEDICAL RESEARCH LABORATORY, KENYA COLONY AND PROTECTORATE, FOR 1929.

## STAFF, 1929.

Deputy Director of Laboratory Services :
W. H. Kauntze.

Senior Bacteriologist :
R. P. Cormack.

Assistant Bacteriologists :
F. P. G. de Smidt.
H. D. Tonking.
F. W. Vint.

Government Analyst :
M. H. Fox.

Biochemical Officer :
D. Harvey.

Medical Entomologists :
C. B. Symes.
G. H. E. Hopkins (until 5th July).

Laboratory Superintendent :
F. A. Bailey.

Laboratory Assistants :
J. A. Bell.
J. S. McDonald (until 16th December).
H. M. Nefdt.
W. L. Titman.
J. P. McMahon (from 5th July).
A. H. Daws (from 5th July).
W. E. Grainger (Learner until 15th February ; Laboratory Assistant Junior from 16th February, 1929).
T. Jones (Learner until 7th March ; Laboratory Assistant Junior from 8th March, 1929).
L. Burton (Learner).
S. J. Moore (Learner).
Ramji Das.
W. Pema.
J. St. A. M. de Souza.
F. Mohamed.
Elisha Nyalondo.
Gideon Otieno.

Malarial Field Overseers :
J. O. Harper.
A. Herd (until 1st March, 1929).
T. P. O'Brien (from 28th June, 1929).

Clerks :
Miss J. M. C. Millett.
Miss E. A. Barry (until 16th April, 1929).
Miss K. M. Trood (until 15th June, 1929).
Miss J. Webster (from June 10th, 1929).

Librarian :
Mrs. Latham (from 19th April to 16th September, 1929).

Clerk and Storekeeper :
Max de Souza.

## A.—ADMINISTRATION.

1.—Changes in Staff.

Mrs. E. Latham appointed Librarian 19th April, and resigned her appointment 16th September.

Miss J. Webster transferred from Medical Headquarters for duty as Clerk, 10th June.

Miss K. M. Trood resigned her appointment, 15th June.

Mr. J. Nimmo appointed Malarial Field Overseer, 28th June.

Mr. G. H. E. Hopkins transferred to Uganda, 6th July.

Mr. J. P. McMahon appointed Laboratory Assistant 5th July.

Mr. A. H. Daws appointed Laboratory Assistant, 5th July.

Mr. J. S. McDonald transferred to Trypanosomiasis Research Institute, 16th December.

2.—Leave.

Dr. Kauntze returned from leave on 4th January, 1929.

Dr. de Smidt proceeded on leave on 5th January, and returned on 13th July, 1929.

Miss Millett proceeded on leave on 5th January, and returned 3rd September, 1929.

Mr. Ramji Das proceeded on leave on 15th February, and returned on 28th July, 1929.

Mr. Bailey proceeded on leave on 13th April, and returned on 8th November, 1929.

Captain Cormack proceeded on leave on 5th July, 1929.

Mr. Nefdt proceeded on leave on 18th July, and returned on 24th December, 1929.

3.—General Survey of Work Carried out in 1929.

There have been two outstanding features in the work of the year, namely, the visit of Lieut.-Col. S. P. James, I.M.S. (retired), Adviser on Tropical Diseases to the Ministry of Health, and the commencement made in the building of the new laboratory.

Colonel James was invited to visit the Colony as an expert on malaria, in order to advise what measures should be taken for the reduction of the disease in this Colony, and to indicate in what directions further research should be carried out. With these ends in view, he was accompanied, during a large part of his time in the Colony, by the Deputy Director of Laboratory Services and by Mr. Symes, the Medical Entomologist. A visit was first made to Kitale, which had a somewhat unenviable notoriety as the centre of a district which, though formerly considered healthy, had lately suffered severely from malaria. Whilst in Kitale, Colonel James visited certain farms inspecting the labour thereon, and taking blood slides from most of the Africans employed. He also initiated an experiment to test the effect of a weekly dose of quinine on two farms close to Kitale. From this place Colonel James proceeded to Uganda, and on his return, after a short stay at Kisumu and Kericho, he visited Taveta which, from investigations carried out in 1928, had shown the existence in the population of a very high infection rate with malaria. During the few days spent at this place, a short experiment on the effect of quinine on malaria parasites in the blood of children was carried out. From Taveta a second visit was paid to Kitale, to see what effect the quinine experiment had had, and to determine whether the onset of the rains had produced any change in the incidence of malaria parasites. From Kitale Colonel James once again visited Uganda, and on his return therefrom spent a few days in Nairobi prior to his departure from Mombasa on June 19th, 1929. Colonel James' report and recommendations were not to hand by the close of the year,

but he had indicated that, in his opinion, the malaria problem in the country was not inconsiderable, and that a vast field for investigation in the disease existed. He also indicated that, in his opinion, this field should be explored by a medical research unit which should form part of the present laboratory organization; provision has been made in the 1930 Estimates to permit of this unit coming into being.

The calf section and boys' quarters of the new laboratory were commenced in June, and by the close of the year had almost been completed; indeed had the special windows which had been ordered from England arrived when expected, the section would have been completed and handed over. As it is, it is expected that very early in 1930 it will be possible to transfer to them the activities of the Entomological and Pathological Sections of the Laboratory, thus relieving the intense congestion which exists in the old building, and permitting the undertaking of more research work than has been possible in the past.

The tenders for the building of the main portion of the new laboratory were only called for at the end of the year, but it is expected that the building will be commenced early in January, 1930, and that the whole structure will be ready for occupation at the beginning of 1931.

Experience, both at the Central Laboratory and at Mombasa during 1929, has shown very clearly the importance of the appointment of an officer who will take charge of a Section of Clinical Pathology. In Mombasa such an officer would be in sole charge of the laboratory, and could relieve the central institution of a very large amount of work which, at present, has to be sent to Nairobi owing to the fact that the laboratory at Mombasa is only under the supervision of a European laboratory assistant. While expressing their appreciation of the work which has been done under this European laboratory assistant, every medical officer at Mombasa emphasizes the fact that the laboratory would be of much greater service were there a pathologist stationed in the town. This officer would, furthermore, be available for investigating disease anywhere in the Coast Province, and could probably extend his activities so as to take in the Voi and Teita districts. Similar reasoning leads one to presume that after the opening of the new Laboratory at Kisumu a comparable state of affairs will exist there. Indeed, the demand for a skilled scientific officer may be even more urgent in the densely populated districts of Central, South and North Kavirondo, than in the Coast Province. In Nairobi, in the Medical Research Laboratory work sent in by district hospitals has steadily increased, as has that from the local hospitals in the town. District medical officers in their endeavours to delimit malarious and non-malarious districts, send in a constant stream of blood slides month by month. Although a great part of the work which such a large number of routine examinations requires, can be carried out by African laboratory assistants, their work must invariably be checked by a European officer, and the time has come when a Clinical Pathologist must be detailed to carry out the direction and control of the routine work of the central institution. Such an appointment will relieve the officer in charge of the Bacteriological Section of routine blood cultures and routine faeces cultures, and the examination of rats for plague, thus enabling the latter officer to devote his time to investigational work. Similarly, routine examinations of blood slides and faeces for protozoa and helminths will be under the Clinical Pathologist's control and will thus give the officer in charge of the Medical Biological Section time to conduct research directed to the solution of the many important problems which still face medical officers in Kenya. Recommendations to this effect were put in in connexion with the 1930 Estimates, but owing to lack of funds were eventually excluded, and it now remains to press for the appointment of these officers in the coming year.

Mention has already been made of the great increase in work at the Nairobi and Mombasa laboratories, but it has been observed in all the clinical laboratories attached to the different hospitals in the districts of Kenya. Every district medical officer, with one exception, has now been provided with a trained African assistant, who is capable of carrying out routine examinations of faeces and bloods and the simpler bacteriological tests. During the year a large number of the districts have been brought up to their estimated strength by the appointment of a second medical officer, and now a demand has been made that the district hospital laboratories shall be staffed with two African

assistants, so as to enable one assistant to go on safari with one medical officer, while the other remains to carry out the routine work of the hospital. An endeavour has been made to comply with this demand, and in one or two cases the staff for the laboratory is now adequate, but throughout the year we have been faced with the difficulty that African laboratory assistants are liable, even after three or four years training, to decide to return to their villages and cease medical work. The notice which they give varies from two or three days to a month, and when three or four of these resignations take place all at one time, it is extremely difficult to maintain the supply of trained staff to fill the vacancies. However, a start has been made in placing matters on a more satisfactory basis, in the first place by offering better prospects to those boys who remain on after their period of training is concluded, and in the second place by coming to a definite agreement with newly joined boys to sign on as apprentices on contract. It is intended that this apprentice system shall not only give the boys adequate laboratory training, but shall at the same time combine with it facilities for general education.

During the year research work has been carried out in certain subjects along the lines commenced in previous years, and in others along entirely new lines. In malaria the visit of Colonel James, at the close of which he recommended that a malaria research unit be added to the activities of the laboratory division has led to a widespread organization for the supply of blood slides from all parts of the Colony. This constitutes a preliminary survey prior to the appointment in 1930 of two malaria research officers. From the survey thus instituted we hope to be able to determine those areas in which a more intensive study, both of malaria as a disease in the population and of its relation to mosquito distribution, will repay the expenditure involved, and lead to practicable measures for the control of malaria. A certain amount of work has already been carried out in the study of the different types of malaria parasites to be found in Kenya. This work requires further extension as staff becomes available. A commencement has also been made in the study of the bionomics of mosquitoes, and the conditions under which anopheline breeding occurs. This study has brought with it the realization of the inadequacy of our present staff. If research is to be continued along lines suggested by results obtained this year, the services of a trained chemist and a freshwater biologist will be necessary. The present staff is totally inadequate to carry out the continuous observations which preliminary investigations have shown to be necessary.

Trypanosomiasis has given occasion for a certain amount of anxiety during the year, for reports were received from certain areas in South Kavirondo indicating that there were a number of cases of the disease. As a result of these reports a tsetse fly survey was made by the Assistant Medical Entomologist, and later a medical survey of a part of the population by the medical officer at Kisii. The reports received from these investigations tend to allay the anxiety to which previous reports had given rise, for it was indicated that while there was an increase in the number of sleeping sickness cases diagnosed, the infection was of a relatively avirulent type. This survey will be extended during the coming year by the seconding of a special medical officer for investigational work.

Plague has been endemic in certain areas throughout the year, with occasional outbreaks demanding active measures in the way of preventive inoculation of the population. Dr. de Smidt, who returned from leave in the middle of the year, has carried on his research work into the bacteriology of the disease, and into the factors which must be considered if plague vaccine is to be effective. The transfer of the Assistant Medical Entomologist to Uganda in the middle of the year involved a reduction in the staff which was conducting the investigation into the bionomics of rats and rat fleas and the association of field rodents with plague. Only the essential part of this research could be carried on with the reduced staff.

Investigation into the cause of pneumonia in African natives in the Colony was commenced during the year. This disease seems extraordinarily fatal to Africans, and its importance to the population can be appreciated by a study of the mortality figures for the various hospitals in the Colony. Dr. de Smidt has made a start in typing the various pneumococci which have been isolated from the lungs or other organs of patients dying from the disease, but so far the number of cases examined has been too few to permit of any conclusions being drawn.

The year's work in the post-mortem room has served to emphasise the importance of tuberculosis as a cause of death amongst natives. Many of the cases seen have shown a widespread infection, other cases have tended to present appearance resembling those seen amongst Europeans in England. Publication of post-mortem figures from time to time should be of interest as an indication of the results of improved housing and improved sanitation, for most of the cases which come to the notice of the morbid anatomist are drawn from the inhabitants of the native locations in Nairobi.

In February a repetition of the Ancylostome egg count was made at Msambweni on the same people as had undergone examination and treatment twelve months previously. The results of the egg count on this occasion showed a 50 per cent reduction in the number of eggs per gram of faeces. This seems to have been associated with a general improvement in the health and physique of the population.

