Annual medical report / Colony and Protectorate of Kenya.

COLONY AND PROTECTORATE OF KENYA

MEDICAL DEPARTMENT ANNUAL REPORT 1949

INCLUDING

MEDICAL RESEARCH LABORATORY ANNUAL REPORT, 1949

INSECT-BORNE DISEASES DIVISION ANNUAL REPORT, 1949

1951
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NAIROBI, KENYA COLONY
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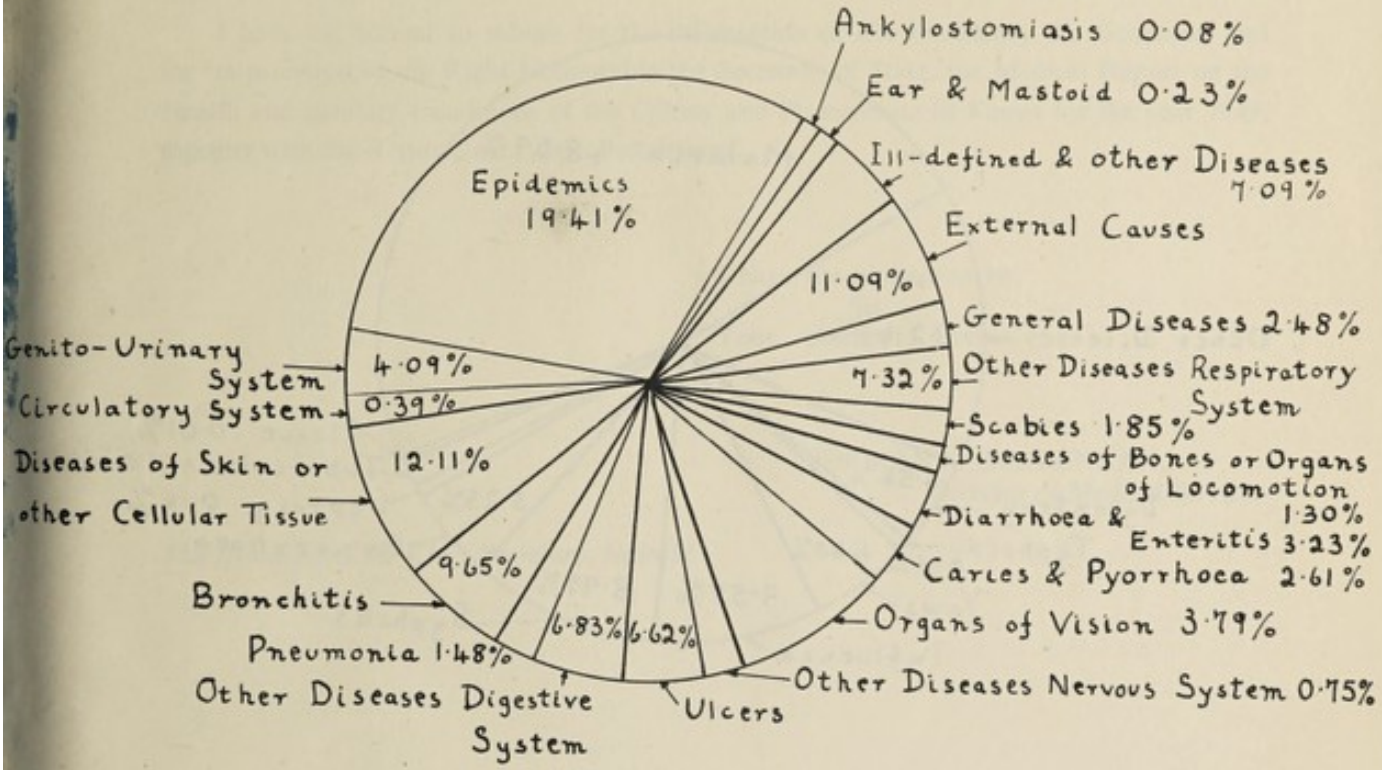
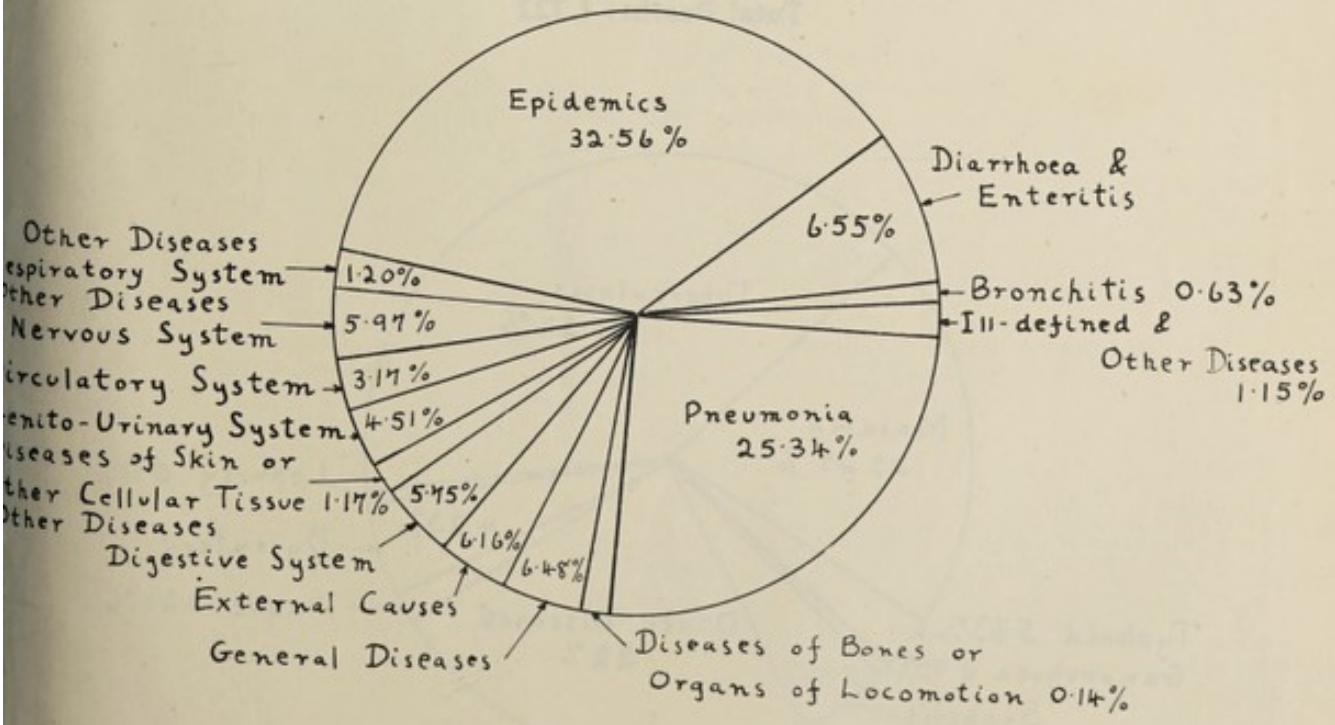
PROPORTION OF EPIDEMIC, ENDEMIC, INFECTIOUS, SYSTEMIC AND OTHER DISEASES SHOWN AS PERCENTAGES OF TOTAL CASES TREATED AT HOSPITALS AND DISPENSARIES

Total Incidence: 1,024,392



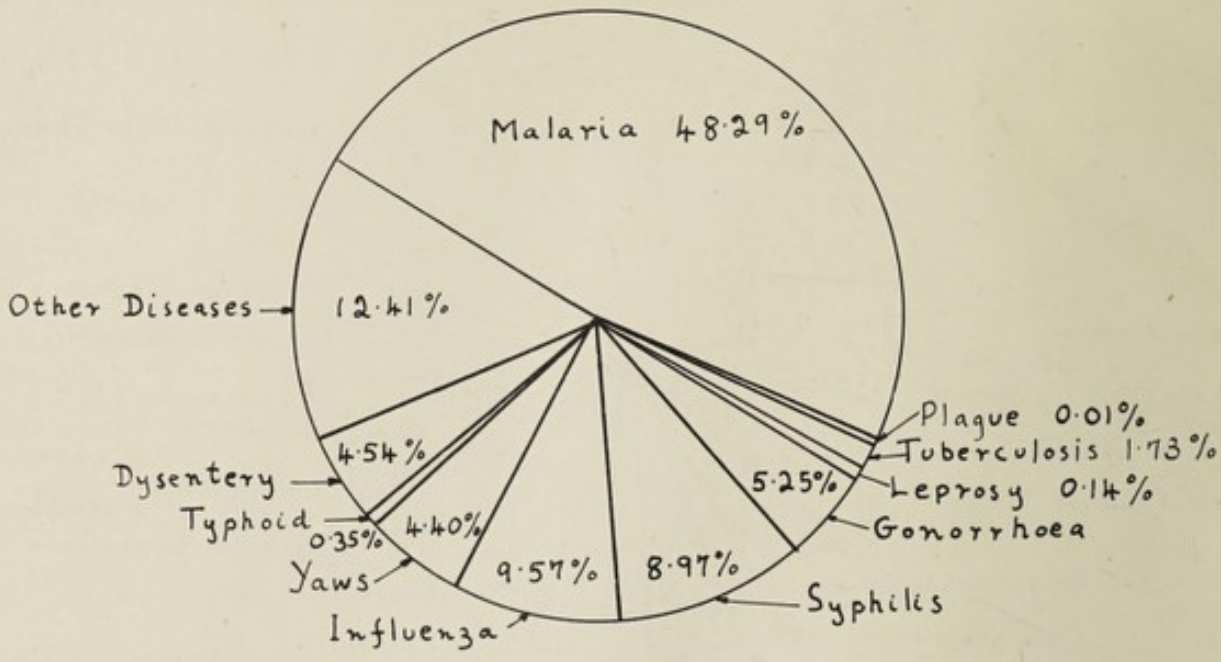
Total Deaths: 5,476



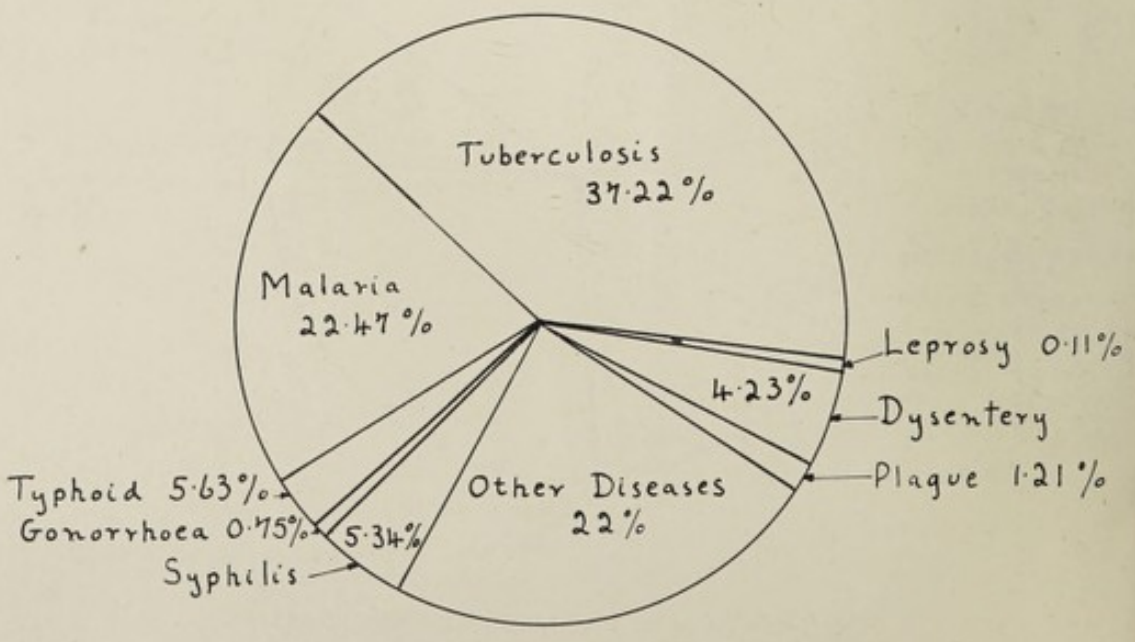
FOR INSERTION IN THE MEDICAL DEPARTMENT
1948 ANNUAL REPORT

PROPORTION IN PERCENTAGES OF EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES, IN-PATIENTS AND OUT-PATIENTS TREATED AT HOSPITALS AND DISPENSARIES

Total Incidence: 198,876



Total Deaths: 1,722



MEDICAL DEPARTMENT HEAD OFFICE,
NAIROBI.

SIR,

I have the honour to submit for the information of His Excellency the Governor, and for transmission to the Right Honourable the Secretary of State, the Medical Report on the Health and Sanitary Conditions of the Colony and Protectorate of Kenya for the year 1949, together with the Returns, etc., appended thereto.

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

NORMAN M. MACLENNAN,
Director of Medical Services

The Honourable the Chief Secretary, Nairobi.

MEDICAL DEPARTMENT ANNUAL REPORT, 1949

SECTION I

INTRODUCTORY

As can be expected in a comparatively young and undeveloped country there was no slackening in the demands for medical services from all sections of the community during the year.

The plans for the improvement of these services mentioned in the Report of the Development Committee (1946) for implementation under the Development and Reconstruction Authority had to be revised and, in some instances, curtailed—chiefly on account of increased cost, scarcity of supplies and shortages of technical staff and skilled labour. Nevertheless, considerable progress was made and much-needed accommodation augmented or provided. However, in the large majority of African hospitals, despite careful selection and restricted admissions, in-patient overcrowding presented a serious problem to such an extent that sharing of beds was not uncommon. One method of relieving pressure would appear to be the provision of hostels for cases whose claim for in-patient accommodation could only be justified on the grounds that their homes were too distant to permit of daily attendance at the hospital.

In rural areas, under the auspices of local native councils, dispensaries and maternity services continued to expand. This was particularly noticeable in the Nyanza Province where the activities of provincial and district teams comprising members of all departments concerned were very praiseworthy.

Dr. E. D. Pridie, C.M.G., D.S.O., O.B.E., M.B., B.S., Chief Medical Officer in the Colonial Office, toured the Colony in December. It is also of interest to record the visits of Professor R. C. Browne, M.A., D.M., M.R.C.P., Nuffield Professor of Industrial Health in the University of Durham, Dr. E. R. Cullinan, M.D., F.R.C.P., Physician, St. Bartholomew's Hospital and Gordon Hospital, Examiner in Medicine, University of London, and Sir Stewart Duke-Elder, K.C.V.O., M.A., M.D., F.R.C.S., Surgeon-Oculist to H.M. the King, etc., by arrangement with the Colonial Advisory Medical Committee's scheme for the provision of a Panel of Medical Visitors to Colonial Territories financed by the Nuffield Foundation. As in 1948, these visits were very welcome and had a gratifying and stimulating effect on all those with whom contacts were made.

Relations with municipal councils responsible for services in the larger urban areas such as Nairobi, Mombasa, Nakuru and Kisumu were close and cordial. The amended arrangements in respect of local native councils' services made in 1947, whereby the Central Government assumed responsibility for all curative and the majority of health measures while the councils remained responsible for capital and recurrent expenditure on maternity work and rural dispensaries continued satisfactorily. Likewise, co-operation with mission hospitals through the Christian Council of Kenya was maintained and increased subsidies were made in respect of medical supplies which can now be purchased from the departmental medical stores.

RESEARCH

In the annual report for 1948 the establishment of the East African Bureau of Research in Medicine and Hygiene and the probable appointment of its Director in 1949 was mentioned. Ths project, based on the recommendations of the late Professor E. A. McSwiney, F.R.S., to the Standing Committee on Medical Research, was set up under the East Africa High Commission. Dr. K. A. T. Martin, Deputy Director in this Department, was appointed Director and assumed duty on 1st July, 1949. Professor McSwiney formulated the main objectives of the Bureau, working in conjunction with the Colonial Medical Research Committee in the early stages, to be: —

(1) To carry out large-scale medical and sanitary surveys in selected populations.
(2) Following thereon the application of required measures to improve health.
(3) The extension of Stage 2 to a larger area.
(4) The maintenance of established conditions.
(5) The review of conditions from time to time.

Details of progress for the year will be found in the Director's Report to the Administrator for 1949. As far as this territory is concerned, two important events were the completion of surveys of the incidence of tuberculosis and leprosy. The large-scale tuberculin test survey undertaken by Dr. W. S. Haynes, Medical Officer, in 1948 was completed early in 1949 and it is hoped his valuable report will be published in 1950. His findings will be discussed elsewhere in this report, but it may be mentioned here that of some 3,132 tuberculin tests performed in urban areas on all ages and sexes 69.2 per cent showed a positive reaction to 1/1,000 old tuberculin, while using the same dilution some 17,078 tests in rural areas gave a positive figure of 41.6 per cent. In the 19–25 years age group 80 per cent of African males were positive reactors. From the information available a

conservative estimate of actual cases of tuberculosis in Kenya would be 55,000. Plans were drawn up for a pilot scheme in the Central Province where the incidence of the disease is particularly heavy.

Leprosy.—Following on the report of Dr. James Ross Innes, the Interterritorial Leprologist, a site for a leprosarium was made available near the Uganda border. In Kenya 53,814 persons were examined revealing a leprosy incidence of 10.2 per mill and the estimated number of 35,210 cases. This figure compares with the incidence in Uganda and Tanganyika at 39.5 and 14.3 respectively.

Under a Colonial Development and Welfare Research Scheme, Dr. G. A. Walton continued his investigations on *Ornithodorus moubata* in relation to relapsing fever of which mention will be made later.

A variety of subjects was investigated by the Insect-borne Diseases Division of the Medical Research Laboratory, Nairobi. Details of the work of this and also of the Laboratory Section will be found in the separate reports submitted by them. This included further work on the large-scale D.D.T. hut-spraying experiment in the Kericho District and on the vector and possible animal reservoir of relapsing fever. Large-scale measures for the control and elimination of the simulium fly vector of onchocerciasis were continued in three areas in the Nyanza Province. With one exception, these were satisfactory, but the completion of the life history of *S. neavei* still baffled investigation.

An interesting discovery was made confirming previous suspicions of an endemic focus of kala-azar in the Kitui District of Central Province.

An increasing recognition of undulant fever in Africans was noteworthy and the subject of a special report by the Medical Specialist.

The usefulness of the intensive treatment of schistosomiasis (bilharzia) with sodium antimony tartrate was successfully demonstrated in the Coast Province where the disease is most prevalent.

Dr. H. Foy and his colleague Dr. A. Kondi accepted an invitation as guest workers at the Medical Research Laboratory, Nairobi, where their research on the anæmias in Africans in this territory suggests that they fall into, at least, four fairly well defined groups. One group is apparently the classical worm anæmia, while in the other three groups evidence has been found of a maturation defect in the bone marrow. This defect cannot be attributed to peripheral bleeding of worms and may be due to a combination of parasitic infestation coupled with dietary deficiencies, the worms interfering with the synthesis, absorption or utilization of hæmopoietic factors. The exact place that diet occupies in the picture is to be investigated in Kenya among tribes that consume a diet rich in first class protein, compared with other tribes whose diet is almost entirely vegetarian.

ADMINISTRATION

The higher administration of the Department continued in the general control of the Hon. Member for Health and Local Government, enabling useful contacts to be made hitherto outside the usual range of departmental activities. At Medical Headquarters the staff was strengthened by the arrival of the Administrative Secretary and a much needed increase in the European and Asian clerical establishment. Similarly, the appointment of a Chief Pharmacist and Stores Supervisor relieved the Medical Storekeeper of duties connected with the ordering and purchase of stores and enabled him largely to confine his activities to their distribution. The scope and volume of work of this section of the Department was further extended, not only in respect of items distributed but also with regard to the number of institutions supplied. Delays and shortfalls in deliveries, especially of textiles and instruments, continued with slight improvement at the end of the year.

European Services

As mentioned in previous annual reports it was intended that the European Hospital Authority set up in 1946 would take over control of the European Hospitals at Mombasa, Nairobi and Kisumu, at present administered by this Department as well as cottage hospitals managed by local non-Government committees. However, the only departmental hospital taken over was at Mombasa, although a committee for the Nairobi institution was appointed. Generally speaking, in-patient accommodation at all hospitals was inadequate. This was particularly the case in Nairobi where the 54-bed institution was unable to meet demands with the result that many patients had to be nursed in their own homes. However, this difficulty was partially offset by private district nurses affording domiciliary services by arrangement with this Department. Similarly, good progress was made with the new 54-bed wing at Mombasa adjoining the existing hospital.

Asian Services

Following prolonged discussions with all sections of the Asiatic community in Nairobi, at the end of the year full agreement was reached and sketch plans drawn for the erection of

a 123-bed hospital in the vicinity of the new African section of the Group Hospital. This institution will include an out-patient clinic, an X-ray department and a maternity wing, the whole also forming a suitable nucleus for the projected training of Asiatic nurses and midwives under the ægis of the newly formed Nursing and Midwives Council of Kenya.

A sum of £60,000 from the Ismail Rahimtulla Valji Hirji bequest became available and should materially assist in allaying the costs of construction estimated to total £150,000.

At Nakuru an 18-bed hospital built on a £ for £ basis between Government and the local Indian community was opened.

African Services

An important event was the opening of the 320-bed medical block of the African section of the Group Hospital, Nairobi. The main structure of the 300-bed surgical block was completed but delay in the completion of the operating theatre annexe prevented its occupation. The transfer of patients from the old hospital to the new medical block only served to relieve pressure there for surgical cases and for the overflow from the Orthopædic Centre. This orthopædic section of the surgical unit which was originally planned to cater for the needs of ex-soldiers has deservedly earned an interterritorial reputation for outstanding work.

The main trend of policy was in the further development of health centres and a good beginning was made with the construction of one in the Nyanza and another in the Rift Valley Provinces, while sites for two others were provisionally selected and funds earmarked. These centres are basically to be staffed by a Medical Officer of Health, and a European Health Visitor and a Health Inspector. It is intended that subsidiary health centres should be developed from existing dispensaries at which special emphasis will be laid on social medicine and domiciliary services.

While, as noted earlier, demands for increased services continue unabated, it has become increasingly apparent that some additional means of financing them must be forthcoming. For a time it has been felt that some payment for services could well be made by a majority of patients. With this in view a committee examined the possibilities of some such system and recommended the setting up of a pilot scheme on an experimental basis in one of the larger towns. Any such scheme would have to await the erection of additional out-patient facilities because those now present could not provide the accommodation necessary. A recommendation was also made in respect of in-patient paying wards and it was decided this could be given a trial without any increase in the existing number of beds.

Other buildings completed at the Group Hospital, Nairobi, included five two-storied blocks of flats each containing eight quarters so that the Africans now housed there are 450 excluding dependants. Generally speaking, the chief emphasis with regard to buildings has been on the provision of staff quarters. In the Central Province a ten-bedded isolation ward and an eight-bedded general ward were completed. At Kerugoya a new out-patient block was occupied. At Fort Hall additional staff quarters were provided, while maternity sections were erected by local native councils at Meru hospital and Muriranjas. At Nakuru, in the Rift Valley Province, four two-roomed and eight one-roomed quarters were completed, thereby enabling the majority of African staff to live on the premises. A dwelling for an African Assistant Medical Officer was also provided. Here the erection of the new Indian hospital released 20 beds for Africans, thereby increasing the normal accommodation to 255. Nevertheless, against this, the average daily in-patient figure of 358.8 for the year makes somewhat alarming reading. At Kitale electricity was provided throughout the hospital. At Eldoret overcrowding was serious and a factor hindering discharge was the delay on the part of employers, usually farmers, in collecting their employees.

In the Coast Province few or no hospital buildings were erected, but plans for the new Mombasa hospital were made. In the Nyanza Province hospital overcrowding was also noteworthy. For example, at Kericho the in-patient figure for the 95-bed hospital was usually 160–190, and even as high as 225, but no additional accommodation could be provided.

STAFF

As indicated earlier Dr. K. A. T. Martin, Deputy Director of Medical Services, retired to take up an appointment as Director of the East African Bureau of Research in Medicine and Hygiene with effect from 1st July, 1949. He was relieved by Dr. T. Farnworth Anderson, O.B.E., on transfer from British Somaliland, later appointed Director of Medical Services in November in place of Dr. N. M. MacLennan, who proceeded on leave pending retirement. Dr. C. R. Philip, Deputy Director of Medical Services (Supernumerary), also retired, while Dr. E. A. Trim, Senior Medical Officer, was promoted as Assistant Director of Medical Services. In addition two Senior Medical Officers retired and one was invalided.

As in 1948, recruitment of European medical staff, especially medical officers, continued at low level and caused great concern. Dr. H. G. Turner, Assistant Secretary of the British Medical Association, visited the East African territories in connexion with conditions of service, and on his return to London negotiations continued between that Association and the Colonial Office regarding improved conditions of service. A Services Committee of the Kenya Branch of the British Medical Association came into being and discussed this question with the Member for Health and Local Government and Director of Establishments. The adverse situation was relieved to some extent by the employment of Temporary Medical Officers whose postings, however, had to be restricted to the larger centres.

Another adverse factor in recruitment was the acute shortage of housing, and this appeared to deter applicants who had to be warned of the position to the extent that in many cases their dependants could not accompany them. Turning to African Assistant Medical Officers, only one graduate from the Medical School at Makerere College arrived, thereby increasing the total cadre to ten. Under present circumstances the maximum output for Kenya over the next four years is only five. This figure, added to the present cadre of ten already in the Department, would provide a total of 15 over a period of 14 years. Thus, compared with Uganda with 60 officers of this category, the disparity is only too evident and is generally held to be due to lower educational standards. This is a serious matter where the development of the medical services of the Colony is concerned, especially when its finances could not afford a comparable complement of European doctors.