Dr. Tonking also conducted examinations into the effect of various anthelminthics among boys at the Infectious Diseases Hospital in Nairobi, in association with Dr. Connolly and Dr. Wilkins. These investigations are still in progress.

The feeding experiment which was commenced at the Reformatory in 1928 came to a conclusion in the early part of the year, and the results have been incorporated in an as yet unpublished paper by Dr. Harvey. A scheme has been drawn up for the investigation of the effect of feeding calcium on nitrogen metabolism in Africans, and arrangements for the carrying out of this experiment at the Nairobi Prison had been completed by the close of the year. An attempt has been made to test the effect of vitamin A deficiency on rats by feeding on a basal diet deficient in vitamins A and D. Rats in the control group received this basal diet, while the other rats received cod-liver oil in addition. Satisfactory conditions so far have not been obtained for the experiment, but it is hoped that in 1930 it will be possible to overcome the initial difficulties, and so obtain reliable results.

A case of undoubted rabies occurred in a dog during the year, and in addition two further scares led to demands for protective inoculation in those exposed to infection from the suspected animals. These cases were all treated with vaccine which was obtained from the Haffkine Institute at Bombay, but it was felt that it was unwise to depend on a supply from this source, and preferable that anti-rabic vaccine should be prepared locally. For this purpose Dr. de Smidt brought back with him from his visit to India, three lots of " fixed virus," and by the close of the year a technique had been worked out whereby a constant supply of anti-rabic vaccine would be on hand at the laboratory, so that in addition to its previous activities, the Medical Research Laboratory has now added a Pasteur Institute.

As has already been stated, the routine work of the laboratory has increased considerably during the year. Perhaps the increase is not so much indicated in an advance in the number of specimens received, as in the additional examinations which have been demanded on the specimens, and also in the increase in the requests for advice received by the various officers in the laboratory, not only from medical practitioners, but also from the general public. Thus, the vaccine work has consisted not only of the preparation of a very considerable number of autogenous vaccines, but also of a large number of consultations between the bacteriologist and the medical attendant to determine from what source the bacteria used in the vaccine should be prepared. Coliform vaccines are still in great demand for the treatment of rheumatoid and rheumatic conditions. It has been found advantageous to reduce the dose of vaccine so as to obtain the very slightest reaction. Indeed, if the dose can be kept at such a level as to be just below that necessary to produce a minimal reaction, the patient seems to derive the greatest benefit. In these cases considerable improvement in the patient's general condition has been obtained by a simultaneous administration of sour milk. Two varieties are kept constantly prepared at the Laboratory: (1) Bulgarian milk bacillus, and (2) Streptococcus acidus lacticus.

The following is a list of the papers published in the various Journals, by members of the staff of the Laboratory, during 1929 :—

F. W. Vint :

" One Year's Post-mortem Work on Natives of East Africa." (Kenya and East Africa Medical Journal, March, 1929).

R. P. Cormack :

" Note on a Case of Chronic Dermatitis Associated with C. Diphtheriæ." (Kenya and East African Medical Journal, March, 1929).

R. P. Cormack :

" Diphtheria." (Kenya and East African Medical Journal, April, 1929).

D. Harvey :

" The Effects of an Addition of Wheat Flour to Nairobi Prison Diet." (Kenya and East African Medical Journal, July, 1929).

H. D. Tonking :

" A note on the Sub-unguinal Debris of the African Native." (Kenya and East African Medical Journal, July, 1929).

F. P. G. de Smidt :

" Laboratory Notes on Plague in Kenya. (Journal of Hygiene, July, 1929).

D. Harvey :

" The Absorption and Retention of Calcium by Growing African Natives infected with Tænia." (Kenya and East African Medical Journal, October, 1929).

## B.—SEROLOGICAL SECTION.

1.—Sigma Tests.

The routine test for the year was the Sigma Flocculation test, Wassermann's being precluded owing to the shortage of guinea pigs. It is hoped that during next year, Kahn and Wassermann tests will be performed again, the Kahn being used for quick diagnosis and confirmed by the Wassermann, with the Sigma test held in reserve for statistical work and when specially asked for.

No change was noted in the submission of sera, except that the number of contaminated or hæmolysed sera received has increased.

During the year, 1,918 bloods were tested, excluding repeat tests and controls. The positive and negative distribution was as follows :—

| | | |
|---|---|---|
| Sigmas negative (0.0) ... ... ... | 642 | |
| Sigmas under 4 units ... ... ... | 397 | |
| Sigmas over 4 units ... ... ... | 571 | |
| Test failed ... ... ... ... ... | 43 | |
| Contaminated or hæmolysed Sera ... ... | 229 | |
| Coagulated Sera ... ... ... ... | 2 | |
| Insufficient Sera ... ... ... ... | 26 | |
| Sigmas on Cerebro-spinal Fluid ... ... | 2 | Positive. |
| Sigmas on Cerebro-spinal Fluid ... ... | 6 | Negative. |

2.—Agglutinations.

During the year the number of sera submitted for agglutination has dropped considerably, a total of 409 being received; less than half last year's quota. Whether this is attributable to a lowered incidence of the Enterica, can only be ascertained by an examination of the outstation and hospital returns for the year.

Attempts have been made to ascertain the causative organism of the so-called "tropical typhus" which seems to be slightly more prevalent in the Colony than in past years. Animal inoculation was tried, but yielded no results, likewise blood culture, agglutination with various live strains of Proteus X19, and histological examination of excised papules from the rash. Unfortunately, an autopsy has been unobtainable in the few cases (two) which have died. It is hoped that by drawing up a questionnaire for all medical officers and private practitioners, that some light may be thrown on the identity of the vector of the disease.

Table showing the number of sera in which agglutination occurred of one organism to a degree appreciably higher than that of any other. All reactions which took place in a dilution of 1 in 50 or over are recorded :—

| | |
|---|---|
| B. typhosus ... ... ... ... ... ... | 93 |
| B. paratyphosus A ... ... ... ... ... | 5 |
| B. paratyphosus B ... ... ... ... ... | 10 |
| B. paratyphosus C ... ... ... ... ... | 2 |
| B. abortus of Bang ... ... ... ... ... | 1 |

Table showing the number of sera in which agglutination of two or more organisms occurred to an equal titre :—

| | |
|---|---|
| B. typhosus and B. paratyphosus A ... ... ... | 3 |
| B. typhosus and B. paratyphosus B ... ... ... | 3 |
| B. typhosus and B. paratyphosus A, and B. paratyphosus B ... ... ... ... ... ... | 3 |
| B. paratyphosus A and B. paratyphosus B ... ... | 1 |
| B. paratyphosus B and B. paratyphosus C ... ... | 1 |
| B. typhosus, B. paratyphosus A, B. paratyphosus B and B. paratyphosus C ... ... ... ... | 2 |

Table showing sera in which agglutinations of less than 1 in 50 occurred :

| | |
|---|---|
| B. typhosus ... ... ... ... ... ... | 3 |
| B. paratyphosus A ... ... ... ... ... | 3 |
| B. paratyphosus B ... ... ... ... ... | 1 |
| B. typhosus and B. paratyphosus A ... ... ... | 1 |
| B. typhosus and B. paratyphosus A and B. paratyphosus B ... ... ... ... ... ... | 2 |
| B. typhosus and B. paratyphosus C ... ... ... | 1 |

*Widal's Reaction* :—

| | |
|---|---|
| Total examined ... ... ... ... ... ... | 409 |
| Total sera showing any agglutination ... ... | 145 |
| Total sera showing no agglutination ... ... ... | 264 |

## C.—CALF LYMPH SECTION.

1.—Staff.

The staff has been unchanged, consisting as in previous years of an Indian Laboratory Assistant and four Africans, supervised by an Assistant Bacteriologist.

2.—Production of Calf Lymph.

During the year some dried calf lymph samples were received from Bandoeng and Paris; these were kept at a room temperature for three months and then tried out on Police and K.A.R. recruits; both yielded 100 per cent successful vaccinations for primary vaccinations. Lymph was utilised from these two dried specimens to start two new strains in East African calves. The vesicles formed were good, and in time it is hoped to issue lymph made from these strains.

Some dried lymph was prepared in the Laboratory which gave good results in primary vaccinations. It may prove possible to supply the more distant outstations with dried lymph, the main difficulty being the devising of a vacuum tube strong enough to withstand transport.

It has been difficult to maintain the supply of calves this year, as East Coast fever and rinderpest have rendered the transport of calves by foot impossible; also care had to be taken that calves from an area free from East Coast fever did not come in contact with those from an infected area. This entailed hand-feeding the stock with lucerne hay, which greatly increased the cost of production.

3.—Testing of Lymph.

No complaints were received from the outstations with regard to the lymph. Routine testing was carried out on Police and K.A.R. recruits at Nairobi.

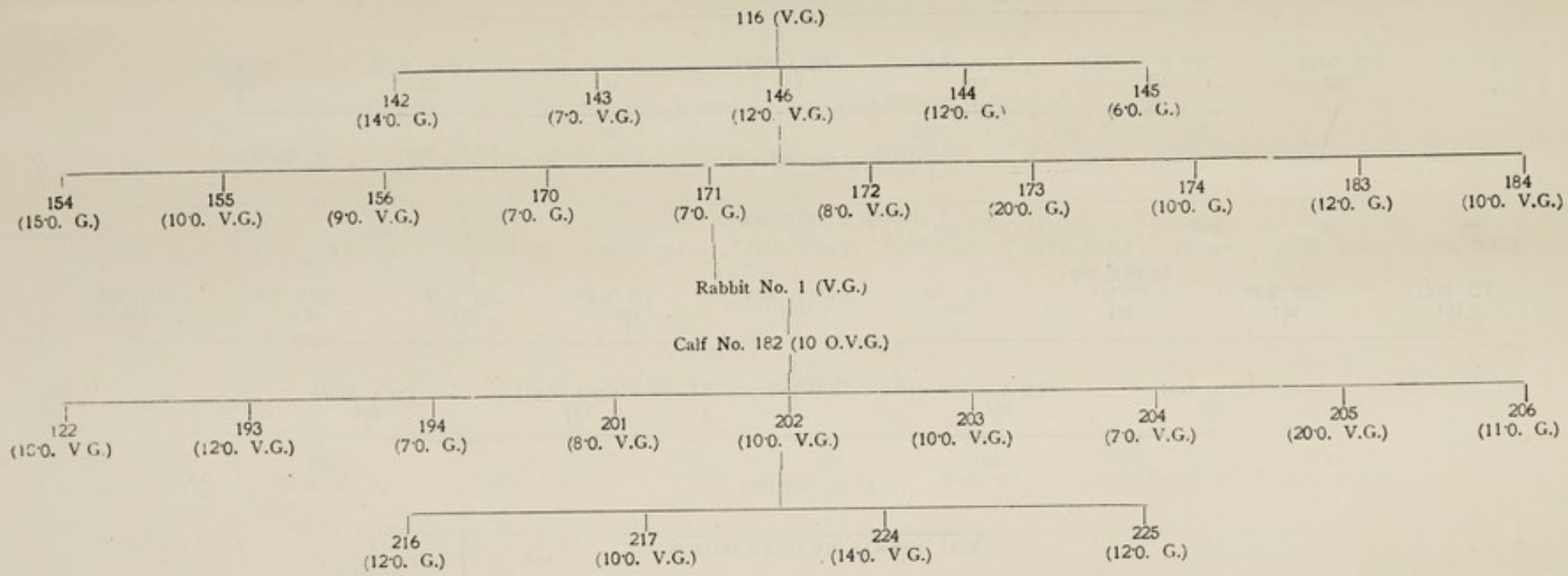
*Sale of Lymph.*—32,000 doses were supplied to Uganda at the request of the Government there.

4.—Production of Calf Lymph, 1929. (Summary.)