The following tables indicate the categories and distribution of staff at different centres and areas and also gives the bed strength at the larger hospitals as well as a summary of hospital accommodation:—

TABLE I—MEDICAL HEADQUARTERS AND OTHER ESTABLISHMENTS IN NAIROBI (EXCLUDING HOSPITALS)

	Medical Headquarters	Medical Stores	General Dispensary	Loco Dispensary and Sandiford Road Clinic	Fort Hall Road Dispensary	Shauri Moyo Dispensary	Railway Dispensary	Medical Training Depot	Medical Research Laboratory	School Medical Service	Tuberculosis Survey
Director of Medical Services	1	—	—	—	—	—	—	—	—	—	—
Deputy Director of Medical Services	1	—	—	—	—	—	—	—	—	—	—
Assistant Director of Medical Services	2	—	—	—	—	—	—	—	—	—	—
Chief Health Inspector	1	—	—	—	—	—	—	—	—	—	—
Administrative Secretary	1	—	—	—	—	—	—	—	—	—	—
Accountant	1	—	—	—	—	—	—	—	—	—	—
Chief Pharmacist & Stores Supervisor	1	—	—	—	—	—	—	—	—	—	—
Medical Storekeeper	—	1	—	—	—	—	—	—	—	—	—
Assistant Medical Storekeeper	—	1	—	—	—	—	—	—	—	—	—
Officer i/c Records	1	—	—	—	—	—	—	—	—	—	—
Clerks (European)	8	—	—	—	—	—	—	—	1	—	—
Senior Specialist (Surgical)	1	—	—	—	—	—	—	—	—	—	—
Specialist Ophthalmic	1	—	—	—	—	—	—	—	—	—	—
Specialist (Anæsthetist) Acting	1	—	—	—	—	—	—	—	—	—	—
Specialist (Surgical)	1	—	—	—	—	—	—	—	—	—	—
Specialist (Medical)	1	—	—	—	—	—	—	—	—	—	—
Radiologist	1	—	—	—	—	—	—	—	—	—	—
Senior Medical Officer	—	—	—	—	—	—	—	1	—	—	—
Medical Officers	—	—	1	—	—	—	1	—	—	1	1
Instructor of Hygiene	—	—	—	—	—	—	—	1	—	—	—
Wardmaster	—	—	1	—	—	—	—	1	—	—	—
Matron-in-Chief	1	—	—	—	—	—	—	—	—	—	—
Nursing Sisters	—	—	1	—	—	—	2	—	—	—	1
Assistant Director of Laboratory Services	—	—	—	—	—	—	—	—	1	—	—
Senior Parasitologist	—	—	—	—	—	—	—	—	1	—	—
Pathologists	—	—	—	—	—	—	—	—	2	—	—
Biochemist	—	—	—	—	—	—	—	—	1	—	—
Entomologist	—	—	—	—	—	—	—	—	1	—	—
Laboratory Superintendent	—	—	—	—	—	—	—	—	1	—	—
Laboratory Technicians	—	—	—	—	—	—	—	—	7	—	—
Entomological Field Officers	—	—	—	—	—	—	—	—	2	—	—
Librarian	—	—	—	—	—	—	—	—	1	—	—
Asian Dental Officer	—	—	1	—	—	—	—	—	—	—	—
Senior and Assistant Surgeons	—	—	4	1	1	—	—	—	—	—	—
Laboratory Assistants (Asian)	—	—	—	—	—	—	—	—	—	—	—
Issuers of Medical Stores	—	1	1	—	—	—	—	—	—	—	—
Compounders	—	1	2	—	—	—	—	—	—	—	—
Clerks (Asian)	11	5	1	—	—	—	—	—	—	1	—
Clerks (African)	1	—	3	—	—	—	—	1	1	—	—
Hospital Assistants	—	—	2	1	—	1	—	1	—	—	—
Compounders	—	—	2	—	—	—	—	—	—	—	—
Laboratory Assistants	—	—	—	—	—	—	—	—	26	—	—
Other African Staff	11	27	54	—	3	4	4	15	57	—	—
African Entomological Assistants	—	—	—	—	—	—	—	—	20	—	—

TABLE II—HOSPITALS

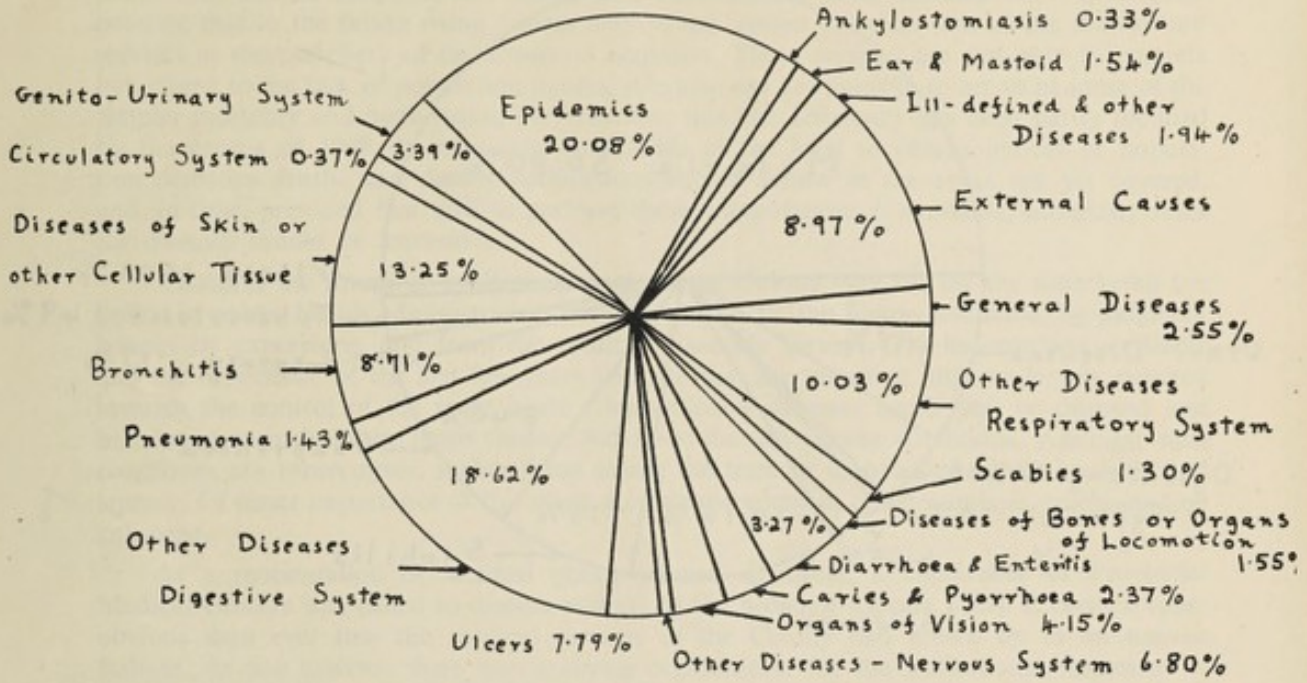
	Beds	Medical Officers	District Surgeons	Specialist Psychiatrist	Physiotherapist	Radiographers	Wardmasters	Dispenser	Matrons	Housekeepers	Nursing Sisters	Chief Male Mental Nurse	Female Mental Nurses	Male Mental Nurses	Superintendent Infectious Diseases Hospital	Hospital Secretary	Secretary Accountant	Clerks (European)	Pharmacist	Technicians	Asian Medical Officers	Senior and Assistant Surgeons	Compounders (Asian)	Nursing Sisters (Asian)	Asian Clerks	Other Asians	African Assistant Medical Officers	Hospital Assistants	Compounders	Laboratory Assistants	African Clerks	Other African Staff
EUROPEAN HOSPITALS:—																																
Nairobi	49	1							1	1	28						1	3														66
Kisumu	16	1							1		6																					21
NATIVE HOSPITALS:—																																
Eldoret	73	1									2											2						2	2	1	2	39
Embu	40										1																	2	2			—
Fort Hall	180	1									1																1	6	2	1	2	53
Gilgil	6		1																													—
Kabarnet	32																											1				14
Kajiado	80																					1						1		1		17
Kakamega	255	2					1				2													1			6	2	2		2	87
Kangundu	26																										2	1				—
Kapenguria	8																										1					6
Kapkatet	30																															9
Kapsabet	67																					1						3	1	1		23
Kericho	111	1									2																	1	1	1		43
Kerugoya	86	1									1											4						4	2	1		59
Kiambu	155	2									2											4						4	2	1		51
Kilifi	56	1								1	1											3						3	1	1		19
Kisii	99	1									1											5						5	1	1		42
Kisumu	177	2					1				2											5		2				5	2	1		89
Kitale	99	1									1											2						2	1	1		50
Kitui	72	1																				1						1	1	1		29
Lamu	20	1																			1	1						1				21
Lokitaung	12																				1											10
Lodwar	19																															8
Londiani	44		1																			1						1				21
Machakos	152	1									1											4			1			4	1	3		56
Makindu	33																					1						1				14
Malindi	22																					1						1				14
Meru	98	1									1											3						3	1	1		41
Molo	28																															—
Mombasa	175	2			1		1	1			1											3		5	4			11	3	5	2	112
Moyale	40																					1						1				20
Msambweni	48	1																							5			2	1			23
Muriranjas	73																					2						2				15

TABLE II—HOSPITALS—(*Contd.*)

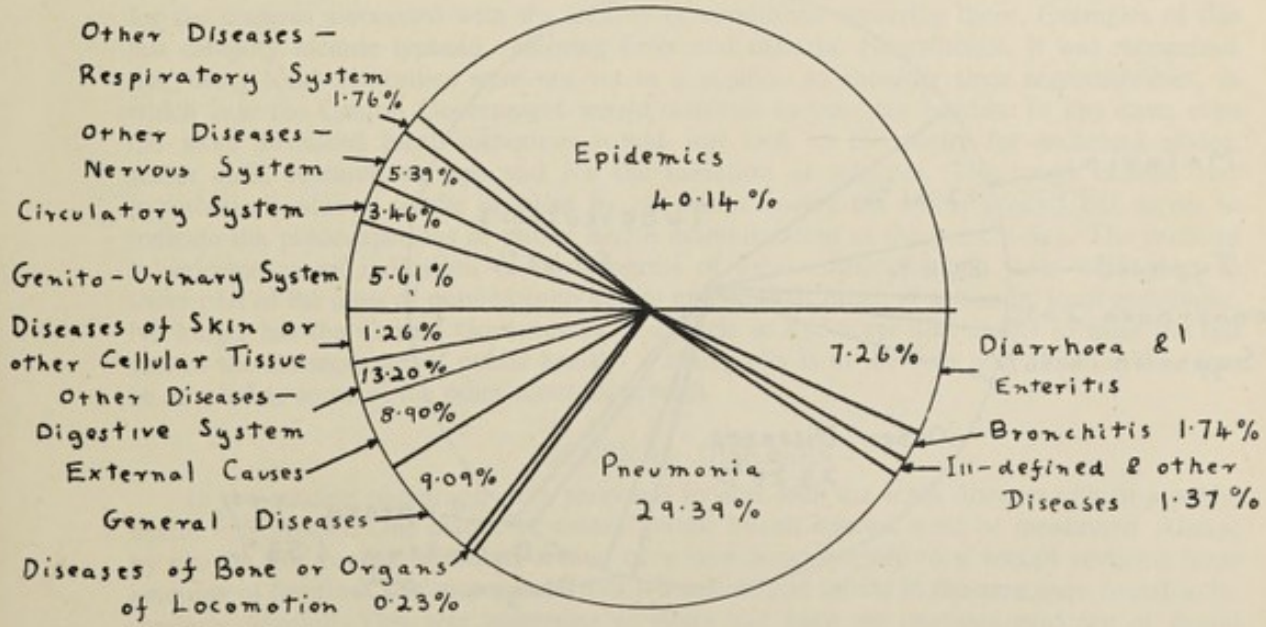
	Beds	Medical Officers	District Surgeons	Specialist Psychiatrist	Physiotherapist	Radiographers	Wardmasters	Dispenser	Matrons	Housekeepers	Nursing Sisters	Chief Male Mental Nurse	Female Mental Nurses	Male Mental Nurses	Superintendent Infectious Diseases Hospital	Hospital Secretary	Secretary Accountant	Clerks (European)	Pharmacist	Technicians	Asian Medical Officers	Senior and Assistant Surgeons	Compounders (Asian)	Nursing Sisters (Asian)	Asian Clerks	Other Asians	African Assistant Medical Officers	Hospital Assistants	Compounders	Laboratory Assistants	African Clerks	Other African Staff
Nairobi	649	7	—	—	—	2	1	—	1	1	19	—	—	—	—	1	—	—	—	—	1	7	—	3	2	—	—	28	3	8	—	306
Nakuru	249	2	—	—	—	—	1	—	—	—	3	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	7	2	5	2	95
Narok	94	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	1	24
Nyeri	104	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	5	1	2	2	45
Rumuruti	17	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11
Tambach	24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
Taveta	44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	2	—	—	—	20
Thika	52	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	25
Tigoni	22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	12
Voi	38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	17
Wajir	48	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	2	26
Wesu	48	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1	—	2	28
INFECTIOUS DISEASES HOSPITAL:—																																
Mombasa	140	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	46
Nairobi	186	—	—	—	—	—	—	—	—	1	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	4	—	1	2	87
Mathari Mental Hospital, Nairobi	375	—	—	1	—	—	—	—	1	—	—	1	4	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	98
Rehabilitation Centre, Nairobi	59	1	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	1	—	—	2	13
Leper Camp, Kakamega	130	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Leper Camp, Msambweni	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PRISON HOSPITALS:—																																
Nairobi	87	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—
Mombasa	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
DISPENSARIES:—																																
Garissa	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
Isiolo	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Karatina	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	13
Mandera	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	12
Marsabit	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	8
Naivasha	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nanyuki	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14
PRISON HOSPITALS:—																																
Thomson's Falls ..	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	5
Baragoi	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Wamba	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Maralal	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	6
TOTAL	5084	37	4	1	3	2	5	1	4	3	77	1	4	4	1	1	1	3	—	2	4	28	—	8	11	—	1	141	31	42	34	2004

PROPORTION OF EPIDEMIC, ENDEMIC, INFECTIOUS, SYSTEMIC AND OTHER DISEASES SHOWN AS PERCENTAGES OF TOTAL CASES TREATED AT HOSPITALS AND DISPENSARIES

Total Incidence: 1,100,590

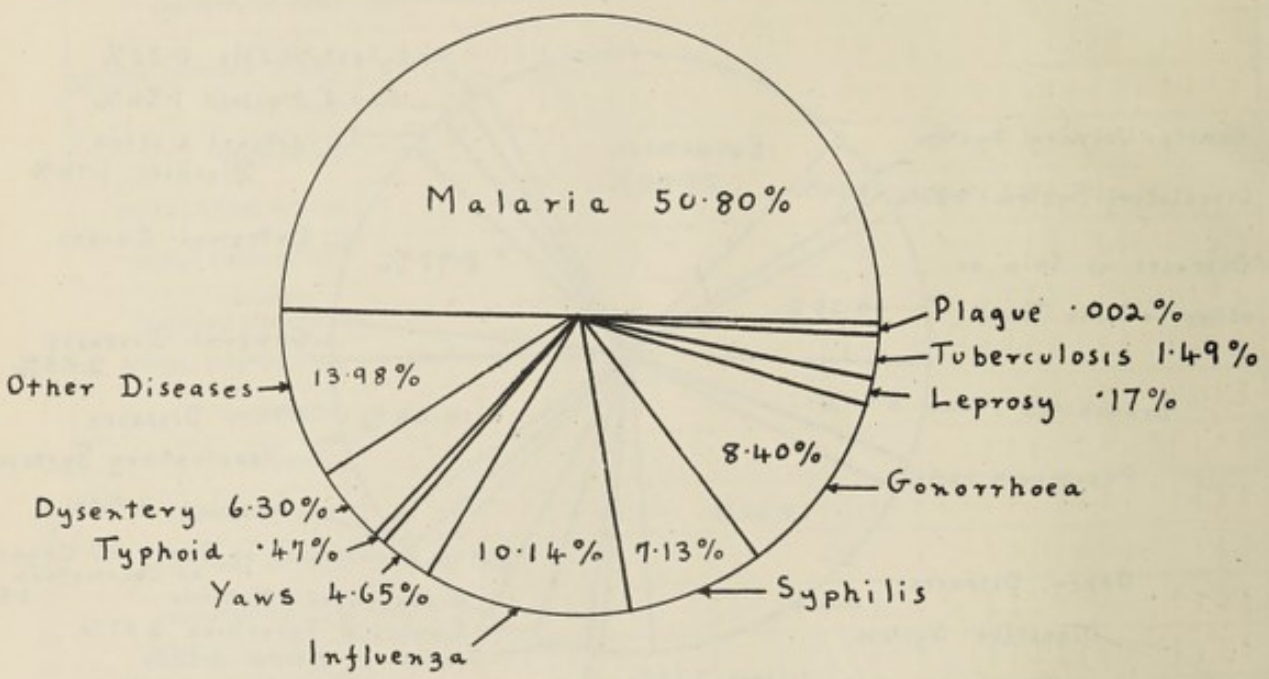


Total Deaths: 4,188

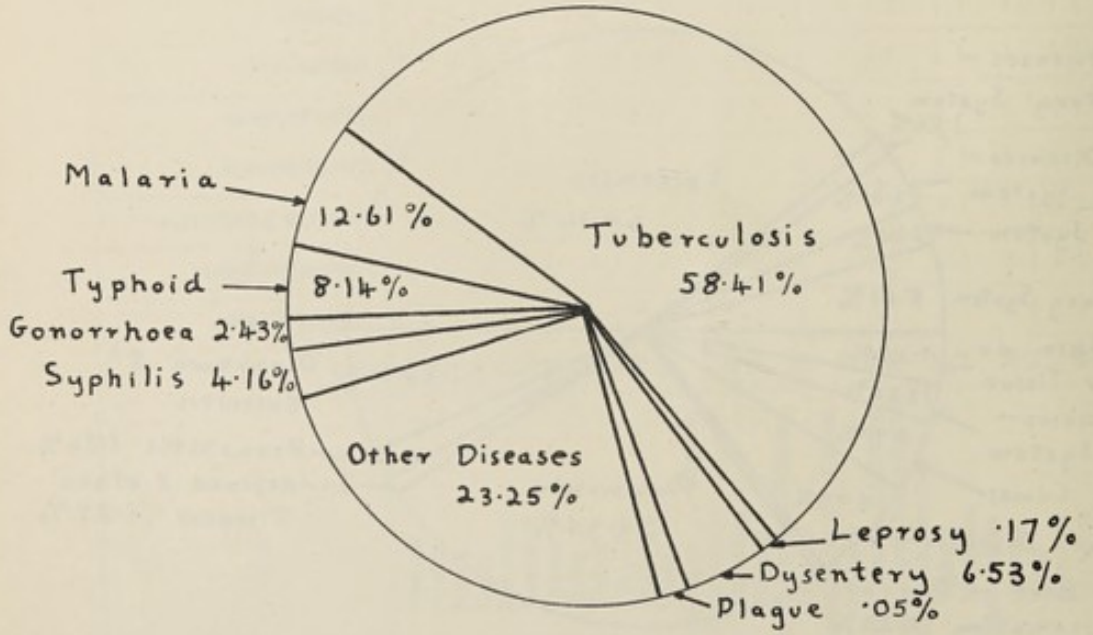


PROPORTION IN PERCENTAGES OF EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES, IN-PATIENTS AND OUT-PATIENTS TREATED AT HOSPITALS AND DISPENSARIES

Total Incidence: 221,018



Total Deaths: 1,681



II—PUBLIC HEALTH AND EPIDEMIOLOGY

GENERAL REMARKS

There was no epidemic of serious proportions during the year. This statement only gives cause for relative satisfaction for there is still a vast problem confronting the Department. Not the least part of the task is to gauge its magnitude in the absence of a system of vital statistics and countrywide arrangements for the notification of infectious diseases. In most parts of the Colony the statistics available are merely of a token nature, hardly revealing the true incidence of disease in any particular locality. The only figures to hand are compiled from district hospitals and solely take into account cases actually seen. It is quite possible that in the future rising figures may simply reflect the extension of the notification services at the periphery of departmental activities. These services are not only incomplete but, owing to the lack of population figures, it is also not yet possible to arrive at some of the simpler mortality and birth ratios. Nevertheless, this last deficiency has been partly rectified by the census of 1948. It may soon be feasible at the least to obtain indices of population densities. Births and deaths notifications should follow in the areas not yet covered, and, in time, provided that staff to perform these computations is available, morbidity rates for diseases should be assessable.

Whatever the future of medical statistics in the Colony may be, for the time being the policy in public health administration must be guided by the figures available, by judgment bought by experience, and from the results of sample surveys. The information available and the experience of the last few years indicate that the attention hitherto largely devoted towards the control of the more acute communicable diseases could well be directed and broadened to include the more chronic but none the less deadly conditions. Amongst such conditions are tuberculosis, malnutrition (using the term in its broadest sense), malaria and leprosy. Of lesser importance at this stage are trypanosomiasis, schistosomiasis, trachoma and kala-azar.

As a reorientation of medical policy seemed desirable, a conference of Provincial Medical Officers was called to discuss matters in the broadest aspects, when it became more obvious than ever that the medical services in the Colony had grown up in an uneven fashion. At one extreme there was a strong organization for the institutional treatment of disease, whilst at the other there was also a well-organized system for the control of environmental hygiene. At the centre, however, arrangements for domiciliary treatment of illness and home personal hygiene were very deficient. It was quite apparent that the Colony's health centre scheme would fill the breach and weld the two extremes of medical endeavour into a solid unit, strongest at the centre. It then became clear that, in so far as the financing of any scheme was concerned as between the Central Government and the local authority, the division of responsibility for the promotion of health had not been properly defined. As a working hypothesis it was assumed the Central Government should be responsible for the control of the more formidable and widespread communicable diseases such as the convention diseases, tuberculosis and venereal diseases, whilst the local authority should cater for the diseases associated with the locality or conditions occurring there. Examples of this last category include typhoid, relapsing fever and malaria. Nevertheless, it was recognized that many local authorities were not yet in a position to shoulder their responsibilities, in which case the Central Government would continue to bear the burden. In any case, even the more advanced local authorities would still look to the centre for technical advice, senior staff, research surveys and for the initiation of schemes. The rough outline and hypothetical solution to the problem by no means covers the whole ground but serves to indicate the preoccupations of public health administration at the present day. The problem is welcome as an indication of the progress of local authorities and their willingness to share part of the onus of public health and to extend their range of action by local endeavour. No longer has the Central Government to struggle to find ways and means to meet the full cost of the maintenance of public health: a strong ally is in the field and attention can now be devoted to some of the other scourges present.

GENERAL DISEASES

In the ensuing paragraphs it is proposed to deal with the main diseases affecting public health individually. One matter of general public health interest must be mentioned. Almost by chance, the routine chemical testing of a new water supply to a school revealed large amounts of fluorine. The source was from a borehole and others in the area were found to be similarly affected. This was surprising as there had been no previous evidence of dental fluorosis. Widespread investigations were undertaken at once and many sources of supply

—chiefly borehole—were found to be affected. Later on, a specific search for dental fluorosis in the Lake Baringo area, long known to have a high fluorine content, revealed the presence of dental fluorosis, but it is uncertain whether skeletal fluorosis exists. One of the most interesting areas deserving survey is Lake Hannington which contains 1,000 parts per million of fluorine. There are not many inhabitatnts in the neighbourhood so evidence of ill effects may not be easily obtainable.

The total number of cases treated during the year at Government hospitals and dispensaries, but not including out-dispensaries, was 1,114,747. Of this number 955,620 were out-patients.

The total number of cases of all races treated as in-patients at Government hospitals was 159,127. Among these occurred 5,188 deaths, giving a hospital death rate of 3.28 per cent. No deaths were recorded from out-patients treated.

Deaths recorded from among in-patients, within groups of diseases, were attributable in descending order of importance to:—

	Per cent of Total Deaths
Epidemic and Infectious Diseases	32.40
Diseases of the Respiratory System	24.11
Diseases of the Digestive System	10.68
External Causes	7.19
General Diseases	7.82

As in previous years, pneumonia was the highest single cause of death.

Epidemic, Endemic and Infectious Diseases

The total in this group of 221,018 was made up of 167,422 out-patients and 53,596 in-patients, among the latter 1,681 deaths being recorded.

Malaria, as in the previous year, was outstanding with a combined total of 112,285 cases as against 96,052 in 1948. Of these there were 19,294 cases amongst in-patients with 212 deaths, being 12.61 per cent of the deaths within the group, two deaths occurring in Europeans.

There were 3,306 cases of tuberculosis being treated as in-patients. Deaths from tuberculosis, numbering 982, were 58.41 per cent of all deaths within the group.

There were 79 cases of acute poliomyelitis, with four deaths. This disease has shown no epidemic tendency in late years.

Twenty-three cases of kala-azar were recorded.

Respiratory System

The total of 222,355 cases in this group was made up of 24,630 in-patients and 197,725 out-patients. Among in-patients there were 1,305 deaths, of which 1,231 were due to all types of pneumonia, this disease alone being responsible for 23.72 per cent of all deaths. The cases of asthma recorded were 2,460, including in-patients and out-patients.

Digestive System

There were in this group 204,935 cases, or 18.52 per cent of the total, 15,601 being in-patients and 189,334 out-patients. Deaths numbering 553 were 10.66 per cent of the total deaths from all causes.

The total number of in-patient cases of appendicitis was 341, with three deaths; 104 of these cases were Europeans, 152 Asians and 85 Africans.

There were 2,617 in-patient cases of diarrhoea and enteritis in children under two years; among these were 224 deaths. Among the 2,377 cases of diarrhoea and enteritis in ages two years and over, deaths numbered 72.

External Causes

In this group there was a total of 98,795 cases, 14,888 being in-patients. Deaths among in-patients numbered 373, or 7.19 per cent of the total from all causes.

There were 5,938 cases of fracture, not including crush injuries which may have produced fracture.

There were 1,103 in-patient cases of burns by fire, with 115 deaths.

General Diseases, including Malnutrition, Blood, Nervous and Circulatory

Of the 28,066 cases in this group 3,687 were in-patients and 24,379 were treated as out-patients. There were 380 deaths, or 7.32 per cent of the total deaths.

The prominent diseases in this group are rheumatism and anæmia of all types. The cases of rheumatism treated as in-patients numbered 1,195.

Among out-patients, a total of 3,713 cases of acute rheumatism were treated and 15,000 cases of chronic rheumatism, but it is more than probable that while rheumatism is common the numbers shown of the acute type are unduly high.

"Kwashiorkor" accounted for 457 admissions to hospital compared with 267 cases last year and led to 103 deaths.

Of malignant conditions there was treated a total of 303 cases with 46 deaths. Racially these occurred: in Europeans 26 cases with three deaths; in Asians eight cases with no deaths; in Africans 269 cases with 43 deaths.

COMMUNICABLE DISEASES

Anthrax

A total of 517 cases were treated with 49 deaths. The disease occurs chiefly in the Central Province and, although the incidence is less than for the two previous years, only little progress in its control can be recorded. Preventive inoculation of cattle is to be reintroduced and strong propaganda against the habit of eating sickly beasts continues. It is lamentable to record high figures in a disease of this nature, avoidance of which is easily within the reach of the potential victim.

Undulant Fever

An epidemiological surprise occurred during an investigation in the Meru District and other Central Province districts. This was the discovery of a very large proportion of *Br. melitensis* bacteræmias in bloods sent for investigation of unknown pyrexias. Although only 177 cases were treated for this condition, with two deaths, it is probable it is more widespread than suspected and will set a very pretty problem in control. As yet there is little information of the morbidity rate amongst goats.

Cerebro-spinal Meningitis

There were 165 cases treated in hospitals with 86 deaths. This is by no means an epidemic; furthermore, it cannot be guaranteed that all of these cases were due to the meningococcus. Diagnosis in an out-station must depend upon a smear of the cerebro-spinal fluid, which leaves much room for error. In Nairobi, where culture is possible, many cases of this kind proved to be pneumococcal.

Cholera

There were no cases of cholera reported or imported into the country.

Dysentery

There was a total of 12,617 cases of all types of dysentery treated, with 110 deaths, whilst infantile diarrhoea accounted for 23,750 cases, with 296 deaths.

Dysentery is an extremely important disease in the country, all forms of the known responsible bacteria being found. There was an acute, small epidemic in a European girls' school during the year due to the para-colon bacillus. This occasioned no great surprise as cases due to this organism seem to occur quite frequently in Kenya.

Amœbic dysentery is always with us both in the chronic and acute forms. This last condition can be seen in children, who, from their age, should not yet have been weaned. It would not be at all surprising if a survey revealed that the African population in the more populous areas was found to be highly infected.

Diphtheria

There were 60 cases, with 11 deaths, treated in hospital.

This is a relatively unimportant disease in the Colony in point of numbers. The indigenous strain is a "mitis" variety producing an alarming amount of membrane but little toxæmia. Nevertheless, immunization in the larger centres is available on account of its evil reputation among the non-native community.

Poliomyelitis

There were 79 cases, with four deaths, occurring sporadically during the year. During the poliomyelitis epidemic in Madagascar and Reunion special successful precautions were taken at the Colony's airports and surveillance was introduced to prevent the effect of importation of the disease.

A feature of some cases reported as poliomyelitis was the appearance of bulbar symptoms often associated with encephalitic signs. In fact so atypical have been a number of these that a search was made for other viruses, but without success. The possibility of a secondary encephalitis has been borne in mind, but all search was hampered by late diagnosis or by the delay in notification. No virus has as yet been grown either because of the delay or failure to find a suitable susceptible animal. The investigations are continuing.

Enteric Fever

There were 1,082 cases, with 38 deaths, treated. Paratyphoid appears to be of small significance in this series where typhoid predominates. There is no room for complacency whatsoever with this disease where the incidence is increasing. A sharp buttermilk-borne epidemic occurred of typhoid with over 100 cases in the Rift Valley Province. This, however, was in the nature of an accident and was easily controlled. What is disquieting is the steady rise of small sporadic outbreaks in the more heavily populated African areas, especially in peri-urban districts. Development, closer settlement and overcrowding are proceeding apace, but standards of sanitary conduct and the provision of sanitation services are lagging far behind. If this trend continues typhoid may cause some very sharp outbreaks in the near future in the less developed but highly populated areas outside municipalities.

Steps to reinforce the powers of the health authorities are under discussion. It will not be long before this peri-urban development will require the institution of a proper local health authority and service.

Infective Hepatitis

There were 296 cases, with 17 deaths, treated.

This disease is sporadic throughout the Colony. As it is partly due to adverse sanitary conditions it is proposed to make it a notifiable disease in future.

Kala-azar

Twenty-three cases were reported, with six deaths.

Kala-azar occurs in small well-defined areas in the Kitui and Machakos Districts of the Central Province, and also in the Northern Province. It is not assuming serious proportions.

Leprosy

As already mentioned in the Introduction, the Interterritorial Leprologist presented a very comprehensive report at the beginning of the year. It appears that the Colony has to cater for about 35,000 lepers, but fortunately most of them were of the non-infective type and could be treated at home if a system of the safe provision of medicine could be devised. Excellent results are being achieved with sulphetrone and the simpler sulphone radical has now been introduced. Preliminary plans for a leprosarium at Itesio, North Nyanza, were formulated to provide accommodation for about 500 persons on a settlement basis. The severer and infective cases will be treated here. Further experience with sulphones and the establishment of health centres may allow of home treatment with this somewhat toxic drug. A map showing the incidence of the disease will be found at the end of the report.

Plague

Only 26 cases of plague, with one death, were treated. Little comment is required other than to state that precautions are not being allowed to lapse notwithstanding the short memory of the public.

Rabies

Rabies still remains enzootic in the Nyanza and Kitui areas; two deaths were reported. Judging from the increasing demand for vaccine either more people are being bitten by rabid animals or they are becoming more rabies conscious. The control of the disease in animals is, of course, vested in the Veterinary Department.

Relapsing Fever

There were 501 cases treated, with 13 deaths.

This disease is now becoming eminently controllable with the advent of B.H.C. dusts. An experiment on ornithodorus control was carried out by the Insect-borne Diseases Division in the Kwale District of the Coast Province. Apparently successful first results were later found to be too optimistic. Complete success is needed, as the final aim is to eradicate the disease entirely in areas similar to the endemic focus in the Nyambeni range, Meru, in the

Central Province. Eradication is the necessary aim, for, if control is only partially successful, it would severely interfere with the local premunity to the disease with undesirable consequences. The Colonial Medical Research Council has seconded an officer to study the bionomics of the tick vector in the Colony, but suggestions for control as a result of his studies involve a considerable change in the social habits of the population.

Smallpox

Smallpox did not assume serious proportions this year. There were 42 cases treated in hospitals, with no deaths. Notwithstanding the somewhat severe epidemics in India and the thousands of travellers returning through the chief port of Mombasa no secondary cases attributable to them occurred.

Trypanosomiasis

Two small areas of *T. gambiense* infection flared up in the Nyanza Province, and control measures were introduced. At Kibigori in this Province an entirely new area was discovered, not because of any complaints from the local inhabitants, but on a chance finding in a blood slide at Kisumu hospital. The focus was discovered but control was difficult owing to the apathetic lack of interest shown by the inhabitants in their dangerous circumstances. A recrudescence also occurred in Central Nyanza, round Lake Kanyaboli. Clearing of riverine breeding places and treatment are still proceeding. In contrast to the apathy round Kibigori a lively interest was taken in the disease in the endemic focus of South Nyanza, where a resurvey was carried out and less than a score of new cases discovered.

Tuberculosis

The figures for tuberculosis treated in Government hospitals are:—

1945—19 per thousand of the total in-patient numbers.
1946—19.2 per thousand of the total in-patient numbers.
1947—20.9 per thousand of the total in-patient numbers.
1948—20.5 per thousand of the total in-patient numbers.
1949—21.3 per thousand of the total in-patient numbers.

There were 718 deaths out of 3,306 cases treated as in-patients.

During 1948 a tuberculosis survey was made. Forty-two thousand four hundred and ninety-two tuberculin tests were read, 2,889 physical examinations were performed and 1,298 specimens of sputum were prepared and examined at the Medical Research Laboratory.

A map at the end of the report shows the tuberculin sensitivity rates among children in the 7–12 age group in 17 districts surveyed and also gives the estimated tuberculous morbidity rates.

A detailed report of the survey is in the process of publication, the main conclusions of which are:—

(*a*) Although tuberculosis has probably existed on the Coast for a long time, its introduction into the inland districts is comparatively recent.

(*b*) A high reactor rate, combined with a comparatively low disease incidence, was apparent in places where the disease may be supposed to have existed for a long time, while a low tuberculin sensitivity rate but high morbidity is thought to denote recent experience of tuberculosis.

(*c*) Diet may be an important ætiological factor in the acute and rapidly fatal type of tuberculosis prevalent in Kenya. "Kwashiorkor" may be especially important in this respect.

(*d*) It is thought possible that bovine infection may be more common than has been hitherto supposed. A tuberculosis survey of cattle is at present being carried out in Tanganyika and will eventually extend to Kenya and elucidate this aspect of the problem.

(*e*) A period of urban residence has the effect of increasing the tuberculin sensitivity rate in adult males tested in the reserves of the Colony, and there is no doubt that many Africans develop tuberculosis when they leave their reserves and work in a town.

(*f*) In the native reserves of Kenya the disease does not always run the rapidly fatal course described by most investigators of African tuberculosis.

(*g*) An analysis of X-ray photographs of patients admitted to the Native Civil Hospital, Nairobi, would seem to show that the advanced stage of the disease in which they are first seen, no less than the type of disease process, is what so often makes prognosis and treatment hopeless.

(*h*) It is thought that the African's proclivity to develop an extreme degree of sensitivity to the tuberculo-protein may be a factor of prime importance in the ætiology of the characteristic disease process to which he is prone.

(*i*) The distribution of non-pulmonary tuberculosis would appear more patchy than that of the pulmonary condition. Pulmonary tuberculosis is the more important manifestation both with regard to the number of sufferers and the mortality.

As the result of the findings of this report it was possible to plan a tuberculosis control scheme backed by capital grants from the Colony's Development Committee. A possible tuberculosis rate of 10 per thousand has to be met, which means that the principles of domiciliary treatment will have to be widely extended.

Typhus

There were 53 cases treated, with two deaths.

This disease does not occur in epidemic form and is all tick or flea borne. There are many gaps in our knowledge of the local rickettsial diseases which may soon be rectified in co-operation with the Virus Research Institute at Entebbe. The local virus is of a mild virulence.

Yellow Fever

No cases of yellow fever occurred in the Colony. Nevertheless, enzootic foci of virus still exist and a large amount of research is required to convince eastern and northern countries that there is no risk of the spread of this disease to man, especially in the larger centres.

Venereal Diseases

These diseases are discussed elsewhere under the heading "Venereal Diseases Clinics".

Malaria

There was a total of 112,140 cases of malaria treated in Government hospitals and dispensaries in 1949, with 212 deaths, of which only two occurred in Europeans.

The cases were classified as:—

Benign tertian	353
Quartan	469
Aestivo-autumnal	16,164
Clinical	93,911
Cachexia	1,183
Blackwater	16
Cerebral	44

Control measures against this disease are on a reasonably sound administrative basis in the municipalities of Nairobi, Mombasa and Kisumu. Elsewhere these measures are somewhat fragmentary and the reasons for this have been investigated during the year. It would appear that no clear pronouncement has been made concerning the responsibility for the provision of finance for such measures. This has led to the institution of a number of unco-ordinated and small enterprises throughout the country which have been severely crippled in scope by the uncertainty regarding finance, staff and direction. A policy is now being instituted designed to eliminate these uncertainties and it may be said that its purpose is to make the provision of finance and workaday staff a local authority responsibility, whilst the Central Government and the Medical Department would be responsible for technical advice, survey and institution of schemes, coupled, for the time being, with general supervision at higher levels.

If administrative difficulties can be solved in this way there will remain the epidemiological conundrums still to be solved, not least of which is to gauge how far a partial scheme of control may so interfere with natural premunity as to attain an end result worse than in the first place.

On the purely technical side, the more modern methods of control by means of adult killing have been investigated in relation to local conditions. This side of the question is dealt with in the report of the Insect-borne Diseases Division.

III—HYGIENE AND SANITATION

(1) General Measures of Sanitation

The year commenced with the European health inspectorate very much below strength, but the position improved later with the return of officers from vacation leave and by several new appointments. In consequence activity in sanitary control was intensified in many rural areas where supervision had been reduced to the absolute minimum. Long-service African personnel was of great help in maintaining established services and in assisting officers new to the Colony.

In urban areas one of the major problems was the overcrowding of Asian and African dwellings, as already emphasized in previous reports. The demand for accommodation was far greater than the rate of building could cope with, and is likely to remain so for many years to come, unless a greatly expanded building programme is adopted.

The conservancy services of the municipalities have been maintained at a level consistent with the necessity for the sweeping of streets, the removal of refuse and the disposal of night soil, but apart from the provision of numbers of new vehicles, refuse bins and equipment, that were previously in short supply, no marked advance in cleansing technique can be recorded.

In some of the smaller townships composting of domestic refuse and, in some cases, night soil, have been introduced with a degree of success, showing promise of being an efficient and economical method of disposal.

Advances in the control of the manufacture, handling, storage and sale of foodstuffs can be claimed, although complete satisfaction in this branch of public health activity will only be attained with the co-operation of the public, together with an appreciation of the necessity for the use of wholesome ingredients and by the scrupulous cleanliness of the workers involved.

Samples of food and drink were submitted to the Government Chemist and Bacteriologist for analysis from authorized sampling officers in all parts of the Colony.

District Commissioners, as local authorities of townships, trading centres and rural areas, continued to co-operate with health department staff, and in matters of general cleanliness, licensed premises and building control progress has been made. In many of the built-up areas, however, where buildings of a temporary nature have existed for many years, improved sanitation will only materialize when demolition, replanning and reconstruction are possible.

Anti-mosquito measures were carried out as a routine duty, with intensification of activity in areas where and when it was considered necessary.

Although the extensive and widespread African areas are difficult to control effectively there is reason to be satisfied with the results achieved. No major outbreak of infectious diseases occurred and investigation and action quickly followed reports of confirmed or suspected infectious cases.

In the African land units the protection of water supplies, the provision of wells and the construction of washing slabs and bathing places continued as one of the most important and appreciated branches of health work. New supplies were constructed and existing supplies maintained, particularly in the Central and Nyanza Provinces.

Prosecutions and propaganda have as yet had little effect in preventing the consumption of meat from animals that have died or been slaughtered in sickness.

Markets, perhaps better described as African trading centres, have continued to develop, although many of the plot-holders have found difficulty in completing buildings in accordance with their original intentions.

Propaganda was carried out with effect in many spheres. Numerous shows were held throughout the provinces demonstrating housing, composting of refuse, improved water supplies and in many other matters associated with public health work. Lectures were given by African personnel and on two occasions an African health worker broadcast health talks most competently, his subjects being "Cleanliness" and "Water Supplies". The "Plague" film, produced by the Colonial Film Unit, with the co-operation of Fort Hall health department staff, was shown to thousands of people in areas where plague outbreaks are still possible.

Health assistants lectured at schools and offered much advice, but more propaganda will be necessary and the average African schoolmaster will have to apply hygiene lessons more practically before any great improvement in schools sanitation in rural areas is noticeable.

(2) Schools Hygiene

Apart from the work of the Schools' Medical Officer in and around Nairobi, and which is fully reported elsewhere in this report, schools hygiene was dealt with by District Medical Officers of Health and Health Inspectors in so far as it was possible to spare the time from their normal routine duties. In rural areas African personnel struggled valiantly to improve the generally low hygienic conditions.

Many drawings for new schools for all races were scrutinized and at all times it was endeavoured to ensure the introduction of the recognized standards of accommodation for all purposes, as accepted by the Education, the Public Works and the Medical Departments. The economic factor could not always be ignored, but, in general, standards were maintained, although drainage and the disposal of sewage and waste water are matters that still call for much more consideration.

(3) Labour Conditions

Close liaison continued between officers of the Labour and Medical Departments, and proposed legislation for the control of sanitary conditions at labour camps and to govern conditions in factories and workshops was dealt with in detail.

(4) Housing and Town Planning

From all urban areas Medical Officers of Health lay stress upon the need for more and more houses for all races.

Private enterprise, the Municipal Council of Nairobi and Government have made headway, and although accommodation for Europeans improved to a degree all efforts to meet the needs of the relatively greater Asian and African populations have had little effect in solving the problem.

For the Asian population plots for residential purposes were allocated in many areas and the needs of the African were perpetually under review.

Plans for the development of municipalities and townships were prepared by the Town Planning Adviser and approved by the various departments interested, but not without some concern.

The provision of roads, drains and conservancy services seldom keep pace with general development, with the inevitable public health problems in consequence. Government's acceptance of the proposals for the establishment of a drainage and sewage section of the Public Works Department was received with satisfaction and an ultimate improvement in the sanitary conditions of the Colony must be the result. Many problems at schools and hospitals of recent construction, and in built-up areas, await the attention of the drainage and sewage engineer.

(5) Food in Relation to Health and Disease

A—Food Supplies

In some areas the rainfall was below normal, with disappointing crops in consequence, but, throughout the Colony, food supplies in general were not unsatisfactory.

Insect infestation of grain stored in bulk presented a problem and a Pest Control Committee was set up to give consideration as to the use of approved insecticides. This has been necessary as grain silos are virtually absent in the Colony; storage of hundreds of thousands of grain products in bags has perforce to be done in open warehouses. The insect depredations, besides causing a direct loss of foodstuffs of anything up to 10 per cent or more, account for an immense spoilage which renders the food unpalatable, if not occasionally unwholesome. The advent of cheap chemical insecticides has not solved the problem as their chronic toxicity is still an unknown factor. It has been thought better not to allow their use for the time being, but to depend on heat for grain conditioning and disinfestation. If an insecticide is still necessary, it was deemed that pyrethrum in minimal adequate quantities should be allowed to be added to grain.

Food inspection was maintained in so far as the availability of staff permitted, and although the difficulties of control are great, especially in rural areas, an expansion of activity took place. With the more plentiful supply of imported canned foodstuffs a certain amount of hoarded stocks appeared in shops and condemnations were necessary.

B—Markets, Dairies and Slaughterhouses

Progress in the improvement of markets has been recorded in both urban and rural areas, varying from major additions in permanent materials in the larger to minor matters such as fencing, shelters and benching in the smaller. Many local authorities gave consideration to the establishment of markets where at present none exist.

Competition, propaganda and legislation have achieved some success in the production and handling of milk, but as the sources of supply are generally in areas distant from the points of distribution efficient control is rarely possible. The matter has caused local authorities much concern and attention has been directed to the tightening of control at points of delivery, where routine sampling and testing have been initiated.

The central milk depot established by the Kisumu Municipality has been operating effectively for many years, and several local authorities, impressed by the scheme, have under consideration proposals for the adoption of similar measures.

Slaughtering places in African areas were supervised mainly by Africans and, in addition to improvements and repairs to many of the buildings, a number of new ones were erected. In the urban areas the position was different, all local authorities holding up further expenditure pending clarification of the proposals for a central abattoir.

(6) Measures taken to Spread the Knowledge of Hygiene and Sanitation

The major event in the field of propaganda took place at the annual show of the Royal Agricultural and Horticultural Society held at Nakuru during October. Farmers in particular showed great interest in the exhibit staged to demonstrate the hygienic production of milk and solicited much information concerning the types of dairy buildings recommended.

European health inspectors with African assistants carried the message further afield and district shows were held even in some of the remotest areas, where better housing and general measures to combat diseases were demonstrated.

Close liaison with the Information Office was maintained and a Propaganda Committee established.

(7) Training of African Sanitation Personnel

With the appointment of an Assistant Instructor in Hygiene and the addition of a class of student health inspectors, this section of the Medical Training School was brought up to full strength. The allocation of a vehicle to transport students into the African locations and to works within the industrial areas enabled practical work to be demonstrated more effectively, and, on one occasion, an outside course was held at Kerugoya for a period of a week.

The most momentous occasion in the short history of the hygiene training section of the school took place when the first examination for health inspectors in Kenya was held by the Joint East African Examination Board of the Royal Sanitary Institute. Eight students had completed the three years' course of training and all were successful in passing the examination. The addition of eight African health inspectors should add impetus to public health activity in rural areas during 1950.

The training of the more junior health personnel has been confined to the personal efforts of European health inspectors in the field.

(8) Recommendations for Future Work

The extension and intensification of present activity is recommended.

IV—PORT HEALTH WORK AND ADMINISTRATION

(1) General

The ports on the Kenya seaboard are as follows:—

Kilindini (Mombasa).

Mombasa (Old Port).

Lamu.

Malindi.

Kilifi.

Vanga.

Kilindini is the only port where large ocean-going vessels call.

Mombasa Old Port has a considerable seasonal trade in foreign dhows and coastal motor vessels, and the other ports are mainly used by coastal dhows. Kilifi, Malindi and Lamu have each a sanitary assistant posted who carries out the duties of inspection of dhows for mosquito breeding and disinsectization and in addition assists the medical officer of the township in general sanitary works.

(2) Port Health Organization

The staff during the year was as follows:—

(*a*) Port Health Officer.

(*b*) Assistant Port Health Officer.

(*c*) Port Health Inspector.

(*d*) Entomologist.

(*e*) Junior Entomologist Field Officer.

(*f*) Clerk, Asian (part-time).

(*g*) Clerk, African.

(*h*) African Sanitary Assistants, distributed as follows:—

Kilindini: mosquito control on ships and port area, port sanitation and rodent control	7
Old Port of Mombasa dealing with dhows and general sanitation	2
Lamu	1
Malindi	1
Kilifi	1

The Port Health Officer and Medical Officer of Health are the same person and he is responsible for all health measures in the port and town areas.

A second medical officer occupies the post of Assistant Port Health Officer and Assistant Medical Officer of Health. He is responsible for medical duties in regard to ships and dhows and the supervision of the Infectious Diseases Hospital and the Venereal Diseases Clinic.

A Port Health Inspector is in charge of all health and sanitary measures regarding ships and port areas, including mosquito breeding, rodent prevention, general sanitation and supervision of fumigation of ships.

The Port Health Officer is in administrative charge of the whole coastal area for anti-aedes control and the work is supervised by the Entomologist.

(3) Application of the International Sanitary Convention of 1944

Article 6.

Mombasa is now an international port for the fumigation and exemption of all vessels under Article 28 of the Convention and ships are regularly examined for evidence of rat infestation, and fumigation by hydrocyanic acid gas is ordered as necessary.

The provision of rat-guards to ships is compulsory under the Port Health Regulations, 1923, and regular trapping, poisoning and gassing of rats is carried out in the port areas.

The following are figures caught by trapping for the years:—

	1946	1947	1948	1949
Rattus rattus kijabius	2,193	1,965	2,825	2,181
Rattus norvegicus	91	53	224	294
Mice	2,683	2,321	1,693	1,691
Totals ..	4,967	4,339	4,742	4,166
Spleen smears examined	148	335	374	590

All spleen smears were negative to *Pasturella pestis*.

Article 8.

No cases of plague, cholera, yellow fever or typhus were reported at the port during 1949. Two cases of smallpox were reported.

The above are the five notifiable diseases under the Convention, and in the event of any of these diseases being discovered in the port the necessary measures for transmitting the information to all concerned are in force.

Article 13—*Measures Adopted to Prevent Exportation of Disease.*

The Port Health Officer does not medically examine every person embarking from Kenya ports, but the shipping agents undertake to refuse the issue of tickets to any prospective passenger who is not in possession of valid yellow fever and smallpox vaccination certificates.

They also report to the Port Health Officer particulars of any sick person wishing to embark. This person is then examined.

In the event of an outbreak of one of the five major diseases occurring in the port measures would be immediately taken to prevent the embarkation of any person showing symptoms of the disease and also contacts of diagnosed cases.

Article 15.

(*a*) No cases of plague were reported at the port during 1949.

(*b*) No case of cholera was reported at the port during 1949.

Valid international certificates are required to be produced by all passengers arriving from India, Pakistan and Goa, and any person who is not in possession of same is immediately inoculated and placed under surveillance.

(*c*) No case of yellow fever was reported in the port during 1949.

All ships and dhows are inspected on arrival for evidence of mosquito breeding or adult mosquitoes on board.

Strict mosquito control is carried out in Kilindini and Mombasa Old Port and the incidence of shore breeding has considerably lessened.

Breeding is very occasionally found on ocean-going vessels entering Kilindini and very frequently found on dhows from Arabia and India. The breeding on dhows is practically all *Aedes ægypti.*

The following table gives the incidence of *Aedes ægypti* in vessels inspected during the years 1946 to 1949:—

	1946	1947	1948	1949
Adults—				
Number of vessels inspected ...	303	366	496	598
Number with mosquitoes ...	—	21	22	17
Number with *A. ægypti* ...	—	9	13	21
Index—all species	—	—	—	—
Index—*A. ægypti*	—	—	—	—
Larvæ—				
Number with larvæ	11	17	23	34
Number with *A. ægypti* ...	7	8	12	32
Index—all species	3.6	—	—	—
Index—*A. ægypti*	2.3	—	—	—

(*d*) *Smallpox.*—Two cases were reported in the port during 1949. Details are contained in the annual report of the Port Health Inspector.

All vessels from infected or suspected ports are required to keep the quarantine "Q" flag flying until the vessel has been boarded and cleared by a representative of the Port Health Department.

Every person is personally seen and the mere production of a smallpox certificate is not accepted as evidence of immunity unless supported by good vaccinal scars. Persons with invalid certificates or inadequate scars are vaccinated on board and landed under surveillance, and persons who are proceeding to destinations outside Mombasa are required to report to the nearest medical officer of health of the district on arrival and prior notification of their arrival is sent to the respective medical officers of health.

(*e*) *Typhus.*—No case of typhus was reported in the port during 1949.

In the event of typhus or relapsing fever being diagnosed in the port provision is available for the delousing of persons and clothing and disinsectization of vessels.

(*f*) *Control of dhows.*—On arrival of a dhow from a foreign port the vessel is required to anchor at the quarantine anchorage and remain there with quarantine "Q" flag flying until boarded and cleared by a port health representative.

The dhow is inspected for defective water containers and mosquito breeding or adult mosquitoes. All persons are examined and vaccinated if necessary.

The dhow is kept under supervision during its stay in port and before clearance is granted the dhow is sprayed and it is ascertained that her water containers are in good order.

(4) Application of Port Health (Public Health) Regulations, 1923

Importation of second-hand clothing.—A very considerable amount of second-hand clothing arrives at Kilindini and consignments are subject to strict enforcement of the regulations.

(5) STATISTICS

(*a*) Shipping entering the port during the years:—

STEAMSHIPS—	1947		1948		1949	
	Number	Tonnage	Number	Tonnage	Number	Tonnege
Overseas	500	2,043,337	624	2,377,264	635	2,602,983
Coastal	181	55,474	182	55,745	276	47,168
	681	2,098,811	806	2,433,009	911	2,650,151

(*b*) Aircraft disinsectized	1,836
(*c*) Sailing ships, including native vessels—	
Number of foreign dhows entered the ports	222
Number of coastal dhows entered the ports	1,054
(*d*) Vessels medically inspected on arrival—	
Steamships	386
Sailing ships, including native vessels	222
(*e*) Vessels arriving in port infected or suspected—	
Steamships	8
Sailing ships, including native vessels	222
(*f*) Vessels placed under quarantine restrictions and subjected to special measures—	
Steamships	3
Sailing ships, including native vessels	17
(*g*) Passengers medically examined under smallpox regulations—	
Steamships	35,693
Sailing ships, including native vessels	3,761
(*h*) Passengers landed under surveillance—	
Steamships	2,479
Sailing ships, including native vessels	189
(*i*) Bills of health issued	1,181
(*j*) Vessels fumigated under the International Sanitary Convention	3
(*k*) Vessels exempted under the International Sanitary Convention	5

V—MATERNITY AND CHILD WELFARE

Maternity and child welfare services continued to be provided by local authorities and local native councils assisted by the Medical Department with the secondment of nursing sisters and health visitors. As in previous years the work could not be confined to preventive measures but had also to embrace curative aspects which are difficult to withhold in the face of an inability to understand the reasons on the part of an African community. These services are well organized in the larger towns such as Mombasa and Nairobi and the following information contained in the annual reports of the medical officers of health for the respective municipalities is of interest:—

A—MOMBASA

(1) *Attendances at African Ante-natal and Child Welfare Clinics*

	1947	1948	1949
Child Welfare	15,915	15,843	16,992
Venereal Diseases	4,857	6,586	8,222
Ante-natal	7,467	8,826	11,664
Dispensary	28,274	25,417	28,273
Home Visits	40,204	22,729	12,239

These figures comprise attendances at the three clinics of Majengo, Mwembe Tayari and Makupa. In addition, large numbers of women suffering from venereal disease had to be treated there. Persons attending ante-natal clinics tended to report more often than necessary.

(2) *Maternity Services*

The Lady Grigg Municipal Maternity Hospital provided accommodation for Africans as well as facilities for the training of African and Arab midwives for the Coast Province and elsewhere. Provision for the Asian community is made by the Pandya Memorial Clinic and private nursing homes. Statistics for the past three years are as follows:—

LADY GRIGG MUNICIPAL MATERNITY HOSPITAL

CASES	1947	1948	1949
Patients admitted	809	923	923
Births	495	656	852
Stillborn infants	41	31	62
Deaths—Maternal	—	10	15
Deaths—Infants	12	18	30

B—NAIROBI

(1) *European Services*

(a) Maternity.

Four private nursing homes were available and financial assistance under the European Hospital Authority Scheme was payable. The need for a separate maternity home became greater than ever, especially as the general shortages of hospital beds made the reservation of accommodation for cases of this kind very difficult. Patients were also accommodated before and after delivery in the Lady Northey Home.

(b) Child Welfare.

The Lady Northey Home and Nursery School continued to expand with the demand for admissions to the school much in excess of the accommodation available. Child welfare clinics were also held, assisted by staff from the Municipality and the Army from where children attended. Likewise, the Child Welfare Centre and Day Nursery opened in 1948 under Municipal auspices was unable to meet the demands, and the provision of facilities in the Woodley Estate area has been suggested.

(2) *Asiatic Services*

(a) Maternity.

The Lady Grigg Indian Maternity Hospital was hardly able to meet increasing demands for accommodation and the following table indicates the work performed compared with three previous years:—

LADY GRIGG INDIAN MATERNITY HOSPITAL, NAIROBI

CASES	1947	1948	1949
Admissions	682	769	759
Births	583	577	611
Twins	12	9	6
Stillbirths	26	22	29
Deaths—Maternal	5	—	—
Deaths—Infants	8	21	13
Triplets	1	—	—

The training of Indian midwives continued to make a very important and useful addition to the social services of the community throughout the Colony.

(b) Ante-natal and Child Welfare.

Attendances at these Municipal clinics again increased and the amenities provided are proving very popular. Figures are as under:—

ATTENDANCES AT THREE ASIAN CLINICS AND HOME VISITS

	1	2	3	Total
ANTE-NATAL—				
Total Attendances	2,184	1,873	503	4,560
New Cases	665	638	107	1,410
CHILD WELFARE—				
Total Attendances, 0–5 years	4,399	3,448	1,157	9,004
Infants, New, 0–1 year	505	471	132	1,108
Toddlers, New, 1-5 years	599	341	88	1,138
HOME VISITS—				
By Health Visitors	2,296	2,592	1,041	5,939
By Health Assistants	1,596	2,269	838	4,703

(3) African Services

(a) Maternity.