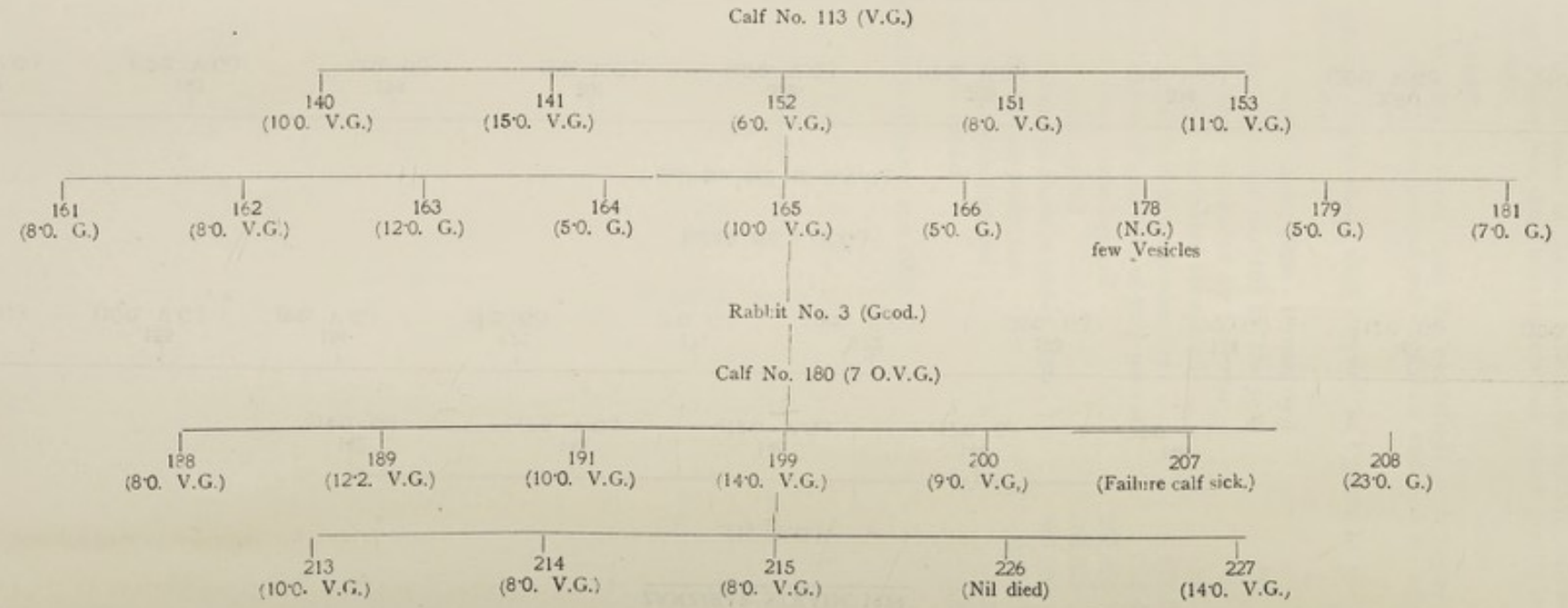
| | |
|---|---|
| Total number of calves received for the year ... | 90 |
| Number of calves vaccinated for the year ... | 89 |
| Number of calves vaccinated successfully ... ... | 84 |
| Number of grammes of pulp collected ... ... | 876.0 |
| Average number of grammes of pulp per calf ... | 10.43 |
| Number of doses manufactured ... ... ... | 262,800 |
| Number of doses issued ... ... ... ... | 286,353 |
| Number of doses in stock at end of 1929 ... ... | 265,000 |
| Cost of calf lymph production ... ... ... | £572/7/0 |
| Cost per dose manufactured ... ... ... | 0.5232d. |
| Cost per dose issued ... ... ... ... | 0.48 d. |

5.—Tables of Lymph Strains for 1929.

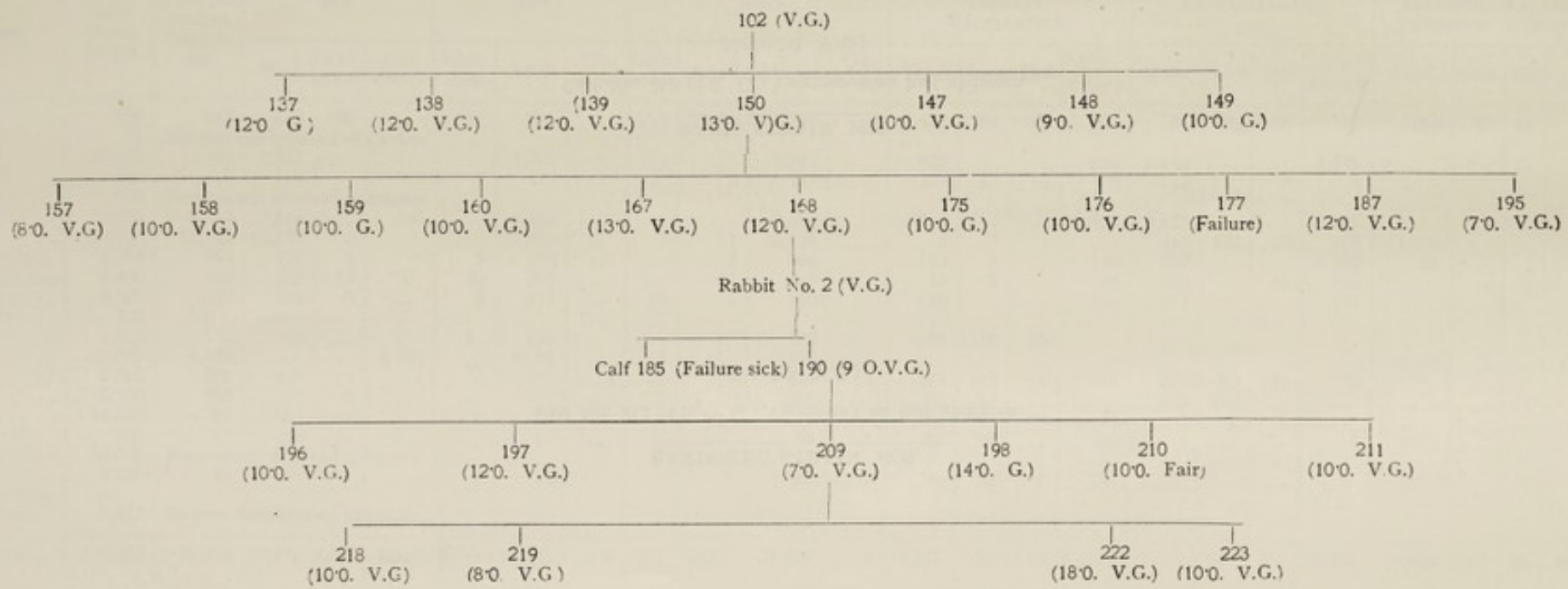
## ZANZIBAR STRAIN, 1929.



SOUTH AFRICAN STRAIN, 1929.



BELGAUM STRAIN, 1929.



BANDOENG STRAIN, 1929.

Calf No. 212 (4·0. V.G.) Vaccinated on half abdomen.

220 (12·0. V.G.)

PARIS STRAIN, 1929.

Calf No. 212 (5·0. G.) Vaccinated on half abdomen.

221 (12·0. V.G.)

| Stations | Total Doses Issued | Total No. Persons Vaccinated | Sex | | | Age | | | Race | | | | Primary Vaccination | | | | Re-Vaccination | | | | Previous Vaccinal Condition Unknown | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Male | Female | Unknown | Children | Adult | Unknown | European | Asian | African | Unknown | Total | Succ. | Fail | Unknown | Total | Succ. | Fail | Unknown | Total | Succ. | Fail | Unknown |
| Eldoret | 930 | 842 | 652 | 190 | .. | 291 | 551 | .. | 214 | 139 | 489 | .. | 479 | 289 | 29 | 161 | 81 | 35 | 36 | 10 | 282 | 87 | 66 | 129 |
| Fort Hall | 25 | Returns not received unknown. | | | | | | | | | | | | | | | | | | | | | | |
| Kakamega | 29,000 | 1,781 | 1,781 | .. | .. | .. | 1,781 | .. | .. | .. | 1,781 | .. | 633 | .. | .. | 633 | 1,148 | .. | .. | 1,148 | .. | .. | .. | .. |
| *Kapsabet | 636 | 119 | 119 | .. | .. | 2 | 117 | .. | .. | 2 | 117 | .. | 107 | 67 | 10 | 30 | 12 | .. | 8 | 4 | .. | .. | .. | .. |
| Kericho | 600 | Returns not received unknown. | | | | | | | | | | | | | | | | | | | | | | |
| Kisii | 7,950 | 8,552 | 7,812 | .. | 740 | .. | 8,552 | .. | .. | .. | 8,552 | .. | 4,927 | .. | .. | 4,927 | 3,625 | .. | .. | 3,625 | .. | .. | .. | .. |
| Kisumu | 143,300 | 12,142 | 12,139 | 3 | .. | 308 | 11,834 | .. | 3 | 1 | 12,138 | .. | 3 | 3 | .. | .. | 440 | 193 | 59 | 188 | 11,699 | .. | .. | 11,699 |
| Kitui | 2,385 | 969 | 968 | 1 | .. | 9 | 960 | .. | .. | 3 | 966 | .. | 119 | 3 | .. | 116 | 792 | .. | .. | 792 | 58 | .. | .. | 58 |
| Lamu | 2,400 | 280 | 228 | 52 | .. | 20 | 260 | .. | .. | 31 | 249 | .. | 47 | 2 | .. | 45 | 233 | .. | 41 | 192 | .. | .. | .. | .. |
| Machakos | 4,500 | 321 | 316 | 5 | .. | 8 | 313 | .. | 10 | 1 | 310 | .. | 140 | .. | .. | 140 | 181 | .. | .. | 181 | .. | .. | .. | .. |
| Malindi | 900 | Nil | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Meru | 1,800 | 198 | 198 | .. | .. | 1 | 197 | .. | .. | 1 | 197 | .. | 198 | 139 | 59 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mombasa | 25,500 | 4,593 | .. | .. | 4,593 | .. | 45,93 | .. | 12 | 1,860 | 2,721 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4,593 | .. | .. | 4,593 |
| Nairobi | 2,560 | 501 | 489 | 8 | 4 | 6 | 491 | 4 | 13 | .. | 484 | 4 | 224 | 163 | 4 | 57 | 277 | 82 | 123 | 72 | .. | .. | .. | .. |
| Nakuru | 5,300 | 285 | 283 | 2 | .. | .. | 285 | .. | .. | .. | 285 | .. | 53 | 53 | .. | .. | 232 | 232 | .. | .. | .. | .. | .. | .. |
| Narok | 14,510 | 6,288 | 2,883 | 3,405 | .. | 2,903 | 3,385 | .. | 1 | .. | 6,287 | .. | 6,286 | 103 | 9 | 6,174 | 2 | 1 | 1 | .. | .. | .. | .. | .. |
| Nyeri | 300 | 59 | 59 | .. | .. | .. | 59 | .. | .. | .. | 59 | .. | 55 | 15 | .. | 40 | 4 | .. | .. | 4 | .. | .. | .. | .. |
| Uganda | 32,000 | Returns not received unknown. | | | | | | | | | | | | | | | | | | | | | | |
| Voi | 5,300 | 46 | 46 | .. | .. | 1 | 45 | .. | .. | 1 | 43 | 2 | 46 | 13 | 1 | 32 | .. | .. | .. | .. | .. | .. | .. | .. |
| Various Stations and Practitioners | 6,457 | Returns not received unknown. | | | | | | | | | | | | | | | | | | | | | | |
| Grand Total | 286,353 | 36,976 | 27,973 | 3,666 | 5,337 | 3,549 | 33,433 | 4 | 253 | 2,039 | 34,678 | 6 | 13,317 | 850 | 112 | 12,355 | 7,027 | 543 | 268 | 6,216 | 16,632 | 87 | 66 | 16,479 |

*Returns not received for month of May.

## D.—PATHOLOGICAL SECTION.

1.—Post-Mortem Examinations.

During the year 174 post-mortem examinations were carried out by the members of the Laboratory staff.

The causes of death were as follows :—

| | | | |
|---|---|---|---|
| **Europeans—** | | | |
| Gun-shot wound of head | | 3 | |
| Following administration of an anæsthetic | | 1 | |
| | | — | 4 |
| **Asiatics—** | | | |
| Opium posioning | | 2 | |
| Peritonitis following rupture of the appendix | | 1 | |
| | | — | 3 |
| **Africans—** | | | |
| Carcinoma—Head of pancreas | | 1 | |
| Liver | | 1 | |
| Bladder (urinary) | | 1 | |
| | | — | 3 |
| Cerebral Hæmorrhage—Due to tuberculosis | | 1 | |
| Due to syphilis | | 1 | |
| | | — | 2 |
| Congenital syphilis | | | 2 |
| Debility and terminal dysentery | | | 3 |
| Drowning | | | 1 |
| Dysentery (bacillary) | | | 10 |
| Electrocution | | | 3 |
| Empyema | | | 1 |
| Encephalitis lethargica | | | 2 |
| Enteric | | | 2 |
| Gas gangrene | | | 1 |
| Gastro-enteritis (food poisoning) | | | 6 |
| Heart—Mitral stenosis | | 1 | |
| Aortic incompetence | | 2 | |
| Myocardial degeneration | | 5 | |
| | | — | 8 |
| Infarct of the lung | | | 1 |
| Intestinal obstruction | | | 1 |
| Malaria, subtertian | | | 2 |
| Meningitis—Meningococcal | | 6 | |
| Streptococcal | | 2 | |
| Pneumococcal without pneumonia | | 3 | |
| | | — | 11 |
| Myologenous leukæmia | | | 1 |
| Nephritis—Chronic interstitial | | 2 | |
| Pyonephrosis | | 1 | |
| Pyelonephritis | | 1 | |
| | | — | 4 |
| Pernicious anæmia | | | 1 |
| Plague | | | 2 |
| Pneumonia—Broncho | | 1 | |
| Lobar | | 27 | |
| Meningitis | | 6 | |
| Meningitis and pericarditis | | 1 | |
| | | — | 35 |
| Rupture of lung not due to violence | | | 1 |
| Septicæmia—Puerperal | | 1 | |
| Other forms | | 16 | |
| | | — | 17 |
| Shock | | | 2 |
| Spirillum fever | | | 1 |
| Strangulation | | | 3 |
| Tuberculosis | | | 24 |
| Trypanosomiasis | | | 1 |
| Wounds—Fracture of skull | | 6 | |
| Abdominal | | 3 | |
| Rupture of lungs | | 1 | |
| Of neck | | 1 | |
| Heart | | 1 | |
| Fracture dislocation of spine | | 1 | |
| | | — | 13 |
| Total | | | 171 |
| GRAND TOTAL | | | 174 |

Many interesting conditions were found during the post-mortem examinations of the African natives.

In the case of carcinoma of the bladder which was confirmed histologically, there were no secondary growths in any of the organs, although there was some infiltration into the adjacent peritoneum. Amongst the septicaemia cases one of true pneumococcal septicaemia was found, and in two other cases anthrax bacilli were the causative organisms. These two anthrax cases were outstanding, as in one case the vault of the brain was covered with a large blood clot and no ruptured vessel could be found to account for it. It appeared that instead of a rupture there had been a generalised leakage of blood from all the meningeal vessels. In the second case the whole of the intestinal tract showed large submucous haemorrhages from which anthrax bacilli were isolated.

The case of rupture of the lung not due to violence occurred in a young male adult during an epileptic fit. The trypanosomiasis case exhibited an early pneumococcal meningitis.

During the year tuberculosis of practically every organ of the body, except the pancreas, was found. Amongst other interesting findings were two cases of tuberculous pericarditis, one of tuberculosis of the spine, two of tuberculosis of the heart muscle, two of tuberculoma of the brain, one of which was in the cerebellum and one in the Rolandic area; whilst in a third case of tuberculosis of the brain there had been a large cerebral haemorrhage. In one case of generalised tuberculosis, the tubercles in the liver and spleen were surrounded by small haemorrhagic rings. In fact, the general impression given by the post-mortem examinations was that tuberculosis in the native population approaches very closely to a septicaemia.

2.—Histological Examination.

280 pathological specimens were examined during the year. Of these ninety-five were from Europeans, 182 from Africans and three brains from dogs for rabies.

The details are as follows :—

| | *Specimens* | |
|---|---|---|
| Europeans— | | |
| Appendix | | 52 |
| Normal | 15 | |
| Early Inflammatory | 5 | |
| Acute Inflammatory | 16 | |
| Sub-acute or Chronic Inflammatory | 16 | |
| Tumours | | 30 |
| Benign | 27 | |
| Malignant | 3 | |
| Currettage | | 5 |
| Non-malignant | 5 | |
| Malignant | — | |
| Inflammatory Lesions | | 8 |
| Total European | | 95 |
| Africans— | | |
| Tumours | | 80 |
| Benign Adenoma | 3 | |
| Cysts | 6 | |
| Fibroma | 10 | |
| Glioma | 1 | |
| Lipoma | 2 | |
| Papilloma | 3 | |
| Malignant Carcinoma | 17 | |
| Endothelioma | 2 | |
| Epithelioma | 13 | |
| Sarcoma | 21 | |
| Teratoma | 2 | |
| Inflammatory Lesions, etc. | | 97 |
| Tuberculosis | 22 | |
| Microfilaria | 1 | |
| S. Rossi | 2 | |
| Actinomycosis | 1 | |
| Other Inflammatory Lesions | 71 | |
| Fatty Degeneration | | 3 |
| Liver | 2 | |
| Kidneys | 1 | |
| Chronic Parenchymatous Nephritis | | 2 |
| Total Africans | | 182 |
| Brains for Rabies | | 3 |
| Negative | 2 | |
| Positive | 1 | |

## E.—BACTERIOLOGICAL SECTION.

1.—Routine Bacteriological Examinations.

(*a*) Total of specimens received requiring cultural examinations: 1,149.

(*b*) Total of specimens received requiring microscopical examinations: 1,061.

*Synopsis of Work under Heading* 1.

*Anthrax.*—Organisms of anthrax were identified in five out of twelve cases of suspected skin lesions, in one case of haemorrhagic lesions of the alimentary canal, and in the brain of one case.

*Conjunctivitis.*—Koch-Weeks bacilli were found to be causative in eight, and Gonococcus in four, out of thirteen eye discharges examined.

*Diphtheria.*—Of 103 throat and nose swabs examined, Klebs-Loeffler bacilli were found in forty-three.

*Dysentery.*—Of seventy-six dysenteric stools examined, organisms of the Flexner group were found in eleven, *B. morgan* No. 1 in fifteen, and *B. dysenteriae* of Shiga in no case.

Organisms of the Sonne group were of rare occurrence, other slow lactose fermenters being comparatively frequent in cases where they could be suspected of pathogenicity. The bacilli of Kruse, Ford, Strong, and Schmidt also were of fairly regular occurrence. The bacteriology of enteric infections in Kenya is to form the subject of a special report, when sufficient materials have been collected.

*Gonorrhoea.*—Of 105 urethral and vaginal discharges seen, gonococci were identified in thirty-one.

*Leprosy.*—Leprosy bacilli were found in one out of nine suspected cases, in the nasal discharge.

*Meningitis.*—Meningococci were found in the cerebro-spinal fluids of six out of seven cases of sporadic meningitis.

*Plague.*—The year has been a bad one for plague work. Bacilli of plague were found in only three out of six suspected human gland swellings, and out of twenty-two dead rats brought in for autopsy, only one was found to be infected with plague.

*Tuberculosis.*—547 specimens of sputum were examined, and tubercle bacilli were found in sixty-one. They were identified also in one specimen of faeces, and in one out of four specimens of pus from gland abscesses.

*Pneumonia.*—The bacteriology of pneumonia was taken as a subject for research in the last quarter of the year, and will eventually form the subject of a special report in reference to Kenya. From one specimen of consolidated lung examined post-mortem a virulent non-dulcite-fermenting type of *B. capsulatus mucosus* was isolated by mouse inoculation; from another lung *B. paratyphosus B.* was similarly obtained, in a case where enteric infection was not suspected.

*Typhoid and Paratyphoid.*—*B. typhosus* has been obtained in six out of forty-two cultures of blood, two out of forty cultures of faeces, and one out of twenty-eight cultures of urine, from suspected cases.

Paratyphoid bacilli have been obtained only from the lung above mentioned. This is probably due to failure to receive specimens of faeces, etc., from correctly diagnosed cases.

2.—Vaccine Preparation.

(*a*) *Autogenous Vaccines.*—116 autogenous vaccines have been made during the year, and twenty-five patients have received courses of vaccine treatment in the laboratory of the section.

(*b*) *Stock Vaccines.*

(1) *Plague Prophylactic.*—195,000 doses have been made for the year, of which 170,000 were made since July. In the last quarter of the year the procedure was adopted of maintaining virulent plague culture for vaccine purposes by continuous passage through rats. Vaccine of Haffkine type is still the only kind of plague vaccine made; by reason of increased incubator space now

available, a period of six weeks' incubation at 30° C. has been adopted, and a series of immunity tests with rats is being carried out to compare vaccine so made with that made by the former process of twelve weeks' cultivation, for the most part at variable room temperature.

(2) *T.A.B. Vaccine.*—8,000 doses were made in the latter part of the year, that made in the latter part of 1928 having been more than sufficient to meet the demands of the ensuing year. The special broth culture type of vaccine continues to be made.

(3) *Anti-Rabic Vaccine.*—The maintenance of " fixed virus " and periodic preparation of carbolised anti-rabic vaccine, was commenced in October of the year. No cases have been received for treatment with this up to the year's end.

3.—Bacteriological Research.

In the latter part of the year research was recommenced on standardisation of anti-plague vaccine by induced immunity tests combined with chemical analysis, with the assistance of the Biochemical Section of the Laboratory; on bacteriology of pneumonia and investigation of Kenya Group IV pneumococci; on bacteriology of enteric infections; and, in conjunction with the Entomological Section, on wild rodents and their fleas in relation to plague.

## F.—SECTION OF MEDICAL BIOLOGY.

1.—Blood Examinations.

During the year the subsidiary laboratories at the Native Hospital, Nairobi, and at Mombasa, relieved this section of a considerable amount of routine work.

The routine stains used for blood slides have been, as heretofore, Giemsa's stain for thick drops and Leishman's stain for thin smears, with the exception that the distilled water is now corrected for pH by the use of lithium carbonate, thus obtaining greater uniformity in staining.

The table on the next page shows a record of bloods examined for the year at the main laboratory and the two subsidiary laboratories.

It will be seen that at the main laboratory the percentage of slides positive for malaria is low, only amounting to about 4 per cent.

2.—E. histolytica.

E. histolytica has remained a rarity, as in previous years, and no intestines showing evidence of amœbic infection have been met with in the post-mortem room. The few cases in which it has been seen have occurred mainly in Europeans who have been in Egypt, Salonika or India.

3.—Intestinal Helminths.

During the year the routine methods of examination have not been changed, as the methods used yield the most consistent results in the least time and at the least expense.

It has been noticed that the number of Europeans infected with *S. mansoni* seems to be on the increase around Nairobi, the majority of victims being small children, and it is presumed that the infection is incurred whilst paddling in streams. An attempt will shortly be made to classify the snails of the district and carry out experiments with infected species.

Towards the beginning of the year large numbers of Planorbis snails were noticed in the Nairobi River. Examination showed a large number (*circa* 30 per cent) to be infected with bifid cercariæ. Some of these snails were kept in a basin of water for twenty-four hours, after which a monkey was immersed for thirty seconds in this water. The faeces of the monkey, when examined some few months later, were found to consist of large amounts of blood-stained mucus, in which were observed large numbers of lateral-spined schistosome ova.