The Lady Grigg Welfare League Maternity Hospital not only provided maternity services but also the training of midwives for which there was a long waiting list. The undermentioned table is of interest:—

	Resident in Nairobi	Non-Resident	Total
Cases admitted during the year	1,483	1,139	2,622
Number of beds	—	—	46
Patients days	—	—	13,595
Baby days	—	—	11,719
Motherless baby days	—	—	277

(b) Ante-natal and Child Welfare.

The five clinics administered by the Municipality were well attended as the following table shows:—

Attendances at Five African Clinics

	1	2	3	4	5	Total
Ante-natal—						
Total Attendances	905	1,147	1,534	944	618	5,148
New Cases	162	305	400	316	196	1,379
Confined at Home	47	86	62	171	62	428
Child Welfare—						
Total Attendances, 0-5 years	6,487	5,849	4,437	8,462	3,788	29,023
New Cases—						
Infants, 0–1 year	245	382	347	296	205	1,475
Toddlers, 1–5 years	133	265	306	312	178	1,194
Home Visits—						
By Health Visitors	867	1,430	1,301	1,004	676	5,278
By Health Assistants	2,373	2,812	3,193	4,906	2,581	15,865

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

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

European In-patients	European Out-patients	Asiatic and African In-patients	Asiatic and African Out-patients
2,683	9,427	152,148	936,152

In addition, 1,174,609 attendances were recorded at out-dispensaries in the native reserves:—

In- and Out-patients Treated at Government Hospitals, Dispensaries and Out-dispensaries in 1949

Hospitals in Townships	In-patients	Out-patients
European Hospital, Nairobi	1,225	2,177
Native Civil Hospital, Nairobi	18,151	—
Mathari Mental Hospital, Nairobi	746	—
Infectious Diseases Hospital, Nairobi	2,847	—
Prison Hospital, Nairobi	1,928	—
General Dispensary, Nairobi	—	109,957
Loco Dispensary, Nairobi	—	35,090
European Hospital, Mombasa	709	1,122
Native Civil Hospital, Mombasa	7,255	44,998
Infectious Diseases Hospital, Mombasa	5,802	2,421
European Hospital, Kisumu	336	768
Native Civil Hospital, Kisumu	4,901	26,556
Native Civil Hospital, Nakuru	11,699	14,422
Native Civil Hospital, Eldoret	5,154	14,710
Native Civil Hospital, Kitale	6,125	16,209
Total	64,744	270,556

Hospitals in Turkana and Northern Frontier Province and Lamu

	In-patients	Out-patients	Out-dispensaries
Isiolo	—	—	—
Lodwar	418	3,300	—
Lokitaung	—	—	—
Wajir	1,342	10,349	—
Moyale	889	8,009	—
Lamu	340	10,017	—
Garissa	311	7,648	—
Total	3,300	39,323	—

Hospitals in the Native Reserves

Districts	In-patients	Out-patients	Out-dispensaries
Karatina	—	—	—
Wesu	1,532	8,475	38,289
Voi	1,828	17,388	—
Kabarnet	845	15,645	26,759
Kitui	2,047	9,084	78,766
Kapenguria	345	7,650	—
Narok	1,293	5,738	14,728
Malindi	522	12,978	—
Kakamega	—	—	126,936
Kilifi	1,645	8,931	53,540
Kericho	4,810	12,609	34,074
Machakos	4,226	42,283	133,788
Muriranjas	2,064	17,677	—
Kisii	—	—	249,028
Nyeri	5,628	40,486	—
Fort Hall	6,623	29,135	136,861
Meru	5,594	55,928	223,128
Kiambu	6,902	25,208	—
Embu (District)	3,551	22,678	—
Kajiado	1,308	3,578	6,474
Msambweni (Digo)	3,747	6,756	—
Kapsabet	3,275	15,231	51,707
Kerugoya (Embu District)	4,851	16,644	100,807
Tambach	1,029	7,399	—
Rumuruti	983	14,530	—
Naivasha	393	8,831	—
Shauri Moyo Dispensary	—	13,123	—
Wei Wei Dispensary	—	—	—
Thomson's Falls	542	22,085	—
Maralal	738	4,047	—
Thika	3,095	12,796	—
Maseno	—	—	—
Sandiford and Fort Hall Road Dispensaries	—	—	—
Makindu	893	9,731	678
Taveta	1,429	7,819	—
Londiani	1,825	9,307	—
Molo	2,450	15,814	—
Baragoi	—	—	146
Total	76,013	499,584	1,174,609

Anæsthetics

The report of the Specialist Anæsthetist includes the following data:—

	General	Local	Spinal	Total
Europeans	1,081	45	22	1,148
Asians	206	75	10	291
Africans	7,813	1,242	505	9,560
Total	9,100	1,362	537	10,999

Surgery

In spite of difficulties of accommodation, of staff and in the administration of the European hospitals, surgical practice in Kenya has progressed and kept pace with the recent world-wide advances. Every advantage has been taken to apply the improvements in technique that experience has shown to be suitable for local conditions in Kenya. The appended table indicates the work performed in respect of the total number of operations carried out on all races during the year:—

	1947	1948	1949
Europeans	1,275	1,421	241
Asians	1,315	1,002	843
Africans	18,822	17,129	15,631
Total ...	21,412	19,552	16,715

List of Operations

Nature of Operation	*Number performed*
1. Stomach and Duodenum:—	
(*a*) Closure of perforations	4
(*b*) Gastro-enterostomy	7
(*c*) Gastrectomy	10
Others	5
2. Intestines:—	
(*a*) Closure of wounds and perforations	48
(*b*) Resection and/or anastomosis	30
(*c*) Reduction of volvulus	24
(*d*) Reduction of intussusception	6
(*e*) Division of adhesions or bands	21
(*f*) For any other cause of obstruction	14
(*g*) Formation or closure of artificial anus	8
(*h*) Appendicectomy and/or appendicular drainage	287
(*i*) Drainage of other peritoneal abscesses	24
(*j*) Omentopexy	1
(*k*) Exploratory laparotomy	104
(*l*) Paracentesis	95
Others	10
3. Rectum and Anus:—	
(*a*) Excision of rectum	16
(*b*) Treatment of prolapse	13
(*c*) For fissure and fistula	23
(*d*) For ischio-rectal abscess	16
(*e*) Ligature of hæmorrhoids	57
(*f*) Injection of haemorrhoids	1
(*g*) Sigmoidoscopy	40
Others	2
4. Hernia:—	
(*a*) Inguinal	267
(*b*) Femoral	2
(*c*) Umbilical	7
(*d*) Incisional	1
Others	2
5. Liver, Spleen and Pancreas:—	
(*a*) Upon liver	14
(*b*) Cholecystectomy	14
(*c*) Other operations upon gall bladder and bile ducts	6
(*d*) Splenectomy	4
(*e*) For pancreatitis	—
Others	3
6. Urinary System:—	
(*a*) Nephrotomy	3
(*b*) Nephrectomy	10
(*c*) Perinephric exploration	4
(*d*) Upon ureters (excluding operations for vesico-vaginal fistula)	18
(*e*) Cystotomy and suprapubic drainage	57
(*f*) Prostatectomy	33
(*g*) Urethrotomy	19
(*h*) For urethral fistula and abscess	2
(*i*) Cystoscopy and ureteric catheterization	109
(*j*) Urethral catheterization and passage of sounds	248
Others	2

Nature of Operation	*Number performed*
7. Male Organs of Generation:—	
(*a*) Circumcision	175
(*b*) Others for paraphimosis	37
(*c*) Amputation of penis	4
(*d*) Hydrocelotomy	94
(*e*) For varicocele	4
(*f*) Upon testis and epididymis	16
Others	11
8. Female Organs of Generation:—	
(*a*) Ovariotomy	58
(*b*) Salpingotomy	67
(*c*) Salpingostomy, for sterility	14
(*d*) Myomectomy	20
(*e*) Hysterectomy	101
(*f*) Hysteropexy	49
(*g*) Cæsarian section	100
(*h*) Uterine suture	20
(*i*) For extra-uterine gestation	15
(*j*) Drainage of pelvic abscess	21
(*k*) Instrumental delivery and destruction of fœtus	213
(*l*) For vesico- or recto-vaginal fistula:—	
(i) Plastic repair	30
(ii) Uretero-colic anastomosis	41
(*m*) Colporrhaphy and perineorrhaphy	31
(*n*) Removal of uterine contents and/or dilatation and curettage	837
(*o*) Induction of labour or abortion	9
(*p*) Insufflation of fallopian tubes	22
(*q*) Uterine drainage	—
(*r*) Examination and/or manipulation of uterus or fœtus	109
(*s*) Upon cervix	29
(*t*) Others upon vagina and vulva	27
Others	15
9. Eye:—	
(*a*) For entropion	99
(*b*) For cataract	112
(*c*) For glaucoma	24
(*d*) Iridectomy	42
(*e*) Enucleation and evisceration	66
Others	309
10. Ear, Nose and Throat:—	
(*a*) Myringotomy	1
(*b*) Mastoidotomy	26
(*c*) Removal of foreign bodies	36
(*d*) Reduction of nasal fracture	12
(*e*) Resection of septum	47
(*f*) Turbinectomy and/or drainage of sinuses	31
(*g*) Removal of tumours	12
(*h*) Tonsillotomy, by guillotine	83
(*i*) Tonsillectomy, by disseetion (both including removal of adenoids)	123
(*j*) For quinzy	6
(*k*) Uvulotomy	26
(*l*) Laryngoscopy, bronchoscopy and œsophagoscopy	29
Others	15
11. Mouth and Neck:—	
(*a*) Extraction of teeth	1,805
(*b*) Upon jaws (including treatment of fractures)	40
(*c*) Upon tongue and lips (including removal of tumours, but excluding plastic operations)	18
(*d*) Excision or treatment of glands in neck	86
(*e*) Tracheotomy	13
(*f*) Thyroidectomy (including ligature of thyroid vessels)	35
(*g*) For thyro-glossal cysts	3
Others	3
12. Chest:—	
(*a*) Thoracotomy and pleural drainage	32
(*b*) Lobectomy	2
(*c*) Upon cardia	—
(*d*) Phrenic avulsion	4
(*e*) Artificial pneumothorax	20
(*f*) Paracentesis	28
Others	1
13. Mammary Glands:	
(*a*) Mastectomy	9
(*b*) Excision of tumour	12
(*c*) Incision of abscess	65

Nature of Operation	*Number performed*
14. Cranium:—	
(*a*) Decompression and treatment of fracture and hæmorrhage	46
(*b*) For intracranial tumour	1
(*c*) Drainage of intracranial abscess	—
Others	9
15. Spinal Column:—	
(*a*) Laminectomy	17
(*b*) Bone graft	23
(*c*) Manipulation and/or external fixation (for tuberculosis, fracture and other conditions, including application of plaster jacket)	58
(*d*) Lumbar and cisternal puncture	231
(*e*) Spinal injection	3
Others	25
16. Bones:—	
(*a*) For fractures:	
(i) Open operations (including bone graft, application of plates and other mechanical aids)	301
(ii) Manual and instrumental reduction and/or application of splints and plaster	1,176
(*b*) For osteomyelitis, osteitis and periostitis:	
(i) Acute	55
(ii) Chronic (including sequestrectomy and/or application of plaster)	205
(*c*) Removal of tumours	7
Others	—
17. Joints:—	
(*a*) Arthrotomy:	
(i) For sepsis	20
(ii) For removal of loose or foreign bodies	28
(*b*) Excision of joint	30
(*c*) Reduction of dislocation	95
(*d*) Manipulation for other purposes	58
(*e*) External fixation (including application of plaster)	69
(*f*) Aspiration	75
Others	53
18. Amputations:—	
(*a*) Of fingers	215
(*b*) Of hand and forearm	21
(*c*) Of arm	22
(*d*) Of toes	61
(*e*) Of foot and leg	63
(*f*) Of thigh	38
Others	—
19. Arteries, Veins and Nerves:—	
(*a*) For aneurysm	3
(*b*) Ligature of vessels	11
(*c*) For angioma	1
(*d*) Injection of varicose veins	14
(*e*) Nerve suture and neurolysis	15
(*f*) Others upon nerves (including stretching and injection)	8
Others	21
20. Orthopædic and Plastic Operations:—	
(*a*) Osteotomy (for deformities)	18
(*b*) Other treatment of deformities and contractures (including manipulation and application of splints and plaster)	85
(*c*) For hare lip and cleft palate	8
(*d*) Upon ears, nose and lips	4
(*e*) For elephantiasis	10
(*f*) Skin graft	308
Others	—
21. Conditions Unclassified Regionally:—	
(*a*) For ulcers (excluding skin graft)	1,699
(*b*) For other septic conditions (including incision of abscesses and whitlows)	1,843
(*c*) Suture and treatment of wounds (including tendon suture)	1,352
(*d*) Excision of superficial tumours (including cysts)	384
(*e*) Extraction of foreign bodies	360
(*f*) Removal of glands	49
(*g*) For bursitis and ganglion	183
(*h*) Treatment of burns	91
(*i*) Removal of parasites	—
Others	64
22. Surgical Procedures Otherwise Unclassified	48

EUROPEANS .. 241 ASIANS .. 843 AFRICANS .. 15,635 .. TOTAL 16,719

Eye Clinic, General Dispensary, Nairobi

The following are details of work done and cases seen at the Eye Clinic held at the General Dispensary, Nairobi, during 1949:—

	Europeans	Asians	Africans
Affections of the Lids:—			
Blepharitis	4	10	28
Hordeolum	6	27	146
Chalazion	3	21	206
Entropion	1	2	30
Ectropion	—	—	5
Trichiasis	—	—	1
Districhiasis	—	4	15
Injuries	1	4	22
Others	2	23	131
Affections of Lacrymal System:—			
Dacrocystitis	—	1	14
Lacrymal Gland	—	1	2
Others	1	—	—
Affections of the Conjunctiva:—			
Conjunctivitis	76	443	5,134
Sub-conj. Hæmorrhage	3	7	63
Pterygium	3	5	23
Pinguecula	1	—	—
Tumours	1	2	32
Foreign Body	10	18	113
Xerosis	—	—	24
Trachoma	—	54	620
Spring Catarrh	—	—	14
Injuries	1	2	8
Affections of the Cornea:—			
Ulcer	5	22	236
Foreign Body	13	107	373
Opacitis	—	4	65
Keratitis	1	—	44
Phlyctens	—	—	51
Staphyloma	—	—	34
Injuries	—	2	28
Others	—	—	3
Affections of the Orbit:—			
Cellulitis	—	1	17
Tumour	—	—	—
Injury	—	—	—
Neuralgia	—	1	81
Others	—	3	23
Affections of the Uveal Tract:—			
Acute Iritis	1	2	66
Chronic Iritis	1	—	40
Irido-cyclitis	—	—	1
Choroiditis	—	—	—
Others	—	—	—
Affections of the Retina:—			
Retinitis	—	—	—
Detachment	—	—	—
Others	—	—	—
Affections of the Lens:—			
Senile Cataract	—	12	79
Traumatic Cataract	1	—	16
Secondary Cataract	—	—	2
Juvenile Cataract	—	—	2
Dislocation	—	—	—
Affections of the Vitreous:—			
Opacities	—	—	—
Hæmorrhage	—	—	—
Others	—	—	—

	Europeans	Asians	Africans
Affections of the Optic Nerve:—			
Papillœdema	—	—	—
Papillitis	—	—	—
Optic Atrophy	—	2	13
Others	—	1	1
Other Conditions:—			
Panophthalmitis	—	—	10
Sympathetic Ophthalmitis	—	—	—
Glaucoma	—	2	6
Night Blindness	—	—	181
Xerophthalmia	—	—	—
Scleritis	—	2	29
Contusion	—	2	31
Tumours	—	—	2
Others	—	—	10
Errors of Refraction:—			
Hypermetropia	21	20	29
H. Astigmatism	44	32	57
Myopia	26	68	41
M. Astigmatism	50	90	86
Presbyopia	73	54	95
Others	7	13	72
Vision Tests	40	1,140	1,768
Examination and Reports	77	112	203
Total Number of New Cases	473	2,316	10,425
Total Number of Reattendances	34	3,754	20,511
GRAND TOTAL OF ALL CASES TREATED DURING THE YEAR 1949	37,513		

	Europeans		Asians		Africans	
	Male	Female	Male	Female	Male	Female
New Cases	330	143	2,128	188	8,529	1,896

MEDICAL WORK CARRIED OUT BY MISSIONARY SOCIETIES

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

Mission	Place	No. of Beds	In-Patients	Out-Patients	Out-Dispensary Patients	Confinements	Amount of Grants £
C.S.M.	Kikuyu	90	2,623	21,475	—	485	1,638
„	Chogoria	105	3,690	15,151	41,549	368	1,832
„	Tumutumu	—	—	—	—	—	—
C.M.S.	Kaloleni	86	1,684	18,311	50,749	112	1,134
„	Maseno	89	1,261	13,748	7,713	69	1,522
S.D.A.	Kendu	—	—	—	—	110	—
M.M.S.	Meru	70	1,960	—	—	—	1,092
I.A.M.	Eldoret	26	—	—	—	—	—
C.M.	Kalimoni	40	350	7,309	—	—	—
„	Kabaa	34	388	5,684	1,774	—	—
„	Nyeri	67	1,512	6,350	65,630	192	—

C.S.M.—Church of Scotland Mission.
C.M.S.—Church Missionary Society.
S.D.A.—Seventh Day Adventists.
M.M.S.—Methodist Missionary Society.
I.A.M.—Inland Africa Mission.
C.M.—Catholic Mission.

Venereal Diseases Clinics

Treatment of venereal diseases is afforded for men and women at Government and Municipal clinics in Nairobi and Mombasa, while special clinics for women are maintained by Government at Nanyuki and Gilgil. Treatment is also carried out both for in-patients and out-patients at all Government hospitals throughout the Colony. Figures of cases treated for the last four years are as follows:—

	1946	1947	1948	1949
Syphilis	16,763	17,174	18,177	15,021
Gonorrhœa	15,178	19,466	20,183	19,694

Gonorrhœa.

For gonorrhœa penicillin in oil in the majority of cases has been the mainstay of treatment. The advantage of the treatment is that only one single dose of penicillin need be given with results comparable with those given by several injections of aqueous penicillin.

Syphilis.

Except in special cases, inadequate supplies of penicillin prevented its full use in this disease, the routine treatment of which by arsphenoxide and bismuth was continued. Where possible intensive in-patient courses of treatment were given with satisfactory results.

Other Diseases.

There is little of interest to report on other venereal diseases, of which the incidence is very low.

VI—TRAINING OF AFRICANS

The training of African staff is considered to be one of the highest priorities in the activities of the Medical Department. It is only by the thorough training of more Africans in subordinate posts that a much needed expansion of medical services can take place and the African can take a greater share in the operation of medical services in his own country. Training for the following classes of African was continued during the year:—

(*a*) *Hospital Assistants.*

In the absence of the full cadre of African assistant medical officers, African hospital assistants constituted the most important element in the subordinate staff. In many cases it has been necessary to post senior hospital assistants in charge of small hospitals and large dispensaries and they will in future be placed in charge of the locational health centres which it is proposed to develop. Towards the end of the year the system of training of Africans, and particularly hospital assistants, was reorganized and certain causes of discontent amongst trainees were removed. Reorganization included the introduction of the block system, thus enabling an increased number of students to be trained. At the same time more of the responsibility for training was placed on the sister tutors with the object of turning out a male nurse trained on strictly nursing lines. The enlargement of the scope of training to fit them for independent charge was relegated to subsequent upgrading and refresher courses.

(*b*) *African Health Inspectors.*

The number of students in training at the beginning of the year was 19. Eight students of the 1947 intake sat for the examination held by the joint East African Examination Board and the Royal Sanitary Institute. At this examination all the candidates were awarded pass marks.

At the end of the year it was decided to move the training school for African health inspectors from the Medical School to Jeanes School. This was done partly to make more room for additional students at the Medical Training School and also to allow of a greater possibility for practical work in the adjacent native reserves.

(*c*) *Training of Nurses.*

No systematic training of African girls as nurses had been introduced by the end of the year, but plans were well advanced for the systematic training of nurses in Nairobi during the following year.

(*d*) *Dressers and Nurses in District Hospitals.*

A start was made in organizing demonstrations and lectures for African dressers and nurses who were already in the Department and who had hitherto been given no systematic training.

(e) Midwives.

A two years' course of training in midwifery was continued at the Maternity Centre in Pumwani, Nairobi, and at Mombasa. These schools and maternity hospitals are under the ægis of the local authority. In addition, some training was carried out at certain mission stations.

(f) Other Technical Staff.

Systematic training of laboratory assistants, entomological assistants and masseurs was continued during the year.

The total number in training was as follows:—

Health Inspectors	27
Hospital Assistants	55
Compounders	18
Masseurs	7
Laboratory Assistants	10
TOTAL	117

The total number of qualified staff in the Colony at the end of December, 1949, was:—

(1)	Hospital Assistants, Special Grade	12
	Hospital Assistants, Grade I	42
	Hospital Assistants, Grade II	106
		160
(2)	Compounders, Special Grade	2
	Compounders, Grade I	10
	Compounders, Grade II	13
		25
(3)	Laboratory Assistants, Special Grade	5
	Laboratory Assistants, Grade I	12
	Laboratory Assistants, Grade II	39
	Laboratory Assistants, Grade III	4
		60
(4)	Masseurs, Grade I	4
	Masseurs, Grade II	2
		6
(5)	Instructors, Special Grade	2
	Instructors, Grade I	–
		2

VII—SCHOOL HEALTH SERVICE

A School Health Service was started in 1949 with the appointment of a School Medical Officer, and later a School Health Sister.

MEDICAL EXAMINATIONS

Medical examination of children entering primary school for the first time (i.e. the six year olds) was completed using the school medical inspection card, and the numbers examined are given below:—

	Standard Sub A	*Standard I*
European	165	—
Asian	—	422
African	—	203

The total number of examinations—790.

Examinations of school children were for the most part carried out under unsatisfactory conditions. Parents of European children were invited to be present and a surprising number attended, many having to leave their employment.

The examination of children of all races this year was done with a view to acquiring knowledge of the relative importance of defects with an effort to find a "normal" for future examinations.

The important defects found for observation and treatment are outlined below:—

(*a*) *European Children—Standard Sub A (from School Card).*

Number examined: 165.

O—Observation; T—Treatment.

Defects in order of frequency (for observation and treatment):—

Cervical glands (observation)	92—55.76%
Posture (85 O, 2 T)	87—52.73%
Other glands (observation)	81—49.09%
Teeth (37 O, 42 T)	79—47.88%
Throat (66 O, 3 T)	69—41.82%
Flat foot (observation)	41—24.85%
Squint (37 O, 3 T)	40—24.24%
Nose (28 O, 3 T)	31—18.79%
Orthopædic conditions other than posture and flat foot (observation)	17—10.30%
Vision (7 O, 4 T)	11— 6.67%
Speech (5 O, 1 T)	6— 3.64%
Otitis Media (observation)	5— 3.03%
Skins (3 O, 1 T)	4— 2.42%
Abdominal conditions other than spleen, liver and hernia (1 O, 1 T)	2— 1.21%
Heart and circulation (observation)	2— 1.21%
Hearing (observation)	1— 0.61%
Hernia (observation)	1— 0.61%

(*b*) *Defects of Asian Children.*

Number of Standard I pupils examined, 422.

The nine most frequent defects for observation and treatment (combined):—

Cervical glands	391—92.65%
Posture	389—92.18%
Skin (cracked skin, ulcers, etc.) (mostly for observation)	364—86.26%
Axillary glands	329—77.44%
Nose	297—70.38%
Throat	287—68.01%
Teeth	267—63.27%
Inguinal glands	212—50.24%
Cleanliness (including infestation)	150—35.59%

(*c*) *Defects of African Children.*

Number of Standard I children examined, 203.

The nine most frequent defects for observation and treatment (combined):—

Skin (cracked skin, ulcers, etc.) (mostly for observation)	198—97.54%
Cervical glands	166—81.77%
Cleanliness	163—80.30%
Nose	145—71.43%
Throat	145—71.43%
Posture	123—60.59%
Axillary glands	98—48.28%
Teeth	56—27.59%
Inguinal glands	36—17.73%

As will be seen enlarged cervical glands and throat and nose defects were very common. Posture, as evaluated during the examinations, was on the whole unsatisfactory. Skin and cleanliness defects were very common in African and Asian schools. The testing of vision and hearing in these young children was difficult for several reasons, for example (*a*) the lack of a suitable room with proper lighting in many schools, especially on dull days, (*b*) the inability of many children to count, and (*c*) language difficulties.

Better methods will have to be devised before exact figures can be given. Clinical signs of nutritional deficiencies were recorded for Asian and African children. These will be considered later when a sufficient number of children have been examined.

IMMUNIZATION OF SCHOOL CHILDREN OF ALL RACES

	Smallpox Vaccinations	T.A.B.		Diphtheria Toxoid	
		1st dose	2nd dose	1st dose	2nd dose
Europeans	744	337	84	101	15
Nairobi Central School	..	11	11	..	..
Asians	1,298	2,186	2,121	191	142
Africans	570	565	511	65	59
TOTAL	2,612	3,099	2,727	357	216

Total number of inoculations (including smallpox vaccinations), 9,011.

Children over ten years of age were not given diphtheria prophylactic P.T.A.P. without a Schick test.

SCHICK TESTING

In order to get some idea of the necessity of immunizing school children of all races against diphtheria a survey is being carried out, and the following number of Schick tests have been completed during 1949. The results are being submitted in a separate report.

European	10	(313 performed in 1948)
Asian	817	
African	686	
TOTAL	1,513	

SCHOOL PREMISES, ETC.

The following important subjects have been given special attention:—

1. Drinking water.
2. Milk supply to schools.
3. Bread supply to schools.
4. School kitchens.
5. Lighting.
6. Fire protection.
7. Dust.
8. Mosquito nets.
9. Sanitary facilities in schools.
10. Medical examination rooms.
11. Health inspector for schools.
12. Supervision of African staff.

A survey of lighting has been started at the Prince of Wales School. The Firemaster, Nairobi, has visited all Nairobi schools and recommendations have been made.

TREATMENT AND FOLLOW-UP WORK

European Children.

Parents are notified of defects.

Asian Children.

An effective method of notifying parents is under consideration.

African Children.

The arrangements made with the Medical Officer in Charge, Government Dispensary, for reports on treatment of school children with recommendations to be sent to the Principal of the Government African School, Pumwani, have been very successful.

VIII—PRISONS

The following statistics refer to Nairobi Prison and give comparative morbidity figures over the past three years:—

	1947	1948	1949
In-patients	2,045	2,105	2,204
In-patients daily average	61·8	80	—
Out-patients new cases	3,131	2,753	6,824
Out-patients daily average new cases	8·6	7·5	18·7
Deaths	16	18	34
Daily average in prison	1,122·9	1,144·8	1,166·7

Additional accommodation is provided at four prison camps in the vicinity of Nairobi housing some 1,000 prisoners and provided with out-patient facilities, in-patients being admitted to the main hospital at Nairobi Prison where a resident Asian doctor is posted.

Diseases.

Notifiable and infectious diseases were recorded as follows:--

Tuberculosis—(Pulmonary)	18
Dysentery—Amoebic	2
,, —Bacillary	48
Anthrax (Intestinal)	1
Enteric Fever	3
Cerebro-spinal Fever	2

The incidence of pulmonary tuberculosis over the past three years was:—

1947	33
1948	13
1949	9

Mortality.

Thirty-four deaths were recorded from the following cases:—

Anthrax (Intestinal)	1
Pulmonary Tuberculosis	9
Insanity and Debility	4
Lobar Pneumonia	4
Nephritis	3
Oedema of Larynx	1
Dysentery—Amoebic	2
,, —Bacillary	4
Cerebro-spinal Fever	2
Broncho-pneumonia	3
Diabetes	1

The number of deaths during 1949 shows a considerable increase over the last two previous years, chiefly on account of pulmonary tuberculosis, bacillary dysentery and broncho-pneumonia. Four deaths from insanity and debility were notified in cases for whom accommodation was not available at the mental hospital.

Health.

On the whole, despite the continued gross overcrowding, the general health of all races was comparatively good. A marked diminution in the prevalence of house flies resulted from spraying of the whole prison with D.D.T. The source of this nuisance was traced to a Nairobi Municipal refuse dump where, following representations, it was abated and dumping discontinued.

Water Supply.

The provision of an additional pipeline from the Nairobi municipal supply made the position satisfactory.

Diet.

The new balance diet scales introduced towards the end of 1948 proved satisfactory. However, in the early part of the year some cases of pellagra were discovered and an examination of the entire prison population revealed 50 with marked typical skin changes. Investigations revealed failure to provide the full amount of "beans" as laid down on account of high cost and provision of potatoes in lieu. Corrective measures speedily effected the desired result so that only two cases were found at the end of the year.

IX—THE MATHARI MENTAL HOSPITAL

Number of Patients Treated.

Seven hundred and forty-seven persons were treated as in-patients during the year, i.e. three less than last year. Of these 62 were Europeans, 59 Asians and 626 Africans.

There were 295 admissions, 239 discharges and 42 deaths, against 371, 233 and 66 in 1948.

The average daily number was 454 as compared with 410 last year. The monthly average of patients resident was fairly constant, a slight increase towards the end of the year was obtained by further overcrowding the African and Asian sections in an attempt to alleviate the conditions that exist for mental patients at the prisons. The monthly averages were:—

January	451	July	443
February	450	August	460
March	453	September	463
April	447	October	461
May	443	November	463
June	444	December	463

Accommodation.

On the last day of the year there were 465 patients in residence, although the already fully stretched authorized number allowed for only 414. At the end of 1948, when 451 persons were under care, most sections of the hospital were overcrowded. Despite no further new accommodation having been provided, except six new European beds, 14 extra patients have been squeezed in.

(a) European.

The female section, which accommodates 13 patients in comfort but is capable of crowding 15, fulfilled all that was required from it during the year. For short periods there were in fact 15 patients and this made for some discomfort, and but for the fact that suitable outside care was obtained for a few chronic cases the position would have been very difficult.

For males a sleeping ward of six beds was completed and occupied at the beginning of June. As a sequel the cottage ward was rearranged to provide dining-room, writing-room, lounge and two spare bedrooms for convalescent cases. Comfortable and homely furnishings were provided on a scale far more generous than ever before, and European males are now adequately and comfortably accommodated with some segregation of cases. A total of eight beds amply met the year's requirements.

(b) Asian.

A number of Asian patients were refused admission because of gross overcrowding in this section, where throughout the year 37 patients were housed in a space originally designed to accommodate 26. In consequence, at times Asian patients had to be admitted to other hospitals, nursing homes and outside care. There was an instance of an Asian male mental patient having to be looked after at the Nairobi Prison because of the absence of available room at Mathari.

(c) African.

Every effort was made to keep African patients out of hospital. Medical officers were circularized that hospitalization of the acute and dangerous would only be considered, and even so a large proportion of admissions had to wait in the totally unsuitable prison environment until vacancies at Mathari could be found. Every available square foot of floor space is now taken up for sleeping room—a state of affairs which is fraught with risks from infectious disease and from the impossibility of proper segregation of disturbed and dangerous cases.

Physical Health.

The health of the patients on the whole was excellent and the death rate—5.6 per cent of the patients treated—was the lowest since 1939.

Causes of death were certified as follows:—

Tuberculosis	10
General Paralysis	4
Dysentery	3
Senility and Insanity	2
Debility and Insanity	7
Epilepsy	4
Pneumonia	4
Debility	1
Lenticular Degeneration	1
Intestinal Intussusception	1
Trypanosomiasis	1
Entero-colitis	1
Nephritis	1
Cerebral Thrombosis	1
Pneumococcal Meningitis	1
TOTAL	42

The following infectious diseases were notified during the year:—

Malaria	24
Dysentery	22
Tuberculosis	16
Influenza	11
Chickenpox	6
Lobar Pneumonia	5
Measles	2
Trypanosomiasis	1

Twenty-eight cases of pellagra, of whom three died from debility, caused some concern. The large majority of these cases occurred between June and October and all were African males. The biochemist's report on the diet was favourable and the cause of the outbreak remains obscure. Measures to ensure and maintain an equitable distribution of food were strengthened but, with the tremendous increase of ward populations, supervision of individual cases is difficult and it is possible for cases to refuse essential food for long periods before being noticed.

There were 16 cases of tuberculosis, of whom ten died. This represents a marked improvement on the previous year, when there were 23 cases with 18 deaths, and suggests that the prophylatic measures instituted at the end of 1948 (and described in the annual report for that year) have met with some success.

Bacillary dysentery since the introduction of sulphaguanidine has never been so fatal a disease in this hospital as it often was in former years.

General Conduct of Patients

The following table shows the number of casualties sustained and also occurrences of of special importance:—

	Male	Female	Total
(*a*) Injuries:			
(i) Self-inflicted	10	—	10
(ii) By others	78	30	108
(iii) Accidental	37	15	52
(iv) By staff	—	1	1
(v) To Staff	6	4	10
(*b*) Restraint:			
(i) Times resorted to	114	4	118
(ii) Patients subjected to	8	2	10
(iii) Longest time (hours)	14	8	14
(iv) Type used—Strong canvas jacket	—	—	—
(*c*) Seclusion:			
(i) Times resorted to	26	6	32
(ii) Patients subjected to	17	4	21
(iii) Longest time (hours)	10	10½	10½
(*d*) Absconded:			
Attempts	7	4	11
(*e*) Suicidal:			
Attempts	1	1	2

The injuries sustained by patients were chiefly of a minor character; there were, however, eight who sustained fractures.

Restraint and seclusion were resorted to considerably more frequently than in 1948. The need for this has arisen from overcrowding and the consequent breakdown of the normal arrangements for the segregation of disturbed and violent cases.

One African male succeeded in remaining out of hospital for 14 days after absconding; the remainder who tried to run away were apprehended in the vicinity of the hospital by hospital staff.

Patients' Occupation, Recreation and Welfare

An average of 51 per cent of male patients were usefully employed throughout the year—an increase of 15 per cent on last year. This was achieved in spite of keeping extra staff on ward duty through overcrowding. Thirty-six per cent of female patients were employed. Work was of a maintenance kind, i.e., grounds, roads, kitchens, laundry and ward work. Knitting and sewing undertaken by patients in the wards are not included in this average, as such work, at this hospital, is too unorganized and spasmodic to allow for records to be kept. There was no organized occupational therapy, but a memorandum expressing ideas for its practical development was submitted at the end of the year.

During the year a wireless set was presented to the European male ward and gramophones to the Asian ward and an African ward. Apart from walking exercise, outside recreation consisted of tennis for Europeans and football for Africans.

Books, periodicals and newspapers in sufficient quantities continue to reach the hospital through members of the Visiting Committee, the British Red Cross and the East Africa Women's League. At Christmas many anonymous gifts from outside commercial and social sources were received. Cash gifts from Messrs. Gill and Johnson and the East Africa Women's League secured the engagement of a local brass band to play to the patients in the grounds during Christmas Day.

There were divine services for all denominations at frequent intervals throughout the year.

Financial

The total expenditure for the year was £5,800, an increase of £400 over 1948. This was due to an increased number of patients treated (15,702 patient-days). But for a slight reduction in the cost per patient-day the increase over 1948 would have been over £1,000. This reduction was achieved by a very strict check of stores issues and of kitchens.

The following are the upkeep and maintenance figures for the past five years:—

Year	Patient Bed-Days	Total Expended	Cost per Patient Bed-Day		Misc. Expended Fuel, etc.
			African	Eur./Asian	
		£	*Cents*	*Sh. cts.*	£
1945	120,426	3,173	33	1 56	270
1946	129,180	3,500	34	1 79	170
1947	133,488	4,293	47	1 58	300
1948	149,977	5,396	51	1 73	455
1949	165,679	5,800	53	1 66	500

Legislation

On 7th February, 1949, the Mental Treatment Ordinance of 1949 became law, thus replacing the Indian Lunatic Asylums Act of 1858. This marks a great advance, brings Kenya into line with legal practice in England, and enables patients to be admitted (either as voluntary or temporary patients) without the necessity for certification or for appearing before a magistrate—procedures which were previously a serious source of embarrassment and resentment to patients, their relations, and doctors alike.

Nevertheless, 16 voluntary cases and 33 temporary were admitted during the year, and several patients have liked the hospital so well that it has been very difficult to persuade them to leave!

Therapeutics

Electro-convulsive treatment was used on 65 persons (in-patients and out-patients) during the year, mostly for conditions of depression in non-Africans and of acute excitement or schizophrenia in Africans. Most of the depressive and excited cases were benefited or cured, whereas most of the schizophrenics showed little change. No physical complications occurred as a result of this treatment in this series of cases which, in view of the large number of convulsions produced (perhaps about 300), was a notable achievement.

Insulin treatment: With the advent of Dr. Foley it has been possible to reinstitute this treatment and a course was started on a European in-patient at the end of the year.

Narco-analysis and Hypnotism: Several patients were narco-analysed with the use of sodium amytal, and one was successfully hypnotized without the use of drugs.

Penicillin treatment was used in the case of 18 neuro-syphilitics. Of these cases seven were improved or cured, eight showed little change and three died. The African cases usually come in too late for a complete cure to be hoped for.

Pre-frontal leucotomy was performed on seven patients—one depressive European who was thus cured and discharged and six aggressive and psychopathic Africans of whom five were improved (some dramatically) and one is not so far improved. There were no deaths in this series.

General Statistics

A.—Types of Mental Disorder from which Patients Suffered and for which they were Treated:—

Manic Depression	71
Schizophrenia	270
Paranoia	22
Psychopathic	23
Neuro-syphilis	30
Senile Dementia	32
Other Organic Reactions	76
Epilepsy	31
Terminal Dementia	14
Neurosis	14
Mental Defect	86
N.A.D.	2
Unclassified	75
	746

B.—Total Number of Patients Treated:—

Male	481
Female	265
Total	746

C.—Percentage of Deaths to Total Treated:—

Year	Number Treated	Number of Deaths	Percentage
1944	522	48	8·43
1945	560	35	6·25
1946	579	43	7·42
1947	619	57	9·20
1948	750	66	8·80
1949	746	42	5·60

D.—Admissions, Discharges, and Deaths for Last Three Years:—

	Admissions			Deaths			Discharges		
	1947	1948	1949	1947	1948	1949	1947	1948	1949
Males	177	241	179	30	54	31	127	156	141
Females	88	130	116	27	12	11	56	77	98
Total	265	371	295	57	66	42	183	233	239

E.—Total Number of In-patient Days:—

	1947	1948	1949
European Male	1,076	1,935	1,770
European Female	3,829	4,156	4,765
Asian Male	7,131	7 916	8,836
Asian Female	5,819	4,417	4,332
African Male	85,044	95,051	100,832
African Female	32,589	36 502	45,144
Total	135,488	149,977	165,679

F.—Average Daily In-patient Figures:—

1947	1948	1949
365	410	454

TABLE III.—RETURN OF DISEASES—(IN-PATIENTS)

for the year 1949

DISEASES	European Officials					European General Population					Asiatic General Population (including Officials)					Native General Population (including Officials)				
	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949
I.—Epidemic, Endemic and Infectious Diseases																				
1. Enteric Group—																				
(*a*) Typhoid Fever	—	4	—	4	1	1	6	—	7	1	2	8	1	10	—	31	822	120	853	32
(*b*) Paratyphoid A	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	3	49	2	52	2
(*c*) Paratyphoid B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	—	7	—
(*d*) Type not defined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	57	9	57	4
2. Typhus	—	14	—	14	—	—	1	1	1	—	—	—	—	—	—	1	32	2	33	1
3. Relapsing Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	513	18	530	9
4. Undulant Fever	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	2	100	2	102	5
5. Malaria—																				
(*a*) Tertian (Benign)	—	12	—	12	—	—	31	1	31	—	—	5	—	5	2	26	151	4	177	3
(*b*) Quartan	—	2	—	2	—	—	2	—	2	—	—	—	—	—	—	—	218	—	218	5
(*c*) Aestivo-autumnal (S.T.) ..	1	27	—	28	—	—	44	1	44	—	1	144	1	145	2	79	7,332	160	7,411	82
(*d*) Undifferentiated (Clinical)	—	66	—	66	—	—	105	—	105	1	12	720	—	732	6	109	10,229	—	10,338	175
(*e*) Cachexia	—	—	—	—	—	—	2	—	2	—	—	3	—	3	—	—	141	6	141	1
(*f*) Blackwater	—	—	—	—	—	—	2	—	2	—	—	2	2	2	—	—	12	1	12	1
(*g*) Cerebral	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	—	43	25	43	—
6. Smallpox	—	—	—	—	—	—	—	—	—	—	—	3	—	3	—	—	11	—	11	—
Alastrim	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	6	2
7. Measles	—	5	—	5	—	—	27	—	27	—	—	29	—	29	1	26	1,477	32	1,503	28
8. Scarlet Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	779	2	779	—
9. Whooping Cough	—	2	—	2	—	—	15	—	15	—	1	5	1	6	—	34	1,642	71	1,676	17
10. Diphtheria	—	1	—	1	—	—	3	—	3	—	—	2	—	2	—	—	48	11	48	1
11. Influenza	—	28	—	28	—	—	51	—	51	—	30	1,618	—	1,648	21	13	829	7	842	6
12. Miliary Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	8	9	—
13. Mumps	—	1	—	1	—	—	—	—	—	—	—	22	—	22	—	9	395	1	404	2
14. Cholera	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15. Epidemic diarrhoea	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	232	2	233	5
16. Dysentery—																				
(*a*) Amœbic	2	29	—	31	—	—	48	—	48	4	—	50	—	50	1	29	1,212	20	1,241	36
(*b*) Bacillary	—	16	—	16	—	—	19	—	19	—	1	14	—	15	—	14	1,133	38	1,147	48
(*c*) Undefined or due to other causes	—	5	—	5	—	—	2	—	2	—	3	118	—	121	—	32	859	52	891	15

17. Plague—																					
(*a*) Bubonic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	4	1	5	—
(*b*) Pneumonic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	2	—
(*c*) Septicæmic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*d*) Undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18. Yellow Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
19. Spirochætosis icterohæmorrhagica	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20. Leprosy	—	—	—	—	—	—	—	—	—	1	—	—	1	—	20	104	3	124	16
21. Erysipelas	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	7	3	7	—
22. Acute Poliomyelitis	—	4	—	4	—	—	8	—	8	—	—	6	—	6	—	3	51	3	54	5
23. Encephalitis Lethargica	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	3	—
24. Epidemic Cerebro-spinal Fever	—	1	—	1	—	—	—	—	—	—	—	7	—	7	—	7	158	86	165	4
25. Other Epidemic Diseases—																				
(*a*) Rubeola (German Measles)	—	3	—	3	—	—	1	—	1	—	—	—	—	—	—	2	42	3	44	—
(*b*) Varicella (Chicken-pox)	—	1	—	1	—	—	6	—	6	—	—	12	—	12	—	14	307	8	321	26
(*c*) Kala-azar	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	20	6	21	—
(*d*) Phlebotomus Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	2	—
(*e*) Dengue	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*f*) Epidemic Dropsy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—
(*g*) Yaws	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60	815	—	875	72
(*h*) Trypanosomiasis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	18	5	20	1
(*i*) Cow Pox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*j*) Glandular Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
26. Glanders	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
27. Anthrax	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28	208	49	236	13
28. Rabies (suspected)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	2	4	—
29. Tetanus	—	—	—	—	—	—	—	—	—	—	—	3	—	3	1	4	197	71	201	5
30. Mycosis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37	4	37	2
31. Tuberculosis, Pulmonary and Laryngeal	1	4	—	5	—	—	7	1	7	1	1	27	1	28	—	152	1,985	500	2,137	149
32. Tuberculosis of the Meninges or Central Nervous System	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	105	77	109	4
33. Tuberculosis of the Intestines or Peritoneum	—	1	—	1	—	—	1	—	1	—	—	1	1	1	—	1	86	39	87	8
34. Tuberculosis of the Vertebral Column	—	—	—	—	—	—	1	—	1	—	—	1	—	1	—	5	191	20	196	32
35. Tuberculosis of Bones and Joints	—	—	—	—	—	—	2	—	2	—	—	5	—	5	1	7	167	10	174	34
36. Tuberculosis of Other Organs—																				
(*a*) Skin or Subcutaneous Tissue (including Lupus)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	22	—	23	—
(*b*) Bones	—	—	—	—	—	—	2	—	2	—	—	—	—	—	—	—	16	1	16	4
(*c*) Lymphatic System	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14	323	12	337	22
(*d*) Genito-urinary	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13	2	13	1
(*e*) Other Organs	—	2	—	2	—	—	2	—	2	1	—	3	—	3	—	3	56	40	59	—
37. Tuberculosis Disseminated—																				
(*a*) Acute	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	151	9	151	1
(*b*) Chronic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	162	8	162	4
38. Syphilis—																				
(*a*) Primary	—	—	—	—	—	—	4	—	4	—	—	20	—	20	—	63	1,816	8	1,879	115
(*b*) Secondary	—	1	—	1	—	—	1	—	1	—	—	3	—	3	—	186	3,211	5	3,397	152
(*c*) Tertiary	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	8	213	16	221	24
(*d*) Hereditary	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12	386	30	398	34
(*e*) Period not indicated	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	277	11	285	15

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

DISEASES	European Officials					European General Population					Asiatic General Population (including Officials)					Native General Population (including Officials)				
	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at the end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949
I.—Epidemic, Endemic and Infectious Diseases—(*Contd.*)																				
39. Soft Chancre	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	275	—	284	12
40. A.—Gonorrhœa and its complications	—	1	—	1	—	—	7	—	7	—	—	11	—	11	1	206	8,706	12	8,912	137
B.—Gonorrhœal Ophthalmia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	277	—	277	—
C.—Gonorrhœal Arthritis	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	2	192	1	194	6
D.—Granuloma Venereum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29	—	29	—
41. Septicæmia	—	2	—	2	—	—	4	—	4	—	—	5	—	5	1	1	53	28	54	—
42. Other Infectious Diseases	—	2	—	2	—	—	6	—	6	—	—	—	—	—	—	—	40	—	40	—
II.—General Diseases not Mentioned Above																				
43. Cancer or other Malignant Tumours of the Buccal Cavity	—	—	—	—	—	—	1	1	1	—	—	1	—	1	—	—	6	2	6	—
44. Cancer or other Malignant Tumours of the Stomach or Liver	—	—	—	—	—	—	5	—	5	—	—	—	—	—	—	1	47	17	48	2
45. Cancer or other Malignant Tumours of the Peritoneum, Intestines, and Rectum	—	1	—	—	1	—	1	—	1	—	—	—	—	—	—	—	14	10	14	—
46. Cancer or other Malignant Tumours of the Female Genital Organs	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	3	36	10	39	1
47. Cancer or other Malignant Tumours of the Breast	—	2	—	2	—	—	2	—	2	—	—	—	—	—	—	2	13	—	15	3
48. Cancer or other Malignant Tumours of the Skin	—	1	—	1	—	—	3	—	3	—	—	5	—	5	—	5	52	4	57	5
49. Cancer or other Malignant Tumours of Organs not Specified	—	—	—	—	—	1	7	2	8	—	1	2	—	3	—	9	101	—	110	3
50. Tumours, Non-Malignant	—	4	—	4	—	—	8	—	8	—	—	4	—	4	—	10	360	9	370	12
51. Acute Rheumatism	—	6	—	6	1	—	1	—	1	1	1	81	—	82	1	8	286	4	294	12
52. Chronic Rheumatism	—	5	—	5	—	—	3	—	3	1	1	159	—	160	4	9	653	6	662	14
53. Scurvy (including Barlow's Disease)	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	43	5	43	2
54. (*a*) Kwashiorkor	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	457	103	467	13
(*b*) Pellagra	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	129	10	137	6
55. (*a*) Beri-beri	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	2	—
(*b*) Rickets	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32	2	32	1
56. Malnutrition (unclassified)	—	—	—	—	—	—	—	—	—	—	—	3	—	3	—	2	266	111	268	10

57. Diabetes (not including Insipidus)	—	3	—	3	—	—	1	—	1	—	—	16	1	16	2	1	27	5	28	1
58. Anæmia—																				
(*a*) Pernicious	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—
(*b*) Other Anæmias and Chlorosis	—	4	—	4	—	—	13	—	13	—	—	31	2	31	1	57	512	57	569	17
59. Diseases of the Pituitary Body ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60. Diseases of the Thyroid Gland—																				
(*a*) Exophthalmic Goitre ..	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	10	1	10	—
(*b*) Other Diseases of the Thyroid Gland, Myxœdema	—	1	—	1	—	—	11	—	11	—	—	—	—	—	—	2	49	—	51	1
61. Diseases of the Para-Thyroid Glands	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
62. Diseases of the Thymus ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—
63. Diseases of the Supra-Renal Glands	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
64. Diseases of the Spleen	—	—	—	—	—	—	—	—	—	—	—	2	—	2	1	—	104	9	104	2
65. Leukæmia—																				
(*a*) Leukæmia	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	5	1	7	—
(*b*) Hodgkin's Disease ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	4	1	5	—
66. Alcoholism	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	67	2	67	1
67. Chronic poisoning by Mineral Substances (Lead, Mercury, etc.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13	—	13	—
68. Chronic Poisoning by Organic Substances (Morphia, Cocaine, etc.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—
69. Other General Diseases—																				
Auto-intoxication	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—
Purpura Hæmorrhagica ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hæmophilia	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2	2	2	—
Diabetes Insipidus	—	—	—	—	—	—	—	—	—	—	—	6	—	6	—	—	8	2	8	—
III.—Affections of the Nervous System and Organs of the Senses																				
70. Encephalitis (not including Encephalitis Lethargica) ..	—	—	—	—	—	—	1	—	1	—	—	1	—	1	—	1	33	11	34	1
71. Meningitis (not including Tuberculous Meningitis or Cerebro-spinal Meningitis)	—	—	—	—	—	—	1	—	1	—	—	2	—	2	—	—	200	124	200	6
72. Locomotor Ataxia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—
73. Other Affections of the Spinal Cord	—	—	—	—	—	—	5	—	5	—	—	—	—	—	—	1	—	—	1	—
74. Apoplexy—																				
(*a*) Hæmorrhage	—	—	—	—	—	—	4	2	4	—	—	3	1	3	—	—	47	26	47	—
(*b*) Embolism	—	—	—	—	—	—	2	1	2	—	—	—	—	—	—	—	16	—	16	—
(*c*) Thrombosis	—	—	—	—	—	—	3	1	3	—	—	2	2	2	—	—	14	—	14	—
75. Paralysis—																				
(*a*) Hemiplegia	—	—	—	—	—	—	2	—	2	—	—	5	—	5	—	5	28	5	33	1
(*b*) Other Paralyses	—	—	—	—	—	—	—	—	—	—	—	3	—	3	—	5	79	11	84	14
76. General Paralysis of the Insane ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	2	9	—
77. Other Forms of Mental Alienation	—	1	—	1	—	—	1	—	1	—	—	7	1	7	—	8	301	12	309	2
78. Epilepsy	—	—	—	—	—	—	—	—	—	—	—	10	1	10	—	—	119	16	119	5

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

DISEASES	European Officials					European General Population					Asiatic General Population (including Officials)					Native General Population (including Officials)				
	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949
III.—Affections of the Nervous System and Organs of the Senses—(*Contd.*)																				
79. Eclampsia Convulsions (Non-Puerperal) Five Years or Over	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—
80. Infantile Convulsions	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22	6	22	—
81. Chorea	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13	—	13	2
82. A.—Hysteria	—	1	—	1	—	—	2	—	2	—	—	10	—	10	—	1	78	—	79	1
B.—Neuritis	—	3	—	3	—	—	14	—	14	1	4	139	—	143	4	—	120	1	120	—
C.—Neurasthenia	—	2	—	2	—	—	4	—	4	—	2	19	—	21	—	2	21	—	23	—
D.—Neuralgia	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—	2	20	—	22	—
83. Cerebral Softening	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	2	3	—
84. Other Affections of the Nervous System, such as Paralysis Agitans	—	4	—	4	—	—	7	—	7	—	—	2	—	2	—	6	17	2	23	1
85. Affections of the Organs of Vision—																				
(*a*) Conjunctivitis	—	7	—	7	—	—	3	—	3	—	—	27	—	27	1	37	2,123	—	2,160	49
(*b*) Trachoma	—	—	—	—	—	—	—	—	—	—	—	3	—	3	—	10	389	—	399	26
(*c*) Tumours of the Eye ..	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	9	41	—	50	5
(*d*) Other Affections of the Eye	—	4	—	4	—	—	16	—	16	—	—	31	—	31	—	36	920	5	956	30
86. Affections of the Ear or Mastoid Sinus	—	14	—	14	—	—	13	—	13	—	—	31	—	31	1	11	600	4	611	11
(*a*) Otis Media	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	18	—	21	—
IV.—Affections of the Circulatory System																				
87. Pericarditis	—	2	—	2	—	—	—	—	—	—	—	2	—	2	—	—	31	10	31	3
88. Acute Endocarditis or Myocarditis	—	—	—	—	—	—	2	1	2	—	—	1	—	1	—	—	39	5	39	—
89. Angina Pectoris	—	—	—	—	—	—	1	—	1	—	—	4	1	4	—	—	3	1	3	—
90. Other Diseases of the Heart—																				
(*a*) Valvular:—																				
Mitral	—	—	—	—	—	—	4	1	4	—	—	10	6	10	—	7	102	43	109	5
Aortic	—	1	—	1	—	—	—	—	—	—	1	1	1	1	—	—	20	11	20	—
Tricuspid	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pulmonary	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	8	—
(*b*) Myocarditis	—	3	—	3	—	—	2	—	2	—	—	8	4	8	—	2	67	20	69	3
(*c*) Unclassified	—	2	—	2	—	—	13	2	13	—	—	11	—	11	—	—	60	29	60	4
91. Diseases of the Arteries—																				
(*a*) Aneurism	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	1	—	1	—
(*b*) Arterio-Sclerosis	—	1	—	1	—	—	2	—	2	—	—	—	—	—	—	—	9	—	9	—
(*c*) Other Diseases	—	—	—	—	—	—	3	1	3	—	—	—	—	—	—	—	2	—	2	—
92. Embolism or Thrombosis (Non-Cerebral)	—	—	—	—	—	—	1	—	1	—	—	1	—	1	—	—	3	2	3	—