An Assistant Bacteriologist was again lent to Digo District to perform ancylostome egg-counts on the population, which had, in the previous year, been examined, sanitated, and had anthelminthic treatment.

The index of infection was found to have dropped from 460 eggs per gram to 240 per gram. Thus it can be safely stated that this particular section of the population should now have no symptoms due to ancylostomes, and should at this rate of decrease, provided latrines are used, be free in a year or two.

(See Table of Results of Faeces Examined during 1929, page 21.)

## RECORD OF BLOODS EXAMINED DURING 1929.

| Where Examined | Source | Race | Differential Counts | Complete Blood Counts | Negative | P. Falciparum | P. Malariae | P. Vivax | S. Rossi | Trypanosomes | Sheathed Microfilria | Unsheathed Microfilria | Mixed Infections | Total Examined for Parasites |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nairobi | Native Hospital .. .. | Asian and African .. | 24 | 32 | 4,164 | 260 | 23 | 13 | 16 | 2 | .. | 24 | 6 | 4,508 |
| ,, | Government Officials .. .. | European .. .. | 377 | 15 | 612 | 41 | 2 | 2 | .. | .. | .. | .. | 2 | 659 |
| ,, | ,, ,, .. .. | Asian .. .. .. | 9 | 1 | 148 | 12 | 1 | 2 | .. | .. | .. | .. | 2 | 165 |
| ,, | Dispensaries .. .. .. | African .. .. .. | .. | .. | 2,415 | 92 | 5 | 1 | 1 | .. | 5 | 4 | 1 | 2,524 |
| ,, | Gaol and I.D.H. .. .. | Undifferentiated .. | 28 | 1 | 1,038 | 26 | 4 | .. | .. | .. | 1 | .. | .. | 1,069 |
| ,, | Outstations .. .. .. | African .. .. .. | 5 | .. | 7 | 3 | .. | 2 | .. | .. | .. | .. | .. | 12 |
| ,, | Miscellaneous .. .. .. | Undifferentiated .. | 5 | .. | 239 | 21 | 1 | 2 | .. | .. | .. | .. | .. | 263 |
| ,, | Private Practitioners .. .. | European .. .. | 168 | .. | 242 | 14 | .. | 2 | .. | .. | .. | .. | .. | 258 |
| ,, | ,, ,, .. .. | Asian .. .. .. | 30 | 2 | 43 | 5 | .. | .. | .. | .. | .. | .. | .. | 48 |
| | Total from Nairobi .. | .. .. .. .. | 646 | 41 | 8,908 | 474 | 36 | 24 | 17 | 2 | 6 | 28 | 11 | 9,506 |
| Mombasa | Native Hospital .. .. | Asian and African .. | 20 | 35 | 2,282 | 470 | 52 | 19 | .. | .. | 8 | 52 | 10 | 2,893 |
| ,, | ,, ,, Out-patients | ,, .. | 4 | 1 | 34 | 8 | 1 | .. | .. | .. | .. | .. | .. | 43 |
| ,, | Government Officials .. .. | European .. .. | 87 | 9 | 258 | 67 | 3 | 2 | .. | .. | 1 | .. | .. | 331 |
| ,, | ,, ,, .. .. | Asian .. .. .. | 22 | 4 | 186 | 64 | .. | 2 | .. | .. | .. | .. | .. | 252 |
| ,, | M.O.H. .. .. .. .. | Asians and Africans .. | .. | .. | 162 | 45 | 3 | 2 | .. | .. | .. | 1 | 1 | 214 |
| ,, | European Hospital .. .. | Europeans .. .. | 37 | 8 | 138 | 48 | .. | 2 | .. | .. | .. | .. | .. | 188 |
| ,, | Gaol .. .. .. .. | Africans .. .. .. | 4 | 1 | 119 | 21 | .. | 1 | .. | .. | .. | .. | .. | 141 |
| ,, | I.D.H. .. .. .. .. | Asians and Africans .. | .. | .. | 28 | 7 | .. | 1 | .. | .. | .. | .. | .. | 36 |
| ,, | Schools .. .. .. .. | Arab and African .. | .. | .. | 66 | 48 | 1 | 3 | .. | .. | .. | .. | .. | 118 |
| ,, | Private Practitioners .. .. | European .. .. | 102 | 4 | 204 | 54 | 2 | 6 | .. | .. | .. | .. | .. | 266 |
| ,, | ,, ,, .. .. | Asian .. .. .. | 9 | 1 | 47 | 10 | .. | .. | .. | .. | .. | 2 | 1 | 60 |
| ,, | Digo District .. .. .. | African .. .. .. | .. | .. | 95 | 28 | 1 | 4 | .. | .. | .. | .. | .. | 128 |
| | Total from Mombasa .. | .. .. .. .. | 285 | 62 | 3,619 | 870 | 63 | 42 | .. | .. | 9 | 55 | 12 | 4,670 |
| | GRAND TOTAL ALL SOURCES | .. .. .. .. | 931 | 103 | 12,527 | 1,344 | 99 | 66 | 17 | 2 | 15 | 83 | 23 | 14,176 |

## F.—RECORD OF FAECES EXAMINED DURING 1929.

| Place Examined | Source of Specimen | Race | Negative | Taenia saginata | Ascaris lumbricoides | Ancylostoma duodenale | Trichuris trichiura | Strongyloides stercoralis | Schistosoma mansoni | Oxyuris vermicularis | Hymenolepis nana | Schistosoma haematobium | Entamoeba coli | Iodamoeba butschlii | Flagellates Undiff. | Giardia intestinalis | Entamoeba histolytica | Entamoeba nana | Chilomastix hominis | 1 Helminth | 2 Helminth | 3 Helminth | 4 Helminth | 1 Protozoon | 2 Protozoon | 3 Protozoon | 4 Protozoon | 1H+1P | 1H+2P | 1H+3P | 2H+1P | 2H+2P | 2H+3P | 3H+1P | 3H+2P | 3H+3P | 4H+1P | 5H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nairobi.. | Native Hospital .. | Asians and Africans .. | 1,480 | 1,196 | 531 | 1,210 | 748 | 101 | 155 | 11 | 8 | 1 | 117 | 6 | 23 | 2 | 13 | .. | .. | 1,479 | 758 | 258 | 51 | 76 | 1 | .. | .. | 51 | 1 | .. | 19 | .. | .. | 5 | 2 | .. | 2 | 1 | 4,174 |
| " .. | Government Officials | European .. | 49 | .. | .. | 6 | .. | .. | .. | 1 | .. | .. | 2 | 1 | .. | 1 | .. | .. | .. | 7 | .. | .. | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 60 |
| " .. | " " | Asian .. | 22 | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 2 | .. | 1 | .. | 2 | .. | .. | 2 | .. | .. | .. | 4 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 29 |
| " .. | European Hospital.. | European .. | 229 | 2 | .. | 6 | 5 | 2 | 1 | 2 | .. | .. | .. | 1 | 2 | 1 | .. | .. | .. | 16 | 2 | .. | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 261 |
| " .. | Prison .. .. | Undifferend. | 310 | 150 | 3 | 13 | 30 | 6 | 11 | .. | .. | .. | 7 | 1 | 1 | 1 | 1 | .. | .. | 187 | 12 | .. | .. | 8 | 1 | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 520 |
| " .. | I. D. H. .. .. | " .. | 141 | 116 | 57 | 75 | 44 | 15 | 6 | 1 | 2 | .. | 56 | 8 | 3 | 3 | 1 | .. | .. | 156 | 50 | 7 | 1 | 43 | 2 | .. | .. | 14 | .. | .. | 4 | .. | .. | 5 | 1 | .. | .. | .. | 424 |
| " .. | Private Practitioners | European .. | 136 | 4 | 1 | 1 | 2 | 2 | 2 | .. | .. | .. | 6 | 1 | 3 | 1 | .. | .. | .. | 12 | .. | .. | .. | 11 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 159 |
| " .. | " " | Asian .. | 21 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 23 |
| " .. | Miscellaneous .. | Undifferend. | 131 | 87 | 39 | 59 | 55 | 5 | 4 | 2 | 2 | .. | 37 | 15 | 6 | 7 | 1 | .. | .. | 165 | 44 | 7 | 1 | 63 | 6 | .. | .. | 21 | 1 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | 441 |
| " .. | Dispensary .. | Native .. | 5 | 4 | 2 | 7 | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 1 | .. | .. | 11 | 3 | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 21 |
| | Total from Nairobi | .. .. | 2,514 | 1,560 | 633 | 1,378 | 886 | 131 | 179 | 17 | 12 | 1 | 228 | 33 | 39 | 16 | 19 | .. | 1 | 2,036 | 869 | 272 | 53 | 216 | 11 | .. | .. | 88 | 2 | .. | 25 | .. | .. | 10 | 3 | 2 | 2 | 1 | 6,102 |
| Mombasa | Native Hospital— Out-patients | Asians and Africans .. | 584 | 679 | 906 | 1,283 | 1,297 | 255 | 109 | 6 | 7 | 3 | 189 | 19 | 6 | 22 | 15 | 7 | .. | 668 | 229 | 434 | 66 | 84 | 4 | .. | .. | 83 | 2 | .. | 52 | 5 | .. | 14 | 1 | .. | 3 | 6 | 2,935 |
| " | " " | Asians and Africans .. | 5 | 1 | 5 | 10 | 12 | 2 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 9 | 7 | 2 | .. | . | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 24 |
| " | Govenment Officials | European .. | 62 | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | 2 | 1 | .. | .. | 1 | .. | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 67 |
| " | " " | Asian .. | 49 | .. | 7 | 7 | 12 | .. | 2 | 2 | 3 | .. | 5 | .. | .. | 4 | 2 | 1 | .. | 12 | 6 | 2 | .. | 10 | .. | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 81 |
| " | M.O.H. .. " .. | Asian and African .. | 19 | 6 | 26 | 24 | 49 | 5 | 3 | .. | .. | .. | 15 | .. | .. | 1 | .. | 1 | .. | 7 | 17 | 11 | 1 | 4 | 1 | .. | .. | 7 | .. | .. | 3 | .. | .. | 1 | .. | .. | .. | .. | 71 |
| " | European Hospital— | European .. | 64 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | 1 | .. | 1 | 4 | 2 | .. | 1 | .. | .. | .. | 9 | .. | .. | .. | ... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 74 |
| " | Goal .. .. .. | Asian and African .. | 64 | 40 | 65 | 78 | 89 | 18 | 1 | .. | .. | .. | 13 | .. | .. | 2 | 1 | .. | .. | 63 | 64 | 27 | 2 | 9 | .. | .. | .. | .. | .. | .. | 4 | .. | .. | 2 | .. | .. | 1 | .. | 236 |
| " | I. D. H. .. .. | Asian and African .. | 65 | 26 | 48 | 69 | 69 | 11 | 6 | .. | .. | .. | 22 | 4 | .. | 1 | 5 | 1 | .. | 44 | 44 | 22 | 1 | 12 | 2 | .. | .. | 5 | 3 | .. | 5 | .. | .. | 1 | .. | .. | .. | .. | 204 |
| " | Schools .. .. | Arab and Africans.. | 94 | 8 | 228 | 99 | 226 | 13 | 1 | 1 | 5 | .. | 48 | .. | .. | 4 | .. | .. | .. | 129 | 132 | 35 | 2 | 6 | .. | .. | .. | 21 | .. | .. | 21 | .. | .. | 4 | .. | .. | .. | .. | 444 |
| " | Private Practitioners | European .. | 80 | 1 | 1 | .. | 2 | .. | .. | .. | .. | .. | 2 | 1 | .. | 2 | 5 | 2 | .. | 2 | 1 | .. | .. | 10 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 49 |
| " | " " | Asian .. | 4 | .. | .. | 2 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 | 1 | .. | .. | 1 | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7 |
| | Total from Mombasa | .. .. | 1,090 | 761 | 1,287 | 1,552 | 1,245 | 304 | 128 | 9 | 15 | 3 | 298 | 25 | 6 | 38 | 35 | 15 | .. | 777 | 1,201 | 533 | 72 | 148 | 9 | .. | .. | 119 | 5 | .. | 86 | 5 | .. | 22 | 1 | .. | .. | 6 | 4,237 |
| | GRAND TOTAL .. | .. .. | 6,304 | 2,321 | 1 920 | 2,950 | 2,269 | 435 | 301 | 26 | 27 | 4 | 526 | 58 | 45 | 54 | 54 | 15 | 1 | 2,265 | 2,170 | 805 | 125 | 364 | 20 | .. | .. | 207 | 7 | .. | 111 | 5 | .. | 32 | 4 | .. | 1 | 7 | 10,339 |