93. Diseases of the Veins—																					
Hæmorrhoids	—	7	—	7	1	—	12	—	12	1	1	53	1	53	—	1	60	1	61	2
Varicose Veins	—	1	—	1	—	—	14	—	14	1	—	2	—	2	—	1	18	—	19	—
Phlebitis	—	3	—	3	—	—	—	—	—	—	—	—	—	—	—	—	18	1	18	—
Unclassified	—	—	—	—	—	—	4	1	4	—	—	—	—	—	—	—	1	—	1	—
94. Diseases of the Lymphatic System—																					
Lymphangitis	—	2	—	2	—	—	4	—	4	—	—	1	—	1	—	4	114	—	118	2
Lymphadenitis, Bubo (Non-Specific)	—	2	—	2	—	—	10	—	10	—	—	8	—	8	—	7	320	2	327	9
95. Hæmorrhage of Undetermined Cause	—	1	—	1	—	—	4	—	4	—	—	5	1	5	—	—	6	—	6	—
96. Other Affections of the Circulatory System	—	1	—	1	—	—	3	—	3	—	—	4	—	4	—	—	21	1	21	1
V.—Affections of the Respiratory System																					
97. Diseases of the Nasal Passages—																					
Adenoids	—	6	—	6	—	—	3	—	3	—	—	9	—	9	—	2	5	2	7	1
Polypus	—	—	—	—	—	—	4	—	4	—	—	3	—	3	—	—	46	—	46	—
Rhinitis	—	—	—	—	—	—	2	—	2	—	—	5	—	5	—	—	23	—	23	—
Coryza	1	14	—	15	1	—	11	—	11	—	—	59	—	59	—	12	818	—	830	13
98. Affections of the Larynx—																					
Laryngitis	—	4	—	4	—	—	13	1	13	1	—	11	—	11	—	—	82	10	82	3
99. Bronchitis—																					
(*a*) Acute	1	11	—	12	—	—	18	—	18	—	—	144	—	144	1	103	3,673	63	3,776	66
(*b*) Chronic	—	1	—	1	—	—	16	—	16	1	—	36	—	36	—	13	1,057	5	1,070	16
(*c*) Unclassified	—	1	—	1	—	—	5	—	5	—	—	40	—	40	—	12	1,901	3	1,913	—
100. Broncho-Pneumonia	—	1	—	1	—	—	7	1	7	1	2	—	7	2	—	104	6,091	819	6,195	136
101. Pneumonia—																					
(*a*) Lobar	—	3	—	3	—	—	11	—	11	—	—	48	1	48	1	163	6,775	340	6,938	169
(*b*) Unclassified	—	2	—	2	—	—	8	—	8	—	1	25	—	26	—	21	821	29	842	24
102. Pleurisy, Empyema	1	5	—	6	—	—	6	—	6	1	—	21	1	21	1	10	280	18	290	19
103. Congestion of the Lungs	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	1	59	2	60	—
104. Gangrene of the Lungs	—	—	—	—	—	—	—	—	—	—	—	5	—	5	—	—	1	—	1	—
105. Asthma	—	1	—	1	—	—	13	—	13	—	—	77	—	77	3	4	411	3	415	10
106. Pulmonary Emphysema	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
107. Other Affections of the Lungs—																					
(*a*) Pulmonary Spirochætosis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*b*) Unclassified	—	2	—	2	—	—	5	—	5	—	—	—	—	—	—	2	36	11	38	5
VI.—Diseases of the Digestive System																					
108. A.—Diseases of Teeth or Gums—																					
Caries	—	1	—	1	—	—	18	—	18	—	—	37	—	37	1	—	184	—	184	5
Pyorrhœa	—	1	—	1	—	—	—	—	—	—	—	16	—	16	—	1	34	—	35	2
B.—Other Affections of the Mouth—																					
Stomatitis	—	—	—	—	—	—	1	—	1	—	—	10	—	10	—	9	112	2	121	—
Glossitis, etc.	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	29	—	29	—
Unclassified	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	55	3	55	1

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

DISEASES	European Officials					European General Population					Asiatic General Population (including Officials)					Native General Population (including Officials)				
	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949
VI.—Diseases of the Digestive System—(*Contd.*)																				
109. Affections of the Pharynx or Tonsils—																				
Tonsilitis	—	49	—	49	—	—	107	—	107	—	3	301	—	304	4	15	1,213	7	1,228	5
Pharyngitis	—	2	—	2	—	—	20	—	20	—	—	133	—	133	4	2	151	2	153	4
Unclassified	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	21	4	21	—
110. Affections of the Oesophagus ..	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	12	1	12	—
111. A.—Ulcer of the Stomach ..	—	2	—	2	—	—	8	—	8	—	—	1	—	1	—	—	4	—	4	—
B.—Ulcer of the Duodenum ..	1	11	1	12	—	—	15	—	15	1	—	—	—	—	—	2	24	3	26	1
112. Other Affections of the Stomach—																				
Gastritis	—	8	—	8	—	—	15	—	15	—	2	64	—	66	1	2	477	35	479	4
Dyspepsia	—	3	—	3	—	—	8	—	8	—	3	153	—	156	—	11	397	—	408	2
Unclassified	—	—	—	—	1	—	—	—	—	—	—	1	—	1	—	—	23	6	23	—
113. Diarrhoea and Enteritis—																				
Under Two Years	—	—	—	—	—	—	7	—	7	—	3	25	—	28	—	39	2,585	224	2,624	35
114. Diarrhoea and Enteritis—																				
Two Years and Over	—	18	—	18	1	—	23	—	23	—	1	291	—	292	6	30	2,045	72	2,075	22
Colitis	—	4	—	4	—	—	4	—	4	—	—	20	—	20	—	3	234	15	237	—
Ulceration	—	—	—	—	—	—	—	—	—	—	—	3	—	3	—	13	5	—	18	23
114A. Sprue	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	2	—	2	—
B. Diverticulitis	—	3	—	3	—	—	2	—	2	—	—	—	—	—	—	—	—	—	—	—
115. Ankylostomiasis	—	—	—	—	—	—	3	—	3	—	—	13	—	13	—	16	1,629	8	1,645	63
116. Diseases due to Intestinal Parasites—																				
(*a*) Cestoda (Tænia)	—	13	—	13	—	—	11	—	11	—	—	3	—	3	—	11	856	2	867	1
(*b*) Trematoda (Flukes) ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	126	—	126	—
(*c*) Nematoda (other than Ankylostoma)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20	—	20	1
Ascaris	—	—	—	—	—	—	3	—	3	—	—	6	—	6	—	13	524	1	537	3
Trichocephalus dispar. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trichuris	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—
Dracunculus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Strongylus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—
Oxyuris	—	—	—	—	—	—	3	—	3	—	—	—	—	—	—	—	1	—	1	—
(*d*) Coccidia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*e*) Other Parasites	—	—	—	—	—	—	2	—	2	—	—	—	—	—	—	4	15	—	19	3
(*f*) Unclassified	—	1	—	1	—	—	—	—	—	—	—	10	—	10	—	—	145	—	145	—
117. Appendicitis	—	27	—	27	—	—	104	—	104	1	10	125	—	135	1	3	85	3	88	2
118. Hernia	—	12	—	12	—	—	32	—	32	2	1	68	—	69	1	20	471	7	491	13

119. A.—Affections of the Anus, Fistula, etc.	—	5	—	5	—	—	13	—	13	1	1	11	—	12	—	5	95	3	100	3
B.—Other Affections of the Intestines	—	5	—	5	—	—	9	—	9	—	1	4	1	5	—	—	52	20	52	1
Enteroptosis	—	1	—	1	—	—	—	—	—	—	—	—	—	—	1	—	49	14	49	—
Constipation	—	6	—	6	—	—	15	—	15	—	—	24	—	24	—	3	853	2	856	—
120. Acute Yellow Atrophy of the Liver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	2	—
121. Hydatid of the Liver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	3	—	4	—
122. Cirrhosis of the Liver—																				
(*a*) Alcoholic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	12	4	19	—
(*b*) Other Forms	—	—	—	—	—	—	4	1	4	—	—	4	—	4	—	—	119	54	119	2
123. Biliary Calculus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—
124. Other Affections of the Liver—																				
Abscess	—	—	—	—	—	—	1	—	1	—	—	19	2	19	—	1	57	5	58	1
Hepatitis	1	10	—	11	—	—	15	—	15	1	1	40	—	41	3	6	296	17	302	6
Cholecystitis	—	3	—	3	—	—	15	—	15	—	—	9	—	9	1	—	9	—	9	1
Jaundice	1	1	—	2	—	—	11	—	11	—	—	6	1	6	2	3	136	8	139	—
Unclassified	1	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	25	—	25	—
125. Diseases of the Pacreas	—	1	—	1	—	—	1	1	1	—	—	—	—	—	—	—	7	6	7	—
126. Peritonitis (of Unknown Cause)	—	—	—	—	—	—	3	—	3	—	—	2	—	2	—	10	58	24	68	3
127. Other Affections of the Digestive System	—	15	—	15	—	—	24	—	24	—	—	—	—	—	—	1	42	12	43	—
VII.—Diseases of the Genito-urinary System (Non-Venereal)																				
128. Acute Nephritis	—	2	—	2	—	—	—	—	—	—	—	12	2	12	1	4	121	38	125	2
129. Chronic Nephritis	—	—	—	—	—	—	1	—	1	—	—	9	—	9	1	5	127	23	132	5
130. A.—Chyluria	—	1	—	1	—	1	—	—	1	—	—	—	—	—	—	—	1	—	1	—
B.—Schistosomiasis	—	—	—	—	—	—	1	—	1	—	—	9	—	9	—	61	1,668	7	1,729	—
131. Other Affections of the Kidneys—																				
Pyelitis	—	6	—	6	—	—	8	1	8	—	—	20	—	20	—	2	104	7	106	1
Unclassified	—	6	—	6	—	—	12	—	12	—	—	—	—	—	—	—	9	1	9	4
132. Urinary Calculus	—	6	—	6	—	—	2	—	2	—	—	14	—	14	—	—	11	2	11	1
133. Diseases of the Bladder—																				
Cystitis	—	6	—	6	—	—	12	—	12	—	—	31	—	31	—	4	193	3	197	4
Unclassified	—	10	—	10	—	—	11	—	11	—	—	1	—	1	—	—	6	5	6	1
134. Diseases of the Urethra—																				
(*a*) Stricture	—	1	—	1	—	—	4	—	4	—	—	17	3	17	2	6	102	3	108	2
(*b*) Other	—	3	—	3	—	—	6	—	6	—	—	10	—	10	—	2	247	3	249	1
135. Diseases of the Prostate—																				
Hypertrophy	—	—	—	—	—	—	2	1	2	—	—	1	—	1	—	—	13	2	13	—
Prostatitis	—	2	—	2	—	—	1	—	1	—	—	13	—	13	—	—	59	2	59	1
Unclassified	—	—	1	—	—	—	2	—	2	—	—	—	—	—	—	—	7	—	7	—
136. Diseases (Non-Venereal) of the Genital Organs of Man—																				
Epididymitis	—	1	—	1	—	—	1	—	1	—	—	2	—	2	—	2	44	4	46	2
Orchitis	—	1	—	1	—	—	—	—	—	—	—	8	—	8	—	3	181	1	184	2
Hydrocele	—	—	—	—	—	—	2	—	2	—	—	16	—	16	1	8	138	2	146	5
Ulcer of Penis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	136	—	138	—
Unclassified	—	3	—	3	—	—	5	—	5	—	—	2	—	2	—	8	104	—	112	9
137. Cysts or other Non-Malignant Tumours of the Ovaries	—	5	—	5	—	—	25	—	25	1	—	2	—	2	—	4	76	8	80	3

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

DISEASES	European Officials					European General Population					Asiatic General Population (including Officials)					Native General Population (including Officials)				
	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949
VII.—Diseases of the Genito-urinary System (Non-Venereal)—(*Contd.*)																				
138. Salpingitis	—	2	—	2	—	—	6	—	6	—	—	25	—	25	—	12	604	—	616	7
Abscess of the Pelvis	—	—	—	—	—	—	4	—	4	1	—	1	—	1	—	1	62	5	63	3
139. Uterine Tumours (Non-Malignant)	—	6	—	6	—	—	13	—	13	—	—	—	—	—	—	3	103	2	106	—
140. Uterine Hæmorrhage (Non-Puerperal)	—	3	—	3	—	—	7	—	7	—	—	6	—	6	—	1	62	—	63	1
141. A.—Metritis	—	5	—	5	—	—	8	—	8	—	—	13	—	13	—	1	60	—	61	—
B.—Other Affections of the Female Genital Organs	—	13	—	13	—	—	49	—	49	—	—	1	—	1	—	4	192	5	196	—
Displacement of Uterus	—	4	—	4	—	—	13	—	13	—	—	6	—	6	—	1	104	1	105	2
Amenorrhœa	—	1	—	1	—	—	2	—	2	—	—	2	—	2	—	—	20	—	20	—
Dysmenorrhœa	—	4	—	4	—	—	2	—	2	—	—	8	—	8	—	3	215	—	218	2
Leucorrhœa	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26	—	26	—
142. Diseases of the Breast (Non-Puerperal)—																				
Mastitis	—	1	—	1	—	—	5	—	5	—	—	2	—	2	—	—	197	—	197	1
Abscess of Breast	—	—	—	—	—	—	2	—	2	—	—	5	—	5	—	1	77	—	78	3
Unclassified	—	—	—	—	—	—	3	—	3	—	—	—	—	—	—	—	7	—	7	—
VIII.—Pregnancy and Peurperal State																				
143. A.—Ante-Natal	—	—	—	—	—	—	6	—	6	—	—	1	—	1	—	52	2,229	—	2,281	74
B.—Normal Labour	—	5	—	5	—	—	33	—	33	1	—	103	—	103	—	118	6,909	—	7,027	87
C.—Abnormal Labour	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	257	7	261	—
D.—Accidents of Pregnancy—																				
(*a*) Abortion	—	6	—	6	—	—	24	—	24	—	—	32	—	32	—	18	1,065	23	1,083	24
(*b*) Ectopic Gestation	—	—	—	—	—	—	1	—	1	—	—	1	—	1	—	—	21	8	21	2
(*c*) Other Accidents of Pregnancy	—	1	—	1	—	—	9	—	9	—	1	19	—	20	—	37	757	43	794	10
144. Puerperal Hæmorrhage	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	18	7	24	—
145. Other Accidents of Parturition	—	—	—	—	—	—	8	—	8	—	—	2	—	2	—	2	346	8	348	—
146. Puerperal Septicæmia	—	—	—	—	—	—	—	—	—	—	1	1	—	2	—	1	107	7	108	2
147. Phlegmasia Dolens	—	—	—	—	—	—	—	—	—	—	1	1	—	2	—	—	—	—	—	—
148. Puerperal Eclampsia	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	1	9	2	10	—
149. Sequelæ of Labour	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	8	79	1	87	4
150. Puerperal Affections of the Breast	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	64	—	64	3

IX.—Affections of the Skin and Cellular Tissues																				
151. Gangrene	—	—	—	—	—	—	2	—	2	—	—	4	—	4	—	1	127	10	128	2
152. Boil	—	10	—	10	1	—	18	—	18	1	—	138	—	138	3	1	157	—	158	1
Carbuncle	—	4	—	4	—	—	4	—	4	—	1	3	—	4	1	2	48	—	50	—
153. Abscess	—	9	—	9	—	—	17	—	17	—	5	135	—	140	—	65	2,580	11	2,645	61
Whitlow	—	5	—	5	—	—	7	—	7	—	—	31	—	31	—	2	115	—	117	5
Cellulitis	—	8	—	8	—	—	16	—	16	—	1	32	—	33	—	33	1,518	17	1,551	44
Ulcers	—	3	—	3	—	—	13	—	13	—	—	53	1	53	2	276	7,101	13	7,377	223
154. A.—Tinea	—	1	—	1	—	—	—	—	—	—	—	8	—	8	—	43	18	—	61	—
B.—Scabies	—	—	—	—	—	—	1	—	1	—	—	15	—	15	—	15	351	—	366	8
155. Other Diseases of the Skin—																				
Erythema	—	1	—	1	1	—	3	—	3	—	—	—	—	—	—	—	6	—	6	—
Urticaria	—	1	—	1	—	—	7	—	7	—	—	62	—	62	1	1	187	—	188	5
Eczema	—	3	—	3	—	—	4	—	4	—	1	37	—	38	—	2	246	3	248	4
Herpes Zoster	—	—	—	—	—	—	—	—	—	—	1	1	—	2	—	—	52	—	52	—
Psoriasis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	6	—	7	—
Elephantiasis	—	—	—	—	—	—	—	—	—	—	—	3	—	3	1	7	103	—	110	8
Myiasis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	—	9	—
Chigoes	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	1	31	—	32	—
Cutaneous Leishmaniasis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	—	10	1
Dermatitis	—	2	—	2	—	—	3	—	3	—	1	31	—	32	—	9	337	1	346	7
Unclassified	—	6	—	6	—	—	24	—	24	2	—	—	—	—	—	20	85	1	105	—
X.—Diseases of Bones and Organs of Locomotion (Other than Tuberculous)																				
156. Diseases of Bones—																				
Osteitis	—	—	—	—	—	—	2	—	2	—	—	4	—	4	—	10	207	1	217	19
Osteomyelitis	—	—	—	—	—	—	3	—	3	—	—	—	—	—	—	9	125	5	134	14
157. Diseases of Joints—																				
Arthritis	—	—	—	—	—	—	4	—	4	—	1	52	1	53	1	18	551	3	569	21
Synovitis	—	4	—	4	—	—	2	—	2	—	—	15	—	15	2	6	343	—	349	7
158. Other Diseases of Bones or Organs of Locomotion	—	12	—	12	—	—	25	—	25	2	—	29	—	29	1	18	277	—	295	6
XI.—Malformations																				
159. Hydrocephalus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	2	6	1
Hypospadias	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Spina Bifida	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	6	2	6	—
Unclassified	—	—	—	—	—	—	1	—	1	—	—	1	—	1	—	1	16	4	17	2
XII.—Diseases of Infancy																				
160. Congenital Debility	—	—	—	—	—	—	—	—	—	—	—	10	—	10	—	—	24	8	24	1
161. Premature Birth	—	—	—	—	—	—	—	—	—	—	—	3	—	3	—	2	99	43	101	3
162. Other Affections of Infancy	—	—	—	—	—	—	3	—	3	—	—	1	—	1	—	4	63	21	67	—
Marasmus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	40	24	41	—
163. Infant Neglect—																				
(*a*) Infants of Three Months and over	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	4	11	2
(*b*) Infants under Three Months	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	1	4	—

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

DISEASES	European Officials					European General Population					Asiatic General Population (including Officials)					Native General Population (including Officials)				
	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949	Cases remaining in Hospital from previous year 1948	Total Admissions	Total Deaths	Total Cases Treated	Remaining in Hospital at end of year 1949
XIII.—Affections of Old Age																				
164. Senility—																				
Senile Dementia	—	—	—	—	—	—	1	1	1	1	—	—	—	—	—	—	16	7	16	—
Unclassified	—	—	—	—	—	—	2	—	2	—	—	—	2	—	2	2	40	8	42	1
XIV.—Affections Produced by External Causes																				
165. Suicide by Poisoning	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
166. Corrosive Poisoning (Intentional)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	3	—
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	43	4	43	—
Botulism	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—
176. Attacks by Poisonous Creatures—																				
(*a*) Snake Bite	—	—	—	—	—	—	—	—	—	—	—	4	—	4	—	2	246	5	248	6
(*b*) Insect Bite	—	1	—	1	—	1	—	—	1	—	—	4	—	4	—	1	68	—	69	—
(*c*) Others	—	2	—	2	—	—	—	—	—	—	—	1	—	1	—	4	137	2	141	4
177. Other Accidental Poisonings ..	—	3	1	3	—	—	3	—	3	—	—	—	—	—	—	—	19	—	19	1
178. Burns (by Fire)	—	2	—	2	—	—	8	—	8	—	1	20	1	21	1	45	1,073	114	1,118	55
179. Burns (other than by Fire) ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
180. Suffocation (Accidental) ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
181. Poisoning by Gas (Accidental) ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—
182. Drowning (Accidental)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—
183. Wounds (by Firearms, War excepted)	—	1	—	1	—	—	1	—	1	—	2	—	—	2	—	—	25	3	25	—
184. Wounds (by Cutting or Stabbing Instruments)	—	15	—	15	1	—	12	—	12	1	—	27	2	27	—	1	2,708	37	2,709	72
185. Wounds (by Fall)	—	2	—	2	—	—	3	—	3	1	1	18	—	19	—	95	455	23	550	7
186. Wounds (in Mines or Quarries)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25	21	1	46	—
187. Wounds (by Machinery) ..	—	—	—	—	—	—	2	—	2	—	—	—	—	—	—	3	204	2	207	8
188. Wounds (Crushing, e.g. Railway Accidents, etc.)	—	—	—	—	—	—	1	—	1	—	—	1	1	1	—	2	93	8	95	—

189. Injuries Inflicted by Creatures, Bites, Kicks, etc.	—	—	—	—	—	—	4	—	4	—	—	—	—	—	—	8	544	7	552	17
190. Wounds Inflicted on Active Service	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21	—	—	21	—
191. Executions of Civilians by Belligerents	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
192. A.—Over-fatigue	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	3	—
B.—Hunger or Thirst	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33	—	33	1
193. Exposure to Cold, Frost-bite, etc.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
194. Exposure to Heat—																				
Heatstroke	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sunstroke	—	3	—	3	—	—	2	—	2	—	—	—	—	—	—	—	1	—	1	—
195. Lightning Stroke	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	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	—	3	—	3	—	—	6	—	6	—	—	6	—	6	—	8	429	—	437	3
B.—Sprain	—	3	—	3	—	—	5	—	5	—	—	64	—	64	1	7	516	—	523	5
C.—Fracture	—	18	—	18	—	—	67	1	67	8	—	117	5	117	—	124	2,278	85	2,402	145
202. Other External Injuries	—	35	—	35	—	—	74	—	74	1	5	617	2	622	11	69	4,408	44	4,477	94
203. Deaths by Violence of Unknown Cause	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	5	5	—
204. Sudden Death (Cause Unknown)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
205. A.—Diseases not already Specified or Ill-defined)—																				
Ascites	—	1	—	1	—	1	—	—	1	—	—	1	—	1	—	7	116	9	123	1
Oedema	—	—	—	—	—	—	1	—	1	—	—	4	—	4	—	—	65	3	65	1
Asthenia	—	—	—	—	—	—	5	—	5	—	—	10	1	10	—	—	20	5	20	1
Shock	—	—	—	—	—	—	2	—	2	—	—	—	—	—	—	—	25	5	25	—
Hyperpyrexia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	90	2	97	—
Pyrexia of Unknown Origin	—	7	—	7	—	—	90	—	90	—	—	14	—	14	—	343	478	21	821	14
Lumbago	—	1	—	1	—	—	—	—	—	—	—	6	—	6	—	—	34	—	34	—
Myalgia	—	—	—	—	—	—	—	—	—	—	—	5	—	5	—	1	119	—	120	6
Sciatica	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	6	—	7	—
Others	1	29	—	30	—	—	45	—	45	—	1	75	—	76	3	—	3,300	14	3,300	44
B.—Malingering	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XVI.—Diseases, the Total of which have not Caused Ten Deaths	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grand Total ..	12	883	3	895	11	5	2,031	25	2,036	42	116	7,530	64	7,646	116	3,950	144,600	5,079	148,550	3,209

TABLE IV.—RETURN OF DISEASES (OUT-PATIENTS)

Numbers Treated during the year 1949

DISEASES	European Officials			European General Population			Asian Officials			Asian General Population			Native General Population (including Officials)		
	Male	Female	Total	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	2
(*b*) Paratyphoid A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*c*) Paratyphoid B.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*d*) Type not defined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Typhus	6	4	10	3	7	10	—	—	—	—	—	—	11	10	21
3. Relapsing Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Undulant Fever	—	—	—	—	—	—	—	—	—	—	—	—	47	28	75
5. Malaria—													47	30	77
(*a*) Tertian (Benign)	—	—	—	—	1	1	1	—	1	1	1	2	35	26	61
(*b*) Quartan	—	—	—	—	1	1	—	—	—	—	—	—	130	116	246
(*c*) Aestivo-autumnal (S.T.)	29	5	34	13	11	24	8	3	11	52	33	85	4,321	4,223	8,544
(*d*) Undifferentiated, Clinical	83	24	107	28	28	56	321	—	321	837	633	1,470	49,214	31,778	80,992
(*e*) Cachexia	1	6	7	—	—	—	1	—	1	—	—	—	729	300	1,029
(*f*) Blackwater	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*g*) Cerebral	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6. Smallpox	—	—	—	—	—	—	—	—	—	—	—	—	3	28	31
Alastrim	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
7. Measles	2	3	5	4	7	* 11	—	—	—	10	8	18	813	682	1,495
8. Scarlet Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	52	52
9. Whooping Cough	2	8	10	13	20	33	—	—	—	40	82	122	4,091	3,920	8,011
10. Diphtheria	—	—	—	—	—	—	—	—	—	—	—	—	2	2	4
11. Influenza	52	17	69	22	13	35	231	—	231	930	801	1,731	12,849	4,971	17,820
12. Miliary Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13. Mumps	—	3	3	2	3	5	1	—	1	16	14	30	663	469	1,132
14. Cholera	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15. Epidemic Diarrhoea	—	—	—	—	—	—	—	—	—	—	—	—	417	49	466
16. Dysentery—															
(*a*) Amœbic	21	6	27	11	19	30	4	—	4	12	7	19	912	637	1,549
(*b*) Bacillary	15	12	27	16	16	32	—	—	—	7	7	14	725	300	1,025
(*c*) Undefined or Due to Other Causes	4	—	4	3	4	7	43	—	43	41	33	74	5,114	1,454	6,568
17. Plague—															
(*a*) Bubonic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*b*) Pneumonic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*c*) Septicæmic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*d*) Undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18. Yellow Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
19. Spirochætosis icterohæmorrhagica	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

20. Leprosy	—	—	—	—	—	—	—	—	—	—	—	—	131	25	156
21. Erysipelas	—	—	—	—	—	—	—	—	—	—	—	—	1	2	3
22. Acute Poliomyelitis	—	—	—	3	1	4	—	—	—	—	—	—	—	—	—
23. Encephalitis Lethargica	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
24. Epidemic Cerebro-Spinal Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25. Other Epidemic Diseases—															
(*a*) Rubeola (German Measles)	3	10	13	3	1	4	—	—	—	—	—	—	9	5	14
(*b*) Varicella (Chicken-pox)	3	—	3	4	10	14	8	4	12	—	—	—	541	169	710
(*c*) Kala-azar	—	—	—	—	—	—	—	—	—	—	—	—		2	2
(*d*) Phlebotomus Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*e*) Dengue	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*f*) Epidemic Dropsy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*g*) Yaws	—	—	—	—	—	—	—	2	2	—	—	—	5,322	4,253	9,575
(*h*) Trypanosomiasis	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
(*i*) Cow-pox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*j*) Glandular Fever	—	1	1	—	1	1	—	—	—	—	—	—	—	—	—
26. Glanders	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
27. Anthrax	—	—	—	—	—	—	—	—	—	—	—	—	187	94	281
28. Rabies (suspected)	—	—	—	—	—	—	—	—	—	—	—	—	22	30	52
29. Tetanus	—	—	—	—	—	—	—	—	—	—	—	—	18	6	24
30. Mycosis	—	—	—	—	—	—	—	—	—	—	—	—	3	—	3
31. Tuberculosis, Pulmonary and Laryngeal	—	1	1	1	2	3	—	—	—	2	—	2	419	206	625
32. Tuberculosis of the Meninges or Central Nervous System	—	—	—	—	—	—	—	—	—	—	—	—	18	4	22
33. Tuberculosis of the Intestines or Peritoneum	—	—	—	—	—	—	—	—	—	—	—	—	3	3	6
34. Tuberculosis of the Vertebral Column	—	—	—	—	—	—	—	—	—	—	—	—	12	7	19
35. Tuberculosis of Bones and Joints	—	—	—	—	—	—	—	—	—	—	—	—	72	38	110
36. Tuberculosis of Other Organs—															
(*a*) Skin or Subcutaneous Tissue (Lupus)	—	—	—	—	—	—	—	—	—	—	—	—	17	5	22
(*b*) Bones	—	—	—	—	2	2	—	—	—	—	—	—	8	—	8
(*c*) Lymphatic System	—	—	—	—	—	—	—	—	—	—	—	—	232	152	384
(*d*) Genito-Urinary	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
(*e*) Other Organs	—	—	—	—	1	1	—	—	—	—	—	—	31	23	54
37. Tuberculosis Disseminated—															
(*a*) Acute	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*b*) Chronic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
38. Syphilis—															
(*a*) Primary	—	—	—	2	2	4	—	—	—	—	—	—	2,432	1,396	3,828
(*b*) Secondary	—	—	—	—	—	—	—	—	—	—	—	—	2,857	2,282	5,139
(*c*) Tertiary	—	—	—	1	—	1	—	—	—	—	—	—	474	332	806
(*d*) Hereditary	—	—	—	—	—	—	—	—	—	—	—	—	108	241	349
(*e*) Period not indicated	—	—	—	4	—	4	—	—	—	3	—	3	614	87	701
39. Soft Chancre	—	—	—	—	—	—	—	—	—	—	—	—	171	6	177
40. A.—Gonorrhœa and its Complications	1	—	1	—	—	—	1	—	1	6	—	6	8,642	948	9,590
B.—Gonorrhœal Ophthalmia	—	—	—	10	—	10	—	—	—	—	—	—	166	210	376
C.—Gonorrhœal Arthritis	—	—	—	—	—	—	—	—	—	—	—	—	117	219	336
D.—Granuloma Venereum	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2
41. Septicæmia	9	2	11	5	1	6	—	—	—	—	—	—	2	2	4
42. Other Infectious Diseases	4	—	4	3	5	8	—	—	—	—	—	—	—	—	—
Trypanosomiasis	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2

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

DISEASES	European Officials			European General Population			Asian Officials			Asian General Population			Native General Population (including Officials)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
II.—General Diseases not Mentioned Above															
43. Cancer or other Malignant Tumours of the Buccal Cavity	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
44. Cancer or other Malignant Tumours of the Stomach or Liver	—	—	—	—	—	—	—	—	—	1	1	2	5	1	6
45. Cancer or other Malignant Tumours of the Peritoneum Intestines, Rectum	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—
46. Cancer or other Malignant Tumours of the Female Genital Organs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
47. Cancer or other Malignant Tumours of the Breast	—	—	—	—	1	1	—	—	—	—	—	—	—	78	78
48. Cancer or other Malignant Tumours of the Skin	—	—	—	—	—	—	—	—	—	—	—	—	—	8	8
49. Cancer or other Malignant Tumours of Organs not Specified	1	—	1	—	—	—	—	—	—	—	—	—	1	6	7
50. Tumours, Non-Malignant	—	—	—	2	4	6	1	—	1	5	8	13	510	309	819
51. Acute Rheumatism	3	6	9	8	5	13	1	—	1	39	118	157	1,993	1,580	3,573
52. Chronic Rheumatism	20	12	32	3	6	9	119	—	119	245	208	453	9,916	4,471	14,387
53. Scurvy (including Barlow's Disease)	—	—	—	—	—	—	10	—	10	—	3	3	19	339	358
54. (*a*) Pellagra	—	—	—	—	—	—	—	—	—	1	5	6	559	192	751
(*b*) Kwashiorkor	—	—	—	—	—	—	—	—	—	—	—	—	39	42	81
55. (*a*) Beri-beri	—	—	—	—	—	—	—	—	—	—	—	—	16	12	28
(*b*) Rickets	—	—	—	—	—	—	—	—	—	2	2	4	22	39	61
56. Malnutrition (unclassified)	—	—	—	—	—	—	—	—	—	—	1	1	110	28	138
57. Diabetes (not including Insipidus)	1	1	2	1	—	1	—	—	—	8	18	26	16	14	30
58. Anæmia—															
(*a*) Pernicious	11	2	13	1	3	4	—	—	—	—	2	2	—	—	—
(*b*) Other Anæmias and Chlorosis	17	56	73	8	56	64	5	—	5	72	276	348	800	552	1,352
59. Diseases of the Pituitary Body	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60. Diseases of the Thyroid Gland—															
(*a*) Exophthalmic Goitre	—	—	—	—	2	2	1	—	1	—	—	—	3	5	8
(*b*) Other Diseases of the Thyroid Gland, Myxœdema	5	6	11	2	6	8	—	—	—	—	—	—	5	10	15
61. Diseases of the Para-Thyroid Glands	—	—	—	—	—	—	—	—	—	2	2	4	—	1	1
62. Diseases of the Thymus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
63. Diseases of the Supra-Renal Glands	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
64. Diseases of the Spleen	—	—	—	—	—	—	—	—	—	13	10	23	918	211	1,129
65. Leukæmia—															
(*a*) Leukæmia	2	—	2	—	—	—	—	—	—	1	—	1	—	—	—
(*b*) Hodgkin's Disease	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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—																
Auto-Intoxication	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Purpura Hæmorrhagica	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hæmophilia	1	—	1	—	—	—	—	—	—	—	—	—	2	—	2
Diabetes Insipidus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2
72. Locomotor Ataxia	—	—	—	—	—	—	—	—	—	—	—	—	1	1	2
73. Other Affections of the Spinal Cord ..	3	1	4	4	—	4	—	—	—	—	—	—	—	—	—
74. Apoplexy—																
(*a*) Hæmorrhage	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
(*b*) Embolism	—	—	—	—	—	—	—	—	—	8	—	8	—	—	—
(*c*) Thrombosis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
75. Paralysis—																
(*a*) Hemiplegia	—	—	—	—	—	—	—	—	—	—	—	—	1	4	5
(*b*) Other Paralyses	2	—	2	—	—	—	—	—	—	2	4	6	33	25	58
76. General Paralysis of the Insane ..	—	—	—	—	—	—	—	—	—	—	—	—	3	4	7
77. Other Forms of Mental Alienation ..	3	3	6	1	2	3	—	—	—	—	—	—	9	14	23
78. Epilepsy	2	—	2	2	—	2	1	—	1	9	7	16	97	48	145
79. Eclampsia Convulsions (Non-Puerperal) Five Years or over	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2
80. Infantile Convulsions	—	—	—	—	—	—	—	—	—	—	—	—	14	11	25
81. Chorea	—	—	—	—	—	—	—	—	—	—	—	—	2	4	6
82. A.—Hysteria	—	3	3	—	—	—	—	—	—	2	14	16	18	35	53
B.—Neuritis	14	7	21	6	14	20	16	—	16	111	99	210	6,532	855	7,387
C.—Neurasthenia	22	22	44	11	30	41	4	—	4	19	57	76	38	19	57
D.—Neuralgia	1	2	3	—	1	1	10	—	10	23	25	48	271	135	406
83. Cerebral Softening	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
84. Other Affections of the Nervous System, such as Paralysis Agitans ..	14	7	21	2	16	18	1	—	1	2	1	3	3	—	3
85. Affections of the Organs of Vision—																
(*a*) Conjunctivitis	17	24	41	20	40	60	5	—	5	390	324	714	16,289	12,855	29,144
(*b*) Trachoma	—	—	—	—	—	—	—	—	—	14	17	31	1,067	827	1,894
(*c*) Tumours of the Eye	—	1	1	—	1	1	—	—	—	8	9	17	20	20	40
(*d*) Other Affections of the Eye ..	34	17	51	45	40	85	135	—	135	105	49	154	7,204	3,682	10,886
86. Affections of the Ear or Mastoid Sinus	125	23	148	68	84	152	101	1	102	388	434	822	8,722	4,659	13,381
Otis Media	6	2	8	—	—	—	—	—	—	—	—	—	951	806	1,757
IV.—Affections of the Circulatory System																
87. Pericarditis	—	—	—	—	—	—	—	—	—	—	—	—	29	8	37
88. Acute Endocarditis or Myocarditis ..	—	—	—	—	—	—	—	—	—	—	—	—	78	6	84
89. Angina Pectoris	1	—	1	—	1	1	1	—	1	—	4	4	17	8	25

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

DISEASES	European Officials			European General Population			Asian Officials			Asian General Population			Native General Population (including Officials)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
IV.—Affections of the Circulatory System—(*Contd.*)															
90. Other Diseases of the Heart—															
(*a*) Valvular—															
Mitral	—	1	1	2	3	5	—	—	—	2	1	3	66	31	97
Aortic	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2
Tricuspid	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pulmonary	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*b*) Myocarditis	2	1	3	—	—	—	—	—	—	—	—	—	31	9	40
(*c*) Unclassified	1	3	4	4	13	17	1	—	1	8	4	12	40	11	51
91. Diseases of the Arteries—															
(*a*) Aneurism	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*b*) Arterio-Sclerosis	6	—	6	—	1	1	—	—	—	—	—	—	6	2	8
(*c*) Other Diseases	1	—	1	—	—	—	—	—	—	3	1	4	—	—	—
92. Embolism or Thrombosis (Non-Cerebral)	1	—	1	1	—	1	—	—	—	1	—	1	1	—	1
93. Diseases of the Veins—															
Hæmorrhoids	17	6	23	6	8	14	13	—	13	20	8	28	74	9	83
Varicose Veins	5	8	13	2	11	13	—	—	—	—	—	—	26	9	35
Phlebitis	—	—	—	—	1	1	—	—	—	—	—	—	7	3	10
Unclassified	1	2	3	—	4	4	—	—	—	—	—	—	—	—	—
94. Diseases of the Lymphatic System—															
Lymphangitis	1	2	3	1	3	4	—	—	—	24	13	37	108	158	266
Lymphadenitis, Bubo (Non-Specific)	8	8	16	2	5	7	—	—	—	14	17	31	1,300	646	1,946
95. Hæmorrhage of Undetermined Cause	4	1	5	2	—	2	—	—	—	—	—	—	2	1	3
96. Other Affections of the Circulatory System	7	4	11	—	8	8	—	—	—	—	—	—	24	16	40
V.—Affections of the Respiratory System															
97. Diseases of the Nasal Passages—															
Adenoids	5	—	5	1	3	4	1	—	1	3	1	4	—	—	—
Polypus	—	—	—	—	—	—	—	—	—	1	2	3	8	3	11
Rhinitis	6	2	8	5	12	17	6	—	6	55	64	119	324	212	536
Coryza	269	138	407	212	147	359	709	—	709	587	739	1,326	44 757	17,840	62,597
98. Affections of the Larynx—															
Laryngitis	59	39	98	51	45	96	23	—	23	5	4	9	2,189	1,447	3,636
99. Bronchitis—															
(*a*) Acute	16	7	23	13	21	34	97	1	98	543	563	1,106	40,594	27,768	68,362
(*b*) Chronic	17	8	25	16	10	26	306	—	306	171	519	690	16,904	8,494	25,398
(*c*) Unclassified	111	90	201	110	100	210	—	—	—	300	140	440	8,523	4,826	13,349
100. Broncho-Pneumonia	—	2	2	—	2	2	—	—	—	31	30	61	621	570	1,191
101. Pneumonia—															
(*a*) Lobar	8	1	9	8	1	9	—	—	—	7	5	12	404	152	456
(*b*) Unclassified	1	—	1	—	4	4	—	—	—	10	6	16	945	625	1,570

102. Pleurisy, Empyema	10	—	10	1	1	2	3	—	3	3	7	10	92	29	121
103. Congestion of the Lungs	—	—	—	—	—	—	1	—	1	1	—	1	66	—	66
104. Gangrene of the Lungs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
105. Asthma	15	7	22	11	17	28	48	—	48	98	142	240	1,641	533	2,174
106. Pulmonary Emphysema	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
107. Other Affections of the Lungs	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
(*a*) Pulmonary Spirochætosis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(*b*) Unclassified	3	1	4	—	2	2	1	—	1	3	5	8	132	81	213
VI.—DISEASES OF THE DIGESTIVE SYSTEM															
108. A.—Diseases of Teeth or Gums—															
Caries	18	1	19	12	21	33	69	—	69	84	130	214	15,837	8,568	24,405
Pyorrhœa	2	—	2	—	1	1	32	—	32	10	25	35	645	388	1,033
B.—Other Affections of the Mouth—															
Stomatitis	2	—	2	3	7	10	44	—	44	107	87	194	1,567	1,096	2,663
Glossitis, etc.	2	—	2	—	—	—	1	—	1	15	13	28	66	66	132
Unclassified	3	—	3	—	—	—	—	—	—	12	8	20	257	20	277
109. Affections of the Pharynx or Tonsils—															
Tonsilitis	165	264	429	143	304	447	86	—	86	921	699	1,620	8,108	9,132	17,240
Pharyngitis	35	12	47	11	24	35	122	—	122	378	382	760	3,376	924	4,300
Unclassified	—	—	—	—	1	1	—	—	—	1	—	1	21	114	135
110. Affections of the Oesophagus	1	—	1	—	—	—	—	—	—	—	1	1	71	22	93
111. A.—Ulcer of the Stomach	3	3	6	1	—	1	2	—	2	—	1	1	10	10	20
B.—Ulcer of the Duodenum	14	3	17	1	4	5	—	—	—	—	—	—	33	16	49
112. Other Affections of the Stomach—															
Gastritis	30	11	41	10	11	21	35	—	35	53	97	150	2,117	1,920	4,037
Dyspepsia	84	75	159	61	101	167	315	—	315	420	400	820	13,049	8,776	21,825
Unclassified	—	—	—	—	3	3	—	—	—	—	—	—	125	271	396
113. Diarrhoea and Enteritis—															
Under two years	—	—	—	24	44	68	172	—	172	212	438	650	6,999	7,409	14,408
114. Diarrhoea and Enteritis—															
Two years and over	199	122	321	162	99	261	—	—	—	194	134	328	11,191	5,639	16,830
Colitis	2	4	6	—	3	3	56	—	56	16	26	42	1,246	1,025	2,221
Ulceration	—	—	—	—	—	—	—	—	—	2	—	2	412	52	464
114A. Sprue	—	—	—	—	3	3	—	—	—	—	—	—	—	—	—
114B. Diverticulitis	—	—	—	—	1	1	—	—	—	—	—	—	2	3	5
115. Ankylostomiasis	1	1	2	1	2	3	—	—	—	1	1	2	1,184	833	2,017
116. Diseases due to Intestinal Parasites—															
(*a*) Cestoda (Tænia)	14	1	15	8	7	15	—	—	—	2	6	8	14,312	6,183	20,495
(*b*) Trematoda (Flukes)	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
(*c*) Nematoda (other than Ankylostoma)—	—	—	—	—	—	—	—	—	—	1	2	3	238	185	423
Ascaris	—	3	3	7	5	12	7	—	7	32	31	63	3,930	3,700	7,630
Trichocephalus dispar.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trichuris	—	—	—	—	—	—	—	—	—	—	—	—	37	1	38
Dracunculus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Strongylus	—	1	1	—	—	—	—	—	—	—	—	—	5	4	9
Oxyuris	—	8	8	—	3	3	—	—	—	1	—	1	60	37	97
(*d*) Coccidia	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
(*e*) Other Parasites	1	—	1	1	10	11	—	—	—	1	—	1	84	72	156
(*f*) Unclassified	—	1	1	5	2	7	—	—	—	19	12	31	642	368	1,010
117. Appendicitis	15	19	34	11	20	31	7	—	7	17	22	39	16	8	24
118. Hernia	6	2	8	4	3	7	3	—	3	4	1	5	96	2	98

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

DISEASES	European Officials			European General Population			Asian Officials			Asian General Population			Native General Population (including Officials)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
VI.—Diseases of the Digestive System—(*Contd.*)															
119. A.—Affections of the Anus Fistula, etc.	9	2	11	2	2	4	5	—	5	3	2	5	68	41	109
B.—Other Affections of the Intestines	2	1	3	—	—	—	20	—	20	16	—	16	124	337	461
Enteroptosis	—	—	—	—	1	1	—	—	—	—	1	1	134	34	168
Constipation	10	12	22	12	13	25	152	—	152	345	375	720	28,259	18,598	46,857
120. Acute Yellow Atrophy of the Liver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
121. Hydatid of the Liver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
122. Cirrhosis of the Liver—															
(*a*) Alcoholic	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
(*b*) Other Forms	—	—	—	—	1	1	—	—	—	—	1	1	12	6	18
123. Biliary Calculus	—	1	1	—	1	1	—	—	—	1	1	2	—	—	—
124. Other Affections of the Liver—															
Abscess	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hepatitis	13	10	23	6	13	19	7	—	7	13	24	37	507	292	799
Cholecystitis	1	1	2	—	8	8	—	—	—	1	8	9	1	5	6
Jaundice	1	—	1	—	—	—	—	—	—	5	6	11	173	74	247
Unclassified	—	—	—	—	—	—	—	—	—	—	—	—	25	26	51
125. Diseases of the Pancreas	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
126. Peritonitis (of Unknown Cause)	1	1	2	2	2	4	—	—	—	1	—	1	12	9	21
127. Other Affections of the Digestive System	18	2	20	—	5	5	17	—	17	1	2	3	1,129	324	1,453
VII.—Diseases of the Genito-Urinary System (Non-Venereal)															
128. Acute Nephritis	—	—	—	—	1	1	—	—	—	1	2	3	38	28	66
129. Chronic Nephritis	—	1	1	—	—	—	—	—	—	3	3	6	35	10	45
130. A.—Chyluria	—	1	1	—	1	1	—	—	—	—	—	—	1	—	1
B.—Schistosomiasis	1	2	3	—	1	1	1	—	1	2	—	2	2,350	401	2,751
131. Other Affections of the Kidneys—															
Pyelitis	7	16	23	4	20	24	1	—	1	29	34	63	100	195	295
Unclassified	10	1	11	1	17	18	—	—	—	—	—	—	12	3	15
132. Urinary Calculus	—	—	—	—	—	—	7	—	7	—	—	—	—	—	—
133. Diseases of the Bladder—															
Cystitis	10	8	18	5	23	28	8	—	8	55	44	99	383	338	721
Unclassified	—	—	—	—	—	—	—	—	—	8	3	11	31	1	32
134. Diseases of the Urethra—															
(*a*) Stricture	—	—	—	—	—	—	—	—	—	2	—	2	142	1	143
(*b*) Other	1	—	1	7	2	9	3	—	3	3	—	3	1,243	106	1,349
135. Diseases of the Prostate—															
Hypertrophy	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Prostatitis	1	—	1	—	—	—	—	—	—	—	—	—	17	—	17

136. Diseases (Non-Venereal) of the Genital Organs of Man—																
Epididymitis	—	—	—	—	—	—	—	—	—	—	—	—	53	—	53
Orchitis	1	—	1	—	—	—	2	—	2	2	—	2	567	—	567
Hydrocele	—	—	—	—	—	—	—	—	—	1	—	1	115	—	115
Ulcer of Penis	1	—	1	3	—	3	—	—	—	1	—	1	402	—	402
Unclassified	7	—	7	10	—	10	1	—	1	6	—	6	90	—	90
137. Cysts or other Non-Malignant Tumours of the Ovaries	—	2	2	—	1	1	—	—	—	—	6	6	—	15	15
138. Salpingitis	—	3	3	—	1	1	—	—	—	—	36	36	—	786	786
Abscess of the Pelvis	—	—	—	—	—	—	—	—	—	—	2	2	—	92	92
139. Uterine Tumours (Non-Malignant)	—	3	3	—	1	1	—	—	—	—	2	2	—	28	28
140. Uterine Hæmorrhage (Non-Puerperal)	—	7	7	—	—	—	—	—	—	—	8	8	—	43	43
141. A.—Metritis	—	—	—	—	4	4	—	—	—	—	9	9	—	49	49
B.—Other Affections of the Female Genital Organs	—	23	23	—	39	39	—	—	—	—	31	31	—	61	61
Displacement of Uterus	—	2	2	—	16	16	—	—	—	—	22	22	—	13	13
Amenorrhœa	—	2	2	—	13	13	—	—	—	—	23	23	—	105	105
Dysmenorrhœa	—	58	58	—	55	55	—	—	—	—	66	66	—	1,120	1,120
Leucorrhœa	—	—	—	—	8	8	—	—	—	—	5	5	—	88	88
142. Diseases of the Breast (Non-Puerperal)															
Mastitis	—	9	9	—	13	13	—	—	—	—	16	16	—	705	705
Abscess of Breast	—	2	2	—	4	4	—	—	—	—	15	15	—	49	49
Unclassified	—	—	—	—	—	—	—	—	—	—	—	—	—	155	155
VIII.—Puerperal State															
143. A.—Ante-natal	—	39	39	—	261	261	—	—	—	—	105	105	—	5,223	5,223
B.—Normal Labour	—	8	8	—	15	15	—	—	—	—	36	36	—	6,121	6,121
C.—Abnormal—															
(*a*) Abortion	—	5	5	—	13	13	—	—	—	—	16	16	—	583	583
(*b*) Ectopic Gestation	—	1	1	—	1	1	—	—	—	—	—	—	—	—	—
(*c*) Other Accidents of Pregnancy	—	—	—	—	2	2	—	—	—	—	10	10	—	406	406
144. Puerperal Hæmorrhage	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—
145. Other Accidents of Parturition	—	—	—	—	—	—	—	—	—	—	4	4	—	1	1
146. Puerperal Septicæmia	—	—	—	—	—	—	—	—	—	—	2	2	—	5	5
147. Phlegmasia Dolens	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
148. Puerperal Eclampsia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
149. Sequelæ of Labour	—	—	—	—	—	—	—	—	—	—	10	10	—	2	2
150. Puerperal Affections of the Breast	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—
IX.—Affections of the Skin and Cellular Tissues															
151. Gangrene	—	—	—	—	—	—	—	—	—	—	—	—	5	—	5
152. Boil	87	23	110	49	36	85	176	1	177	355	285	640	4,002	1,129	5,131
Carbuncle	4	1	5	1	1	2	1	—	1	—	1	1	54	9	63
153. Abscess	42	21	63	17	10	27	63	—	63	99	74	173	4,746	2,252	6,998
Whitlow	5	3	8	8	10	18	19	—	19	60	78	138	1,426	365	1,791
Cellulitis	15	6	21	6	4	10	21	—	21	87	65	152	6,320	2,690	9,010
Ulcers	14	22	36	15	31	46	16	—	16	747	439	1,186	51,136	26,217	77,353
154. A.—Tinea	29	14	43	11	20	31	3	—	3	41	57	98	1,237	588	1,825
B.—Scabies	1	2	3	1	1	2	22	—	22	95	111	206	7,683	6,099	13,782

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

DISEASES	European Officials			European General Population			Asian Officials			Asian General Population			Native General Population (including Officials)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
IX.—Affections of the Skin and Cellular Tissues—(*Contd.*)															
155. Other Diseases of the Skin—															
Erythema	8	1	9	—	3	3	—	—	—	11	17	28	58	111	169
Urticaria	21	12	33	13	30	43	42	—	42	199	175	374	1,914	894	2,808
Eczema	6	3	9	10	9	19	53	—	53	101	131	232	1,874	1,014	2,888
Herpes Zoster	5	1	6	—	4	4	—	—	—	14	26	40	758	354	1,112
Psoriasis	—	—	—	—	—	—	—	—	—	6	11	17	22	8	30
Elephantiasis	—	—	—	—	—	—	—	—	—	—	—	—	89	59	148
Myiasis	—	—	—	—	—	—	—	—	—	—	—	—	—	8	8
Chigoes	6	4	10	9	—	9	—	—	—	2	4	6	267	220	487
Cutaneous Lieshmaniasis	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Dermatitis	75	36	111	53	94	147	63	—	63	59	67	126	2,470	1,342	3,812
Unclassified	63	18	81	21	40	61	1	—	1	9	6	15	530	299	829
X.—Diseases of Bones and Organs of Locomotion (Other than Tuberculous)															
156. Diseases of Bones—															
Osteitis	7	—	7	—	2	2	1	—	1	2	2	4	173	78	251
Osteomyelitis	—	—	—	1	—	1	—	—	—	1	—	1	—	—	—
157. Diseases of Joints—															
Arthritis	27	7	34	9	16	25	22	—	22	42	36	78	2,380	1,169	3,549
Synovitis	27	5	32	22	9	31	17	—	17	11	6	17	1,760	4,460	6,220
158. Other Diseases of Bones or Organs of Locomotion	27	9	36	48	37	88	35	—	35	7	—	7	3,073	1,931	5,004
XI.—Malformations															
159. Malformations—															
Hydrocephalus	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Hypospadias	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Spina Bifida	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Unclassified	6	1	7	1	3	4	—	—	—	—	—	—	6	1	7
XII.—Diseases of Infancy															
160. Congenital Debility	—	—	—	—	—	—	—	—	—	32	28	60	69	36	105
161. Premature Birth	—	—	—	—	—	—	—	—	—	—	3	3	6	4	10
162. Other Affections of Infancy	—	—	—	4	7	11	—	—	—	4	3	7	46	17	63
Marasmus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
163. Infant Neglect—			—												
(*a*) Three Months and over	—	—	—	—	—	—	—	—	—	—	—	—	35	40	75
(*b*) Under Three Months	—	—	—	—	—	—	—	—	—	—	—	—	12	24	36

XIII.—Affections of Old Age																
164. Senility—																
Senile Dementia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unclassified	—	—	—	—	1	1	—	—	—	—	—	—	25	15	40	
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	—	1	1	—	—	—	—	—	—	13	48	61	
176. Attacks by Poisonous Creatures—																
(*a*) Snake Bite	1	—	1	1	1	2	15	—	15	1	—	1	190	56	246	
(*b*) Insect Bite	3	7	10	3	9	12	—	—	—	19	27	46	467	165	632	
(*c*) Others	—	—	—	2	—	2	—	—	—	10	1	11	199	123	322	
177. Other Accidental Poisonings	—	1	1	—	2	2	1	—	1	1	—	1	30	7	37	
178. Burns (by Fire)	6	2	8	8	2	10	6	—	6	100	140	240	5,138	2,899	8,037	
179. Burns (other than by Fire)	6	1	7	4	—	4	92	—	92	60	20	80	1,860	777	2,637	
180. Suffocation (Accidental)	—	—	—	—	—	—	—	—	—	—	—	—	7	8	15	
181. Poisoning by Gas (Accidental)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
182. Drowning (Accidental)	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	
183. Wounds (by Firearms, War Excepted)	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	
184. Wounds (by Cutting or Stabbing Instruments)	32	12	44	26	13	39	13	—	13	75	28	103	9,373	3,478	12,851	
185. Wounds (by Fall)	22	7	29	10	9	19	2	—	2	371	251	622	6,244	1,808	8,052	
186. Wounds (in Mines or Quarries)	—	—	—	—	—	—	—	—	—	—	—	—	42	5	47	
187. Wounds (by Machinery)	3	1	4	1	—	1	—	—	—	2	—	2	1,237	70	1,307	
188. Wounds (Crushing, e.g. Railway Accidents, etc.)	3	1	4	1	—	1	—	—	—	—	—	—	105	27	132	
189. Injuries Inflicted by Creatures, Bites, Kicks, etc.	20	6	26	10	8	18	2	—	2	5	1	6	1,595	409	2,004	
190. Wounds Inflicted on Active Service	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
191. Executions of Civilians by Belligerents	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
192. A.—Over-fatigue	1	—	1	2	2	4	—	—	—	—	—	—	—	—	—	
B.—Hunger or Thirst	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	
193. Exposure to Cold, Frost-bite, etc.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
194. Exposure to Heat—																
Heatstroke	1	—	1	—	—	—	—	—	—	—	—	—	1	1	2	
Sunstroke	7	1	8	2	—	2	—	—	—	—	—	—	—	—	—	
195. Lightning Stroke	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
196. Electric Shock	—	—	—	1	—	1	1	—	1	2	—	2	3	1	4	
197. Murder by Firearms	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

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

DISEASES	European Officials			European General Population			Asian Officials			Asian General Population			Native General Population (including Officials)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
XIV.—Affections Produced by External Causes—(*Contd.*)															
198. Murder by Cutting or Stabbing Instruments	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
199. Murder by other Means	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
200. Infanticide (Murder of an Infant under One Year)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
201. A.—Dislocation	1	1	2	1	—	1	1	—	1	1	—	1	214	96	310
B.—Sprain	85	30	115	48	35	83	68	—	68	106	63	169	5,006	1,164	6,170
C.—Fracture	36	13	49	35	24	59	1	—	1	7	13	20	2,718	610	3,328
202. Other External Injuries	162	34	196	101	110	211	938	—	938	1,544	1,114	2,658	48,973	12,657	61,630
203. Deaths by Violence of Unknown Cause	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XV.—Ill-Defined Diseases															
204. Sudden Death (Cause Unknown)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
205. A.—Diseases not Already Specified or Ill-defined—															
Ascites	—	—	—	—	—	—	—	—	—	—	—	—	79	39	118
Oedema	—	1	1	—	—	—	—	—	—	2	3	5	329	253	582
Asthenia	34	18	52	10	30	40	1	—	1	2	2	4	65	62	127
Shock	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hyperpyrexia	—	—	—	—	1	1	—	—	—	—	—	—	1,330	474	1,804
Pyrexia of unknown Origin	50	33	83	43	43	86	200	—	200	161	198	359	2,703	796	3,499
Lumbago	25	9	34	3	3	6	5	—	5	3	—	3	561	228	789
Myalgia	—	—	—	—	—	—	10	—	10	20	40	60	2,850	1,587	4,437
Sciatica	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2
Others	86	49	135	31	28	59	290	—	290	37	80	117	3,237	693	3,930
B.—Malingering	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XVI.—Diseases, the Total of which have not Caused Ten Deaths	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grand Total	2,868	1,798	4,666	1,933	2,818	4,751	5,625	12	5,637	12,822	12,633	25,455	586,539	328,572	915,111

ANNUAL REPORT OF THE MEDICAL RESEARCH LABORATORY, 1949

Staff

Assistant Director, Laboratory Services:—

R. M. Dowdeswell, M.D., B.Ch. (Cantab.), M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Pathologists:—

G. L. Timms, M.R.C.S. (Eng.), L.R.C.P. (Lond.), M.B., B.S. (Lond.).

E. R. N. Cooke, B.A., M.B., Ch.B., B.A.O. (Dublin), L.M. (Rotunda).

J. Lowry, M.B., B.Ch., B.A.O. (Belfast).

Biochemist:—

D. Harvey, M.A., B.Sc., Ph.D.

Senior Laboratory Technicians:—

W. L. Titman, A.I.M.L.T.

T. G. R. Jones, A.I.M.L.T.

W. A. Doust, A.I.M.L.T.

Laboratory Technicians:—

R. F. King.

A. W. Pearson, A.I.M.L.T.

S. McDonald, F.I.M.L.T.

K. T. Carter, A.I.M.L.T.

G. Davies-Jones, A.I.M.L.T.

R. Caldecott, A.I.M.L.T.

Junior Laboratory Technician:—

Miss M. Stahre (seconded to Division of Insect-borne Diseases)

Laboratory Technician (Learner):—

A. Cruickshank.

Laboratory Assistants (Asian):—

Mr. Mathew de Souza.