## G.—MALARIA SURVEY.

The following table shows the number of slides examined since this Section was opened in June, 1929, together with the Districts from which they came and the results obtained

| District | No. of Slides Examined | Single Infection | | | Mixed Infections | | | Thick Films Positive for Malaria | Total Positive for Malaria Parasites | Gametocytes | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Subtertian | Quartan | Benign Tertian | Subtertian and Quartan | Subtertian and Benign Tertian | Quartan and Benign Tertian | | | Subtertian | Quartan | Benign Tertian |
| Eldoret .. .. .. .. .. .. | 180 | 22 | 7 | .. | 2 | .. | .. | .. | 31 | 2 | 2 | — |
| Kisii .. .. .. .. .. .. | 129 | 21 | 2 | 1 | .. | .. | .. | 13 | 37 | — | — | — |
| Kitale .. .. .. .. .. .. | 1,026 | 135 | 46 | 1 | 16 | .. | .. | 52 | 250 | 5 | 2 | — |
| Machakos .. .. .. .. .. | 1,131 | 110 | 8 | 1 | 2 | .. | .. | .. | 121 | 2 | g1 | — |
| Miscellaneous .. .. .. .. .. | 149 | 10 | 1 | 1 | .. | .. | .. | .. | 12 | — | — | — |
| Taveta .. .. .. .. .. .. | 187 | 38 | 4 | 8 | 8 | 2 | 2 | .. | 62 | — | — | — |
| Teita .. .. .. .. .. .. | 517 | 65 | 17 | 1 | 4 | 1 | .. | .. | 88 | 3 | 4 | — |
| Total .. .. | 3,319 | 401 | 85 | 13 | 32 | 3 | 2 | 65 | 601 | 12 | 9 | — |

## H.—SECTION OF MEDICAL ENTOMOLOGY.

1.—Organisation.

In July Mr. G. H. E. Hopkins transferred to Uganda. He has not yet been replaced, so that the greatest difficulty has been experienced in coping with the work that had been started.

A laboratory assistant, Mr. McMahon, arrived from England on August 4th, and although not an entomological assistant, he has settled down in this branch extremely well.

We have been unfortunate with the field assistant posted for work in the Uasin Gishu district. The selection of enthusiastic young men for field mosquito work is not easy. The present temporary nature of the posts is not only a deterrent to suitable applicants, but it prevents men when chosen from giving their best.

No great changes have occurred in the African staff. Fluctuations have occurred from time to time as in the past, but we are very gradually acquiring a staff of greater permanence than formerly.

2.—Mosquitoes and Malaria.

(*a*) Investigations have been carried out in the following places:—Nairobi, Fort Hall, Kiambu, Kisii, Mombasa, Eldoret, Uasin Gishu district, Kitale, Trans Nzoia district, Voi, Taveta, Teita, Kericho, Limoru, Kikuyu, Nyeri, Nanyuki, Isiolo and the Mombasa mainland. Only in a few of these districts have we been able to carry out intensive work.

(*b*) In Nairobi a close watch has been kept on mosquito activity by continuous larval and adult catching over the Municipal area. It is considered that this work should continue.

(*c*) A trained adult catcher has been stationed at Mombasa throughout the year for systematic house searches. His reports enable the Medical Officer of Health to investigate every occurrence of Anopheline mosquitoes, and his records give valuable data on Anopheline activity in Mombasa.

(*d*) At Kisii, Kakamega and Kisumu, trained boys have been stationed for larval and adult spotting. They report findings to the medical officer in charge, and submit their material and records to Nairobi.

(*e*) At Kitale and in the Trans Nzoia district, one European field assistant with a squad of trained boys and lorry, has made periodic surveys of the township and selected farms, throughout the year. The results of these investigations will be presented in a separate report. The value of the work lies not only in the data obtained, but in the actual contact with settlers on their own farms, and practical demonstrations on the spot of Anopheline breeding and habits, and of simple control measures. The field assistant has worked in co-operation with the farm medical officer, Trans Nzoia, who has thus been able to make use of the data provided by the mosquito surveys.

In the township area the surveys have been of considerable value to the Medical Officer of Health in his efforts at control.

In September an experiment in paris green control was commenced in Kitale township. For this purpose an additional field assistant was appointed and trained. Kitale was chosen for this experiment because of its many jungle-covered streams that cannot be oiled, the permanent treatment of which would be extremely costly. With very little effort all these streams can be treated with paris green. There are drawbacks, however, which have not yet been eliminated. The active mosquito season in Kitale is during the wet season, and the frequent heavy rains render useless much of the paris green. Great difficulty too is being experienced in obtaining a suitable dust. All road dust was found to be too coarse and heavy. Wood ash was eventually adopted, but we find that this is rather too light: it remains on the surface of the water too long. Larvae devour large quantities of ash with only small proportions of paris green. The kill is therefore not by any means perfect at the moment. Attempts will be made to correct this early in next year.

(*f*) A third field assistant started work in Eldoret and the Uasin Gishu area in November of last year. Our results here, however, have been below expectations owing to failure to obtain a suitable man.

(*g*) Continuous observations have been made at Taveta throughout the year, by trained boys. The main point of interest is that there is an *A. costalis* seasons during the long rains—a superimposed *costalis* infestation on the general intense *funestus* one.

How this affects the incidence of malaria is not yet known, but the dispensary figures suggest that it leads to an increase of cases amongst the people dwelling outside the forest belt. This is to be anticipated since this community is not influenced to a great extent by the continuous *funestus* infestation in the forest.

It is hoped to keep a closer watch on developments in this area during next year.

The role of *A. funestus* in Kenya is not known. It has been found naturally infected in the Trans Nzoia, and, as it appears to be more numerous in blackwater areas than in others, its association with quartan malaria requires to be investigated. The immediate enquiry at Taveta would appear to be the influence of a wet season *A. costalis* infestation upon a high degree of endemic malaria apparently resulting from continuous intense *A. funestus* production.

(*h*) Mosquito surveys have been carried out at Limoru, Kikuyu, Nyeri and Nanyuki—all areas above 6,000 feet altitude. As far as we have been able to ascertain, there is no endemic malaria in these places, and our catches up to the moment have yielded no *A. costalis* and only one or two doubtful *A. funestus* (from Nyeri). That altitude is not in itself the factor antagonistic to *malaria* and its transmitters is obvious since both have occurred at 6,600 feet in other districts. This line of enquiry will be continued.

During April, May and part of June, Colonel S. P. James was accompanied on his tour of investigation to Nakuru, Eldoret, Kitale and district.

Additions to our list of anophelines discovered during the year are *A. nili* (confirmed) from the Lumi River and one place in the Trans Nzoia; a variety of *A. transvaalensis* or a new species from Kakamega and Kericho, and a variety of *A. natalensis* or new species from the Trans Nzoia. *A. ardensis* occurs at Taveta.

Investigations on the oxygen absorption of natural waters as an indication of organic nitrogen present in anopheline breeding grounds have been carried out during the year. Some 400 tests have been made by Dr. Harvey, the Biochemist, and the results will be presented in a special report.

3.—Fleas and Plague.

Rat and flea catches have been made in Nairobi and the surrounding area during the year. The investigations started on field rodents in the Kiambu area were transferred to a more accessible area near Nairobi, after the departure of Mr. Hopkins.

Counts of foetuses of all female rats caught by the Medical Officers of Health in Mombasa and Nairobi were commenced in November. It is hoped these will indicate the breeding seasons of *Rattus rattus*—a point that still remains obscure.

A brief paper on the Epidemiology of Plague in West, East Central and East African territories was submitted in December.

4.—Tsetse Fly and Sleeping Sickness.

In May and June an investigation of tsetse was undertaken in the Kaniakela location on the north bank of the Kuja River in South Kavirondo. Considerable infection had been reported here for some months previously. A report was submitted in June embodying the following recommendations:—

(*a*) The readjustment of villages in the zone worst infected.

(*b*) Clearing of certain watering places and crossings.

(*c*) Immediate afforestation schemes in areas selected, to supply poles for hut building. This would break most of the contact between fly and population, since the search for hut poles along the infested river banks appears to have been responsible for most of the infection.

It is emphasised again that well-planned economic development—agricultural, veterinary and forestry—is urgently necessary in sleeping sickness areas, as the most important measure of control.

5.—General.

(*a*) Meteorological screens with necessary instruments have been set up in Kitale, Eldoret, Kisii and Kendu. Other stations will be equipped in the new year. It is hoped that this will lead to a greater interest in climate as a factor in the incidence of disease and provide essential information for the study of our major problems.

(*b*) Exhibits were set up at the Baby Week Exhibition in Mombasa in October, and at the Nakuru Show in December.

(*c*) Requests have been made by District Officers to be provided with showcases of arthropods of medical and veterinary interest for the use of themselves and their staff. Cases have now been obtained. They will be fitted and issued to stations as soon as possible.

(*d*) At the request of the General Manager, Kenya and Uganda Railways and Harbours, considerable time was spent on experiments connected with the fumigation of railway passenger coaches. A special report has been submitted, and many of its recommendations have been adopted.

## I.—BIOCHEMICAL SECTION.

The organization in this section remained the same during the year.

1.—Routine Work.

The following table gives the nature and number of the biochemical examinations made during the year; the numbers show a considerable increase compared with those of the previous year, which totalled 328 :—

| | |
|---|---|
| *(a) Urines.* | |
| General examination, i.e., reaction, specific gravity, sugar, albumin and microscopic examination of deposit ... | 550 |
| Albumin and sugar only ... ... ... ... ... | 66 |
| Microscopic examination only ... ... ... ... ... | 21 |
| Urea concentration test (McLean) ... ... ... ... | 9 |
| Ehrlich's diazo reaction ... ... ... ... ... ... | 3 |
| Ammonia coefficient ... ... ... ... ... ... | 1 |
| *(b) Faeces.* | |
| Occult blood ... ... ... ... ... ... ... | 49 |
| Fat content ... ... ... ... ... ... ... | 2 |
| Bile salts ... ... ... ... ... ... ... ... | 1 |
| *(c) Blood.* | |
| Sugar tolerance curves ... ... ... ... ... ... | 17 |
| Non-protein nitrogen ... ... ... ... ... ... | 15 |
| Van den Bergh tests ... ... ... ... ... ... | 5 |
| Laevulose hepatic efficiency test... ... ... ... ... | 2 |
| *(d) Miscellaneous.* | |
| Fractional test meals ... ... ... ... ... ... | 23 |
| Cerebro-spinal Fluid ... ... ... ... ... ... | 4 |
| Human milk samples ... ... ... ... ... ... | 3 |
| Ascitic fluid ... ... ... ... ... ... ... | 2 |
| Total number of examinations ... | 773 |

The preparation of metallic bismuth for the treatment of yaws and syphilis was continued, and it is now being produced on a large scale for the needs of the Colony.

2.—Research Work.

Experimental work in connexion with the nutrition of the native of Kenya has been continued as follows :—

(*a*) The almost universal prevalence of intestinal helminths suggested that there might be some adverse effect on the absorption and retention of the small amounts of calcium normally present in the diet. In order to test this theory a metabolic experiment was conducted at Nairobi Prison with five subjects infected with Taenia, but no improvement was found in the retention of calcium after deparasitisation as compared with that while the parasites were present in the intestine.

(*b*) Early in the year there existed in the Colony a shortage of maize meal, and the possibility arose of the utilisation of quantities of wheat flour as an addition to the stocks of maize meal in hand. The wheat flour available contained a considerable proportion of bran, and a short experiment was conducted at Nairobi Prison to find whether or not this would produce digestive disturbances. During the five weeks of the experiment no adverse effects were found amongst the ten subjects who received a 20 per cent addition, and they increased in weight more rapidly than did five subjects who were retained as controls.

(*c*) With the co-operation of the Pathologist a series of liver-efficiency tests were carried out on twenty-four prisoners from Nairobi Prison, using the laevulose tolerance test. It is hoped that this work may be extended before the publication of the results.

Thanks are due to the authorities at Nairobi Prison for the readiness with which they have afforded facilities for the carrying out of these experiments.

(*d*) The large scale feeding experiment started in August, 1928, at Kabete Reformatory, with the assistance of a grant from the Civil Research Council of the Empire Marketing Board, was concluded on 2nd March, and the results have been communicated to the Council. Acknowledgement must be made in this connexion of the very great assistance afforded by the Superintendent of the Reformatory in the way of personal supervision of the feeding throughout the experiment.

(*e*) The recent work on nutrition in this country has paid special attention to the mineral constituents of the diet. With the object of obtaining some information on the vitamin content of local foodstuffs, an attempt has been made to find a suitable basal diet to which additions might be made. This work is being continued in 1930, and will be reported in due course.

With the co-operation of the Medical Entomologist, work was started in January and continued throughout the year on the relationship between the organic content of certain waters as measured by the oxygen absorbed from acid permanganate solution, and the types of mosquitoes which were found to occur. A large number of analyses have been carried out, and the results will be reported elsewhere.

## J.—LIST OF SAMPLES EXAMINED BY THE GOVERNMENT ANALYST, 1929.

| | | |
|---|---|---|
| *Toxicological Examinations* ... ... ... ... ... | | 58 |
| *Forensic Chemistry Examinations* ... ... ... ... | | 62 |
| *Waters*—Domestic and Industrial... ... ... ... ... | | 55 |
| *Milks*—Public Health Control ... ... ... ... ... | | 53 |
| Percentage adulterated :— | | |
| (0–5 per cent added water) ... ... | 2 per cent | |
| (5–10 per cent added water) ... ... | 15 per cent | |
| (10–15 per cent added water) ... ... | 9 per cent | |
| (15–20 per cent added water) ... ... | 15 per cent | |
| (20–30 per cent added water) ... ... | 2 per cent | |
| (45–50 per cent added water) ... ... | 2 per cent | |
| (50–60 per cent added water) ... ... | 2 per cent | |
| | 47 per cent | |
| Milk, Human ... ... ... ... ... ... ... | | 2 |
| Milk, Condensed ... ... ... ... ... ... | | 3 |
| Native Beer ... ... ... ... ... ... ... | | 10 |
| Maize and Maize Meal (all condemned) ... ... ... | | 15 |
| Minerals ... ... ... ... ... ... ... ... | | 16 |
| Butters ... ... ... ... ... ... ... ... | | 6 |
| Cotton ... ... ... ... ... ... ... ... | | 5 |
| Wattle Extracts ... ... ... ... ... ... ... | | 7 |
| Miscellaneous ... ... ... ... ... ... ... | | 25 |

# APPENDIX I.

## REPORT OF CLINICAL LABORATORY, NATIVE HOSPITALS, MOMBASA, FOR 1929.

During the year 1929 a total number of 14,922 specimens were received and dealt with in the Laboratory. Of these, 5,005 were examinations of human blood; 4,237 were examinations of faeces; 4,401 smears from rats were examined for the presence of plague bacilli, while the remaining 1,279 specimens were divided up between serological and bacteriological examinations, particulars of which will be found in the following detailed account.

On account of private examinations carried out the sum of £176 was realized.

The following is a detailed summary of the work carried out :—

*Blood (Human).* 5,005 *Examinations.*

| | |
|---|---|
| Differential Leucocyte Count only | 285 |
| Total Blood Counts, etc. | 62 |
| Negative | 3,619 |
| P. falciparum | 870 |
| P. malariae | 63 |
| P. vivax | 42 |
| Sheathed Micro-filariae | 9 |
| Unsheathed Micro-filariae | 55 |
| *Total* | 5,005 |

The following table shows the number of times in which each individual helminth and protozoon appeared in the total number of specimens of faeces examined during the year.

*Faeces.* 4,237 *Examinations.*

| | |
|---|---|
| Negative | 1,090 |
| Ascaris lumbricoides | 1,287 |
| Taenia saginata | 761 |
| Ancylostoma duodenale | 1,572 |
| Trichuris trichuria | 1,758 |
| Strongyloides stercoralis | 304 |
| Schistosoma mansoni | 122 |
| Oxyuris vermicularis | 9 |
| Hymenolepis nana | 15 |
| Schistosoma haematobium | 3 |
| Entamoeba coli | 298 |
| Iodamoeba butschlii | 25 |
| Flagellates (Undiff.) | 6 |
| Giardia intestinalis | 38 |
| Entamoeba histolytica | 35 |
| Entamoeba nana | 15 |

*Serological Examinations.*

During the year 175 agglutination tests were performed on sera against B. typhosus, B. paratyphosus A., and B. paratyphosus B. The following are the results :—

| | |
|---|---|
| Positive Sera | 42 |
| Negative Sera | 133 |
| *Total* | 175 |

*Single culture agglutinated.*

| | |
|---|---|
| B. typhosus | 17 |
| B. paratyphosus A | 4 |
| B. paratyphosus B | 2 |
| *Total* | 23 |

*Two cultures agglutinated.*

| | |
|---|---|
| B. typhosus and B. paratyphosus A ... ... ... ... | 6 |
| B. typhosus and B. paratyphosus B ... ... ... ... | 5 |
| B. Paratyphosus A and B ... ... ... ... ... | 4 |
| *Total* ... ... | 15 |

*Three cultures agglutinated.*

| | |
|---|---|
| B. typhosus, B. paratyphosus A and B ... ... ... | 4 |

*Bacteriological.*

Forty specimens were received for cultural examination. These were carried out and in the event of further investigation, identification or vaccine preparation, were forwarded to Nairobi.

*Specimens received requiring microscopical examination* ... ... 551

*Anthrax.*

Out of three specimens examined, two showed the presence of *B. anthracis.* (The infected persons were employed by skin dealers.)

*Gonorrhoea.*

Seventy-six specimens of urethral exudate were examined, and *Diplococcus gonorrhoeae* was identified microscopically in twenty-four.

*Leprosy.*

Nasal scrapings were sent from twenty-eight lepers in the Infectious Diseases Hospital, and four specimens showed the presence of *B. leprae.*

*Cerebro-Spinal Fluid Examinations.*

Twenty-four specimens were sent in for examination. *D. meningitidis* was identified in four cases. Three cell counts were performed.

*Sputa.*

407 specimens of sputa were received and examined, seventy-eight of which showed the presence of *Tubercle Bacilli.*

*Miscellaneous.*

Forty pus smears from various sources were examined microscopically.

*Plague (Rodents).*

4,401 smears from rats, either trapped or found dead, were examined for the presence of *B. pestis*, all of which proved to be negative.

*Urines.*

482 specimens of urine were examined as follows :—

| | |
|---|---|
| General examination ... ... ... ... ... | 469 |
| Sugar Content ... ... ... ... ... ... | 8 |
| Albumen Content ... ... ... ... ... ... | 2 |
| Urea Content ... ... ... ... ... ... | 3 |
| *Total* ... ... | 482 |

Schistosoma haematobium was found in thirty-nine specimens.

*Water Analysis.*

Sixteen bacteriological examinations of water were performed—eleven of the Mombasa water supply, and five from various wells—the results of which were forwarded to Nairobi along with subcultures, where further cultural tests were carried out.

*Post-mortems.*

Fourteen post-mortems were performed.

*Sera for sigma reaction.*

170 specimens of sera were forwarded to Nairobi for the sigma test.

*Pathological Specimens.*

Fifty specimens were sent up to Nairobi for examination.

# APPENDIX II.

## REPORT OF CLINICAL LABORATORY, NATIVE CIVIL HOSPITAL, NAIROBI, 1929.

Some 9,000 specimens were examined during the year; the technique followed being the same as at the parent Laboratory.

The examinations fall into the various sub-headings as follows :—

*Bloods (Smears)* :—

| | |
|---|---|
| Negative ... ... ... ... ... | 4,164 |
| Sub-tertian parasites present ... ... (16 cases showed Crescents). | 260 |
| Quartan parasites present ... ... | 23 |
| Benign-tertian parasites present ... | 13 |
| Mixed infections of malaria ... ... | 6 |
| Unsheathed microfilaria ... ... | 24 |
| Spironema rossi ... ... ... ... | 16 |
| Trypanosomes ... ... ... ... | 2 |

*Blood Counts* :—

| | |
|---|---|
| Differential counts ... ... ... | 24 |
| Total counts ... ... ... ... | 24 |
| Total Leucocyte counts alone ... ... | 21 |

*Stools Examined* :—

| | |
|---|---|
| Negative ... ... ... ... ... | 1,480 |
| Ova Tænia ... ... ... ... | 1,196 |
| Ova Ascaris ... ... ... ... | 531 |
| Ova Ancylostoma ... ... ... ... | 1,210 |
| Ova Trichuris ... ... ... ... | 748 |
| Larvæ Strongyloides ... ... ... | 101 |
| Schistosoma mansoni ... ... ... | 155 |
| Schistosoma hæmatobium ... ... ... | 1 |
| Ova Oxyuris vermicularis ... ... ... | 11 |
| Ova Hymenolepis nana ... ... .. | 8 |
| E. coli ... ... ... ... ... | 117 |
| E. histolytica ... ... ... ... | 13 |
| Undifferentiated Flagellates ... ... | 23 |
| Iodamoeba butschlii ... ... ... | 6 |
| Giardia intestinalis ... ... ... | 2 |

The above table shows the number of times each parasite or egg occurred, and does not differentiate the faeces containing two or more parasites. Thus, a faeces containing, say, *ova tænia* and *ova ancylostoma* would occur twice in the table, once as *tænia* and once as *ancylostoma*. It is thought that this method of tabulation gives a clearer idea of relative incidence than that of recording single, double, treble infections, etc.

Of the 155 *S. mansoni* seen, forty cases were from the Wakamba tribe.

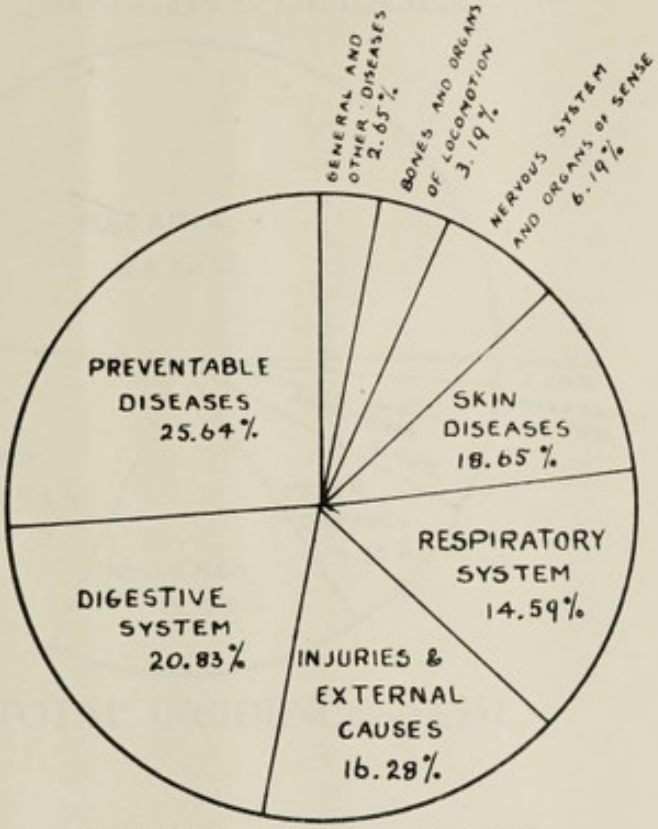
*Urines Examined.*

| | | |
|---|---|---|
| Urine Chemical Examination ... ... ... | 323 | total |
| Albumen present in ... ... ... ... | 72 | |
| Glucose present in ... ... ... ... | 16 | |
| Bile present in ... ... ... ... ... | 13 | |
| *Urine for Bilharzia* ... ... ... ... ... | 27 | |
| Positive for S. haematobium... ... ... | 10 | |
| *Sputa : Tuberculosis* ... ... ... ... ... | 379 | examined |
| Positive for tubercle bacilli ... ... ... | 14 | |
| *Smears for Bacillus leprae* ... ... ... ... | 14 | examined |
| Positive ... ... ... ... ... | 3 | |

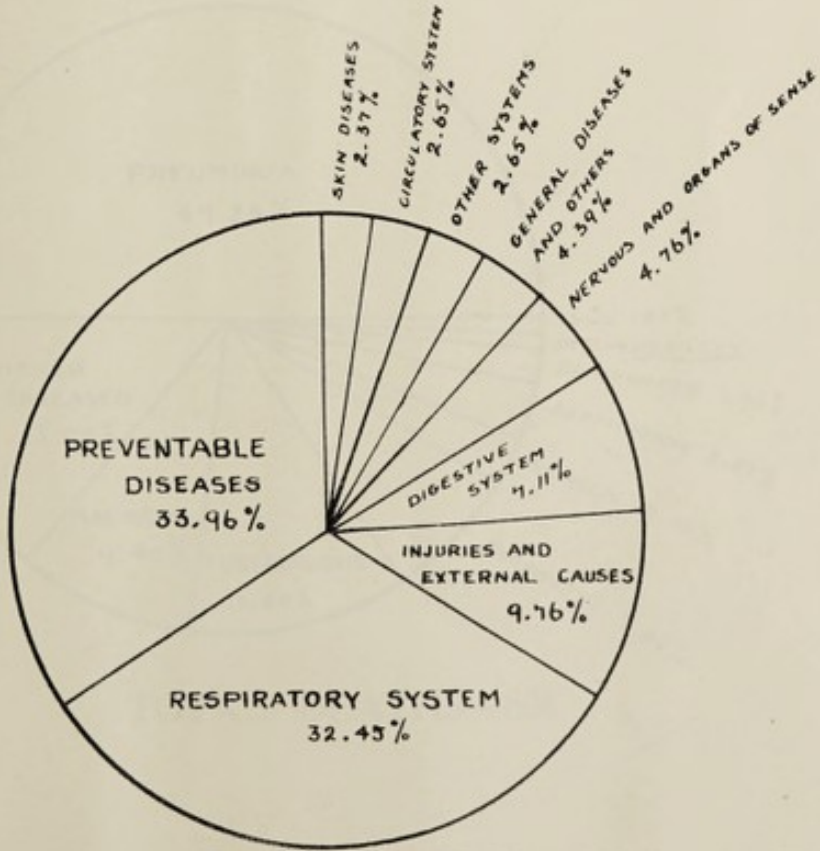
| | | |
|---|---|---|
| *Conjunctival Smears* ... ... ... ... ... | 30 | examined |
| Gonococci present in ... ... ... ... | 4 | |
| Pneumococci present in ... ... ... | 9 | |
| Koch-Weaks bacilli ... ... ... ... | 5 | |
| *Urethral Smears for Gonococci* ... ... ... ... | 76 | examined |
| Positive ... ... ... ... ... | 38 | |
| *Pus (various sources) or organisms* ... ... ... | 62 | examined |
| *Distributed as follows* :— | | |
| Pneumococci ... ... ... ... ... | 10 | |
| Streptococci ... ... ... ... ... | 7 | |
| Staphylococci ... ... ... ... ... | 8 | |
| Meningococci ... ... ... ... ... | 3 | |
| B. anthracis ... ... ... ... ... | 2 | |
| Undifferentiated Gram negative bacilli ... | 1 | |
| Undifferentiated mixed infections ... ... | 5 | |
| *Cerebro-Spinal Fluids for Organisms* ... ... ... | 18 | examined |
| Pneumococci ... ... ... ... ... | 3 | |
| Meningococci ... ... ... ... | 2 | |
| *Sputa for Pneumococci* ... ... ... ... ... | 1 | examined positive. |
| *Throat Smears for B. diphtheriae* ... ... ... | 2 | examined |
| Negative ... ... ... ... ... | 2 | |


SUDA
ABYSSINIA
ITALIAN SOMALILAND
UGANDA
TANGANYIKA TERRITORY
INDIAN OCEAN
EXTENSION FROM UGANDA
NORTHERN FRONTIER PROVINCE
TURKANA
WEST SUK
MARAKWET
BARINGO
NORTH KAVIRONDO
LAIKIPIA
NORTH NYERI
MERU
CENTRAL KAVIRONDO
KISUMU
NANDI
KERICHO
SOUTH NYERI
EMBU
SOUTH KAVIRONDO
MASAI
KITUI
MACHAKOS
FORT HALL
TANA RIVER PROVINCE
COLONY & PROTECTORATE OF KENYA
Scale 1 in 3,000,000 or 1 inch to 47·348 Miles

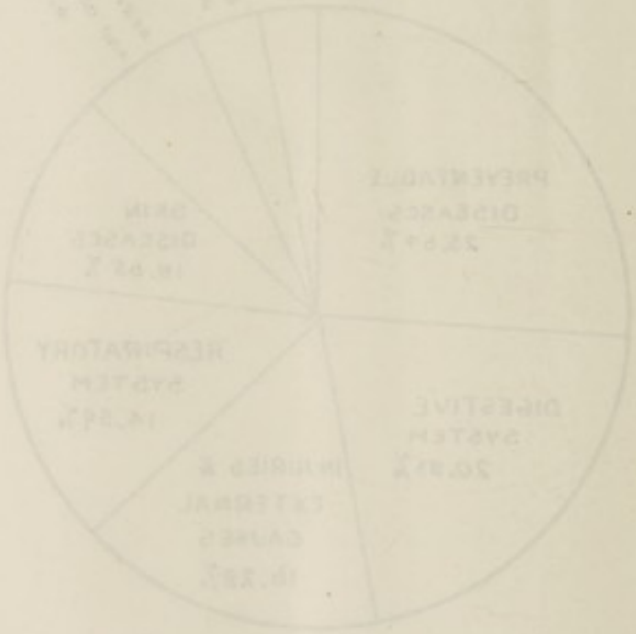
General Systemic and Preventable Diseases treated at Hospitals and Dispensaries.

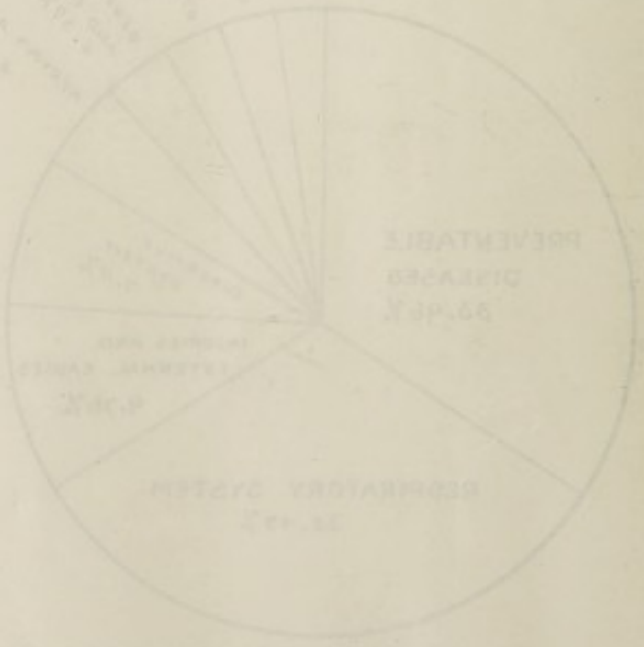



TOTAL CASES—226,122.

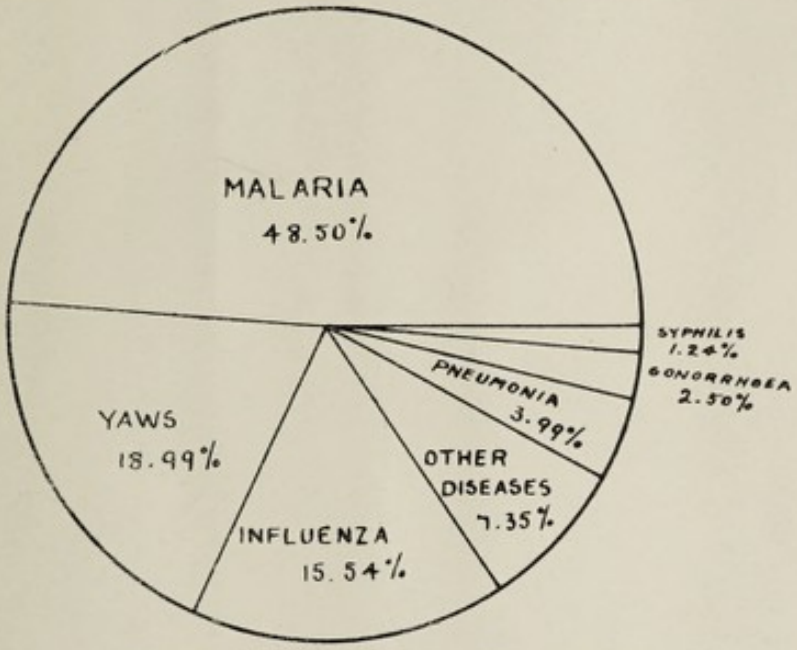



TOTAL DEATHS—1,322

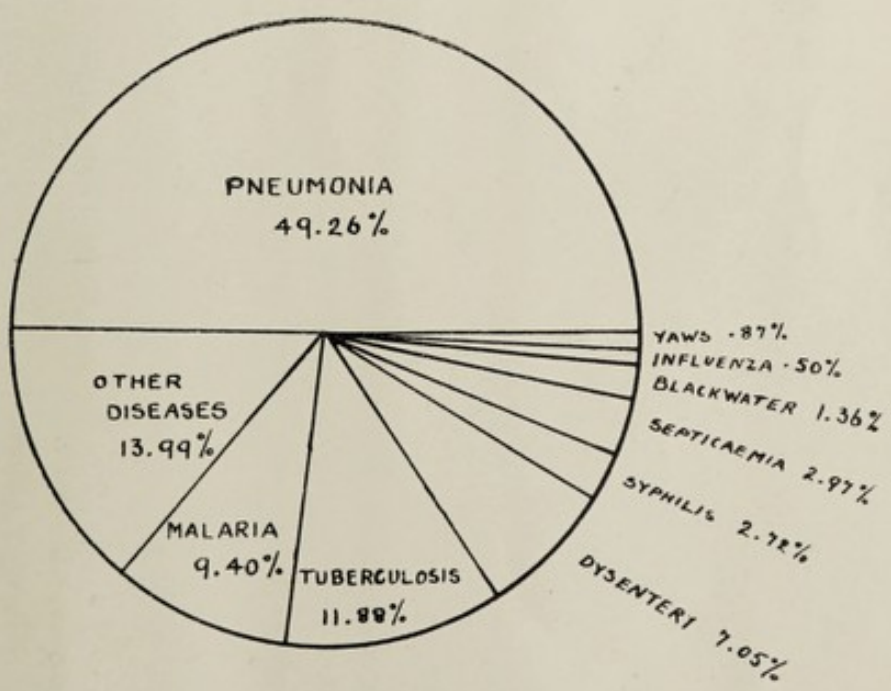




## INFECTIVE DISEASES.




TOTAL INCIDENCE—54,552.




TOTAL DEATHS—808.