Mr. B. V. F. Pereira.

Mr. Franklin de Souza.

Mr. T. M. Viana.

Storekeeper:—

Mr. M. J. J. Soares.

Clerk (Grade II), General Office:—

Mr. C. Coutinho.

Librarian:—

Miss P. M. Allen.

Stenographer:—

Miss M. L. Palmer.

Principal Staff Changes and Leave

Dr. R. M. Dowdeswell, Assistant Director, Laboratory Services, proceeded on leave to Great Britain on 1st February, 1949, and returned on 8th September, 1949.

Miss M. L. Palmer, Clerk, Grade I, was transferred from Medical Department Headquarters to the Laboratory Division on 1st February, 1949.

Miss I. E. Bowman, Officer i/c Records, proceeded on leave to Australia on 21st February, 1949, and was not reposted to the Laboratory on her return.

Mr. T. M. Viana, Laboratory Assistant, returned from leave in India on 7th April, 1949.

Mr. W. L. Titman, Senior Laboratory Technician, proceeded on leave to Great Britain on 15th April, 1949.

Mr. A. Cruickshank, Junior Laboratory Technician (Learner), on probationary appointment, reported for duty at the Laboratory on 20th April, 1949.

Mr. Samuel McDonald, Laboratory Technician, arrived on first appointment from Great Britain on 4th May, 1949.

Mr. K. T. Carter, Laboratory Technician, arrived on first appointment from Great Britain on 24th May, 1949.

Dr. Joseph Lowry, Pathologist, arrived on first appointment from Great Britain on 7th June, 1949.

Brigadier R. P. Cormack, Temporary Pathologist, left the Laboratory to take up private practice on 30th July, 1949.

Dr. Dockeray was appointed as Temporary Pathologist on 6th September, 1949.

Mr. Davies-Jones, Laboratory Technician, arrived on first appointment from Great Britain on 22nd September, 1949.

Finance

Expenditure

	£	
Staff Emoluments	5,630	
Upkeep of Laboratory	2,400	approx.
Stores and Equipment	5,500	
	£13,530	

Revenue Earned

	£
Sale of Calf Lymph	3,224
Sale of Stock Vaccines prepared in the Laboratory ...	794
Fees for Laboratory Examinations	2,888
Resale of Imported Anti-sera, etc.	270
	£7,176

General

The amount of routine work continued to increase and the staff was almost wholly occupied with it alone throughout the year. It is probable that the demands will increase still further as the population rises, the number of private practitioners grows and as more hospital beds are established.

The projected animal house and stores are still not built and animals are still kept in unsatisfactory conditions and two good workrooms are still used wholly as stores and much space is occupied in other rooms by things which would be better kept elsewhere.

Towards the end of the year a request was made by Doctors H. Foy and A. Kondi of the Wellcome Trust for accommodation to work in co-operation with the Medical Department, mainly on anæmias in Africans. Space was made for them by moving the Biochemist's rat colony into a vacant hut in the compound and by taking a room from the Medical Biology Section, and all concerned are fortunate in the presence of workers of such repute and capability in Kenya. They are administered by the Wellcome Trust, who also provide all their apparatus.

Systematic training of African recruits to the Laboratory service was continued and is bearing fruit. Opportunities were taken to visit laboratories attached to out-stations whenever possible, but there is probably still too little supervision of the work of African assistants posted away from Nairobi.

BACTERIOLOGICAL SECTION

Staff.

Dr. E. R. N. Cooke.

Mr. Doust, Mr. King } Vaccine Production.

Mr. de Souza—Routine Bacteriology.

Contained in the section are the divisions:—

(1) Vaccine Section.

(2) Routine Bacteriology and Public Health.

(3) Media Section.

(4) Animal House.

Vaccine Section

(Mr. Doust assisted by Mr. King)

Vaccines Produced.

Vaccine Lymph.

Plague Vaccine.

Anti-rabic Vaccine.

T.A.B. Vaccine.

Agglutinable suspensions for diagnostic work are also made in this section.

Vaccine Lymph.

The method of production has been reorganized during the year by Mr. Doust, who visited the Lister Institute in 1948, and the technique used there has been employed, with modifications, during 1949. The seed lapine previously in use has been raised in titre by eighteen alternate passages between calf and rabbit from 1:1,000 to over 1:16,000. Each batch of lymph is tested twice for potency on rabbits before issue and 265 potency tests have been carried out during the year. The new vaccine will be available for issue from the beginning of 1950.

Vaccine was made from 342 calves during the year, producing 13,204 grams of pulp or 6,602,000 doses of lymph. The average yield per calf was 38.6 grams, though this has been raised during the last few months to 40 grams. The average yield in previous years was only 13 grams; hire of calves in 1949 cost £256, so that the increased yield represents an actual saving of £729. Wastage has been avoided by issuing tubes containing single doses and a further saving has been made by reducing the volume per dose of the high-titre lymph. It is estimated that the total saving, potential and actual, from these alterations is about £1,500.

The revenue earned from the sale of vaccine to other governments was £3,224, made up as follows:—

	£
Tanganyika	1,431
Uganda	1,493
Nyasaland	210
Zanzibar	48
Royal Air Force	3
East Africa Command	30
British Somaliland	9
	£3,224

It is proving difficult to obtain enough calves on hire from their African owners; because of this production fell short of the 7,000,000 doses which were aimed at. Calves, too, have to be returned to their owners, although it would be better if the provisions of the Therapeutic Substances Act in force in England could be followed and post-mortems performed on all animals after the collection of the pulp. To buy calves outright and slaughter them would be prohibitively expensive and it is therefore proposed, early in 1950, as soon as the calf sheds can be modified to abandon the use of calves and to produce lymph on sheep

which can be bought for Sh. 15, which is what we now have to pay for the hire of a calf. In preliminary tests with ovinized lymph obtained from the Lister Institute an average yield of 25 grams per sheep has been obtained. It would therefore cost more to produce lymph from sheep than from calves if the carcasses of the sheep had to be discarded, but it is thought that a market can be found for them at Sh. 10 each, in which case there will be a reduction of about 30 per cent in this factor in production costs.

Other Vaccines.

All other vaccines were made in adequate amounts throughout the year with the exception of typhoid-paratyphoid vaccine. It was unfortunate that an outbreak of typhoid fever in Naivasha occurred at a time when the work of the Laboratory was being interfered with by recurrent interruptions in the electric power supply and 20 litres, costing £640, had to be brought from England to meet a sudden demand.

ANTI-RABIC VACCINE

YEAR	Anti-rabic vaccine prepared at Laboratory	Cost of prepared vaccine at Laboratory price of Sh. 5 per course	Cost of imported vaccine at Sh. 45 per course	Difference in price between Laboratory prepared and imported vaccine	Issued to Kenya Colony and other territories	Issued to other territories	Cost to other territories
	c.c.	£	£	£	*c.c.*	*c.c.*	£
1948 ..	42,900	179	1,611	1,432	33,850	18,960	87
1949 ..	53,200	222	1,995	1,773	52,480	23,280	107

T.A.B. VACCINE

YEAR	T.A.B. vaccine (dose 1·5c.c.) prepared at Laboratory	Cost of prepared vaccine at Laboratory price of cents 10 per c.c.	Cost of imported vaccine at Sh. 16 per 25 c.c.	Difference in price between Laboratory prepared and imported vaccine	Issued to Kenya Colony and other territories	Issued to other territories	Cost to other territories
	c.c.	£	£	£	*c.c.*	*c.c.*	£
1948 ..	103,395	1,292	6,620	5,328	102,165	49,405	680
1949 ..	152,710	1,904	9,773	7,869	132,270	38,705	489

VACCINE LYMPH

YEAR	Number of doses lymph prepared at Laboratory	Cost of prepared lymph at Laboratory price of cents 3 per dose	Cost of imported lymph at cents 8 per dose (bulk)	Difference in price between Laboratory prepared and imported lymph	Issued to Kenya Colony and other territories	Issued to other territories	Cost to other territories
	Doses	£	£	£	*Doses*	*Doses*	£
1948 ..	5,746,300	8,619	22,985	14,366	2,787,615	2,185,150	4,117
1948 ..	6,602,000	9,903	26,408	16,505	4,587,567	1,710,033	3,332

PROPHYLACTIC PLAGUE VACCINE

YEAR	Plague vaccine prepared at Laboratory	Cost of prepared vaccine at Laboratory price of cents 10 per c.c.	Cost of imported vaccine at Sh. 16 per 25 c.c.	Difference in price between Laboratory prepared and imported vaccine	Issued to Kenya Colony and other territories	Issued to other territories	Cost to other territories
	c.c.	£	£	£	*c.c.*	*c.c.*	£
1948 ..	120,000	600	3,840	3,240	64,965	1,700	9
1949 ..	120,000	600	3,840	3,240	39,750	300	—

Agglutinable suspension for diagnostic work = 67,000 mls. Cost if bought outside the Colony = £335.

Cost of imported vaccines and sera, excluding freightage, commission, etc.: —

1948	...	....	£5,752
1949	...	...	£6,014

Imported Anti-sera, etc.

All anti-sera and certain other products used to be bought from South Africa, but during 1949 a British firm opened a depot in Nairobi where they could be bought more cheaply and from whom they were obtained as soon as they were available.

£6,013 17s. was spent in 1949, but this includes the cost of the T.A.B. referred to above. There was an especially large demand for tetanus anti-toxin which reflected modern views on dosage. Owing to shortage of refrigerator space for storage this was for a time imported in specially filled ampoules of 40,000 units which increased the cost somewhat. There was also a big demand for diphtheria prophylactic (P.T.A.P.) chiefly by the Schools Medical Officer, and this demand is likely to increase still further. It is still hoped that it may ultimately be possible to transfer the responsibility for stocking and issuing imported products to the Medical Storekeeper to whom it would seem rightly to belong.

Routine Bacteriology.

The section is normally in charge of Mr. M. de Souza, but during the year it was possible to release him to undertake research on brucellosis with Dr. E. R. N. Cooke. During this period the routine bacteriology has been undertaken very efficiently by Mr. Pereira. A list is attached showing the work done during the year, and as can be seen there has been an increase over the last ten years, so much so that it is now almost too much for one man.

Widal Tests.

Sera from 3,800 patients were recived for Widal tests during the year. As in most cases a Weil-Felix test and a test for brucella agglutinins were asked for as well as a full Widal the actual number of tests approximates 150 to 200 a day.

The Dreyer method is used, and the tests are performed by two Africans under the supervision of the Pathologist. It is hoped to change to volumetric methods when equipment has been obtained, as by this method it will be easier to supervise the work.

Public Health.

Little is done at present, but it is hoped to start a separate public health section as soon as a room, equipment and a reliable technician can be obtained. During the year 141 samples of water, 75 samples of mineral water and 24 samples of food were examined. These were all done by the Pathologist in Charge.

Media Section

We have no permanent technician for this important work at present and difficulties have been experienced during the year in keeping up the supplies of media.

Animal House

More and more animals are required. Reorganization of the vaccine section and introduction of the standards laid down in the Therapeutic Substances Act (England) have meant that more animals (rabbits and guinea pigs) are required. We ourselves have converted a calf-shed into pens for guinea pigs and we have been fortunate in getting the assistance of the Prisons and Veterinary Departments, both of which have made animal cages for us. By these means we have managed to breed most of the animals required in the Laboratory and meet the constant demands. Some animals, however, had to be purchased outside.

The number of rabbits used for all purposes in the Bacteriological Section during the year was 316 and of guinea pigs 140.

The cost of food for the animals was £158.

Research

At the request of the Medical Specialist work on the identification of types of *Brucella* causing brucellosis in Africans was undertaken by Dr. E. R. N. Cooke and Mr. M. St.J. de Souza. It is hoped to publish an account of this work in 1950.

Comparative Table for the Years 1939 to 1949

Year	*Number of specimens examined*	*Number of cultures*
1939	5,273	2,424
1940	4,931	3,019
1941	13,819	4,125
1942	16,409	2,935
1943	14,074	2,498
1944	12,077	3,260
1945	11,415	2,485
1946	16,139	3,230
1947	12,931	3,050
1948	11,215	4,263
1949	13,328	5,754

Public Health

Water Examinations	141
Mineral Water Examinations	75
Milk, Tinned Food, etc., Examinations	24

Vaccine Made in Bacteriological Section

Polyvalent anti-catarrhal vaccine	62 courses
Mixed gonococcal vaccine	16 courses
Polyvalent staphyloccus vaccine	12 courses
Polyvalent mixed staphylococcus and streptococcus vaccine	15 courses
Autogenous vaccines	29 courses

Laboratory Animals

Rabbits used in preparation anti-rabic vaccine during 1949	152
Rabbits used in 1949 for potency	92
Rabbits used in 1949 for lapine	72
Guinea pigs used in 1949	140 in all.
Total of rabbits used	316

Guinea Pigs' Inoculation for T.B.

(*Complete up to 31st December*, 1949)

Positive	5
Negative	28

C.S.F. (Cell Count)	Sputa (T.B.)	Smears for B. Lepræ	Stool Smear for T.B.	Widal Tests (including Weil-Felix and Brucella)
Negative .. =420 Positive Types:— 1. Meningococci = 5 2. Pneumococci = 44 3. Influenza B. = 5 4. Tubercule B. = 1 5. Trypanosomes = 1	Positive = 627 Negative = 4,484	Positive (B. Lepræ) = 2 Negative (,,)=31	Positive (T.B.)=2 Negative(T.B.)=4	3,800

Stool Cultures		Blood Cultures		Eye Cultures	Eye Smears		Throat Swabs. Cultures		Throat Swabs. Smears
Negative Cultures ..	= 2,083	Negative Cultures ..	= 372	Positive = 27	Negative	= 43	Negative (KLB)	= 395	Negative (Vincents Angina) = 44
Positive Types:—		Positive Types:—		Negative = 229	Positive Gonococci ..	= 16	Positive (KLB) ..	= 31	Spirochætes and Fusiforms = 41
1. Salmonella Typhi	= 109	1. Salmonella Typhi	= 61		Positive Koch Weeks B.	= 65	Hoffman B. ..	= 1	
2. B. Paracolon Group	= 177	2. Brucella Group ..	= 85		Positive Pneumococci ..	= 13	Pneumococci ..	} = 108	
3. Salmonella Group C.O.	= 17	3. Staphyloccus Aureus	= 1		Positive Morax A. & Enfield B.	= 3	L. & B. Hæmolytic		
4. B. Dysentery 'Shiga'	= 5	4. B. Fæcalis Alkaligenes	= 16		Positive Anthrax B. ..	= 2	Streptococci ..		
5. B. Dysentery 'Sonne'	= 20	5. B. Paracolon Group	= 1		Positive Pestis B.	= 1			
6. B. Morgan Group	= 128	6. Anthracoid Bacilli	= 6		Negative B. Pestis ..	= 5			
7. B. Dysentery Flexner I, II, III ..	= 171	7. B. Coli Group ..	= 26		Negative B. Anthrax ..	= 14			
8. B. Dysentery 'Schmitz'	= 18	8. Hæmolytic Streptococci ..	= 2						
9. B. Dysentery 'Newcastle'	= 10	9. Pneumococci ..	= 1						
10. B. Dysentery 'Boyd'	= 9								
11. B. Fæcalis Alkaligenes	= 194								
12. B. Salmonella Typhi Murium ..	= 6								
13. Atypical Dysentery	= 3								
14. B. Proteus Dysentery	= 7								
15. B. Pyocyaneus ..	= 2								

Urine Cultures	Urine Smears	Body Fluids (including pus) Cultures	Body Fluids (including pus) Smears	Skin Scrapings Fungi	Post-mortem Cultures	Smears for G.C. Cervical, Urethral and Vaginal Female
Positive .. .. = 312	Positive = 55	Positive = 119	Positive = 31	Negative = 4	Positive .. = 8	Positive (G.C.) .. = 16
Negative .. .. = 369	Negative = 97	Negative = 133	Negative = 111		Negative = 2	Negative (G.C.) .. = 1,345
Salmonella Typhi .. = 1			Positive (T.B.) = 2			
			Negative = 7			

Miscellaneous Smears	Semen (Sperm Count)	Smears for Sperms	Urethral Smears Male	Culture
Hæmophilus Ducreyi recovered from Penile Sores .. = 1	Total counts = 36	Positive .. = 3	Positive (G.C.) = 126	B. Friedlander recovered from sputum .. = 1
Positive Odium Albicans (Moniliasis) .. .. .. = 1		Negative = 4	Negative (G.C.) = 319	

SECTION OF BIOCHEMISTRY

(1) Staff

The staff of the section consisted of the Biochemist, a Laboratory Technician and five Africans.

(2) Routine Work

The following table shows the number and nature of the routine examinations carried out during the year. They were made under the general supervision of the Laboratory Technician:—

(a) Urine—	
General examination—i.e. reaction, specific gravity, albumen, sugar and deposit	3,371
Sugar, quantitative and qualitative	23
Sugar and acetone	257
Sugar and albumin	34
Albumin	31
Albumin and deposit	52
Deposit	171
Bile	182
Spectroscopic examination	7
Acetone	16
Specific gravity, albumin and sugar	30
Albumin, sugar and deposit	3
Specific gravity	8
Diastatic index	3
Urobilin	4
Bence-Jones Protein	1
Quinine	1
Urinary calculus	3
Urea percentage	2
Total	4,199
(b) Blood—	
Urea	341
Non-protein nitrogen	6
Sugar	54
Uric acid	11
Calcium	21
Cholesterol	7
Protein	26
Van den Berg test	11
Icteric index	2
Sulphonamide	1
Sodium	2
Phosphate	4
Chlorides	2
Phosphatase (alkaline)	4
Phosphatase (acid)	1
Serum lipase	1
Total	494
(c) Fæces—	
Occult blood	145
Bile pigments	8
Total	153
(d) Cerebro-spinal Fluid—	
Excess globulin	6
Protein	17
Chlorides	33
Lange gold curve	12
Urea	1
Chlorides and protein	30
Chlorides and sugar	3
Globulin and protein	52
Globulin and gold curve	1
Chlorides, globulin and protein	111
Chlorides, protein and sugar	2
Globulin, protein and gold curve	95
Globulin, sugar and chlorides	1
Globulin, chlorides, protein and gold curve	28
Globulin, protein, chlorides and sugar	15
Chlorides, globulin, protein, sugar and gold curve	6
Levinson's test	1
Total	414

(e) *Miscellaneous—*

Ascitic fluid—specific gravity	2
protein and specific gravity	3
Abdominal fluid—protein	15
seromucin	1
protein and chlorides	1
Pleural fluid—protein and chlorides	1
protein	7
specific gravity, protein and seromucin	1
Antrum fluid—protein and cholesterol	1
Sinus fluid—origin pancreatic	1
Total	33

(f) *Physiological efficiency tests—*

(i) Renal efficiency tests:	
Urea concentration tests	7
Urea clearance	5
(ii) Pancreatic efficiency tests:	
Glucose tolerance tests	120
Insulin tolerance test	1
Fæcal fat estimations	15
(iii) Gastric contents analyses:	
Fractional test meals	223
Single specimens	7
(iv) Basal metabolic rate estimations	66
(v) Liver efficiency tests—hippuric acid	4

(3) Research Work

Interest in the subject of nutrition was maintained and work was carried out on the chemical properties of the proteins of the red millet *Eleusine coracana*. In February the Biochemist led the Kenya team which attended the Nutrition School held at Kampala by workers from Britain, and in October he represented Kenya at the International Conference on Food and Nutrition which met at Dchang in the French Cameroons.

MEDICAL BIOLOGICAL SECTION

Dr. J. Lowry took over the section from Brigadier R. P. Cormack in July. The large number of routine examinations asked for continues to make it difficult to do anything else as supervision of African staff and checking of results is essential. Attempts are being made to secure more clinical information with specimens submitted.

A paper written in collaboration by Drs. H. Foy, A. Kondi and A. Hargreaves on "Anæmia in Africans" is to be published in Transactions of the Royal Society of Tropical Medicine and Hygiene.

Fæces Examination.

Helminths and Protozoa	European	Asian	African	Total
Tænia	10	8	939	957
A. lumbricoides	12	27	743	782
Larvæ of N. Americanus	6	6	110	122
N. Americanus	10	49	821	880
O. vermicularis	15	16	60	91
T. colubriformis	—	7	8	15
H. nana	—	8	21	29
Larvæ of S. stercolis	3	3	43	49
S. stercolis	—	—	—	—
E. histolytica (active)	2	6	41	49
E. histolytica (cysts)	12	7	67	86
E. coli	147	120	1,432	1,699
I. butschlii	37	30	346	413
G. intestinalis	18	33	118	169
C. mesnili	32	19	357	408
I. hominis	—	—	2	2
E. nana	—	—	—	—
Flagellate cysts	71	58	575	704
Charcot-Leyden crystals	48	10	122	180
H. diminuta	—	—	6	6
T. trichiura	17	37	222	276
Ova S. Mansoni	25	11	188	224
Balantidium coli	—	1	—	1
Negative Stools	1,311	830	1,951	4,092
Total examinations	1,776	1,286	8,172	11,234

Urine Examinations.

Number of specimens examined	281
S. hæmatobium	33

Blood—Parasite Infections.

	European	Asian	African	Total
P. falciparium	102	57	432	591
P. falciparium crescents	2	6	53	61
P. vivax	3	1	12	16
P. malariæ	1	6	3	10
P. ovale	—	—	4	4
Mixed infections	—	—	5	5
M. bancrofti	—	—	—	—
M. perstans	—	—	12	12
T. recurrentis	—	—	7	7
Negatives	2,194	1,853	8,328	12,375
Total	2,302	1,923	8,856	13,081

Hæmatological Examinations.

	European	Asian	African	Total
Total blood counts	585	145	1,140	1,870
Differential counts	302	581	83	966
Hb. and R.B.C.'s	32	4	195	231
W.B.C. counts	55	22	1,064	1,141
Hb. and W.B.C.'s	2	—	33	35
Reticulocyte counts	—	—	8	8
E.S.R.	31	24	17	72
Hb.	1	—	139	140
Hb. and differential count	—	—	1	1
Platelets counts	2	—	2	4
Packed cell volume	4	—	1	5
Miscellaneous Examination	—	—	1	1
Total	1,014	776	2,684	4,474

Miscellaneous Examinations—127.

SECTION OF PATHOLOGY

Work was again restricted to routine examinations throughout the year. The following were carried out:—

Histological Examinations.

Specimens were received from 1,420 cases.

Kahn Tests.

Sera and cerebro-spinal fluids numbered 27,796.

Blood Groups.

Specimens were grouped from 207 Europeans, excluding check-groupings on samples from the blood bank on volunteer donors for the Kenya Blood Transfusion Service which accounted for another 450. Blood groups were also done on 312 Africans and on 64 Asians. Rhesus grouping was done in all cases using an anti-D serum for recipients and an anti-C + D serum for donors. Chownd's capillary technique was used in order to conserve test sera and with a tube technique it would have been impossible to carry on with the small amount of serum available. There is reason for apprehension as to whether it will be possible to continue to do this owing to the world shortage of test sera; we have been fortunate so far in obtaining sera from Dr. Mourant.

Post-mortems.

Post-mortems were done almost entirely at the request of the police in medico-legal cases and numbered 194.

Pregnancy Tests.

The Friedman technique was used and 181 tests were done. Unfortunately no figures are available by which the accuracy of the results can be assessed. It is proposed in future to run the male toad test in parallel with the Friedman with a view to substituting it for the Friedman if it is shown that the local toads are reliable.

Kenya Blood Transfusion Service.

In addition to the grouping tests described above, the pathological section continued to service and sterilize the taking-and-giving sets for the Nairobi Blood Bank. During the greater part of the year, the section also prepared the glucose citrate for the Bank as the Group Hospital dispensary was overloaded and could not cope with this in addition to the preparation of transfusion fluids for the rest of the Colony.

TRAINING OF AFRICANS

Mr. R. Caldecott was in charge of African Training for the year and it consisted of two six-monthly courses.

At the end of the year seven students sat for the second-grade examination, of which six passed and one failed.

The examination consisted of a three-hour written paper, a three-hour practical examination and a 15 minutes' oral in general routine laboratory work.

It is intended to bring in six African laboratory assistants from out-stations every six months for a refresher course. They will be replaced during the period of the course by trainees.

REPORT ON THE WORKING OF THE LABORATORY ATTACHED TO THE NATIVE HOSPITAL, MOMBASA, FOR THE YEAR 1949

STAFF

Mr. T. G. R. Jones was in charge of the Laboratory throughout the year.

Early in the year Mr. Wilderspin left Mombasa on account of ill health and Mr. F. de Souza was sent from the Medical Research Laboratory until the return from vacation leave of Mr. T. A. Viana, who was reposted to Mombasa.

GENERAL

The total number of specimens as recorded in the register was 48,971, or 2,133 less than in 1948. This can be accounted for by the smaller number of sputa and blood slides submitted for examination by the Native Hospital.

The following examinations were performed:—

	1949	1948
Blood—		
Films for malarial parasites, etc.	12,040	14,434
Films for differential count	127	234
Total leucocyte and differential counts	483	611
Total leucocyte count and hæmoglobin estimation	32	11
Total leucocyte count	24	—
Total leucocyte count, differential count and Hb estimation	45	—
Total erythrocyte	43	—
Total erythrocyte and differential count	6	—
Total erythrocyte and leucocyte counts	3	—
Total erythrocyte, leucocyte and differential counts	4	—
Total erythrocyte, leucocyte count and Hb est.	2	—
Total erythrocyte count, Hb est. and colour index	141	218
Total erythrocyte count, Hb est. and colour index and differential count	2	—
Total erythrocyte, leucocytes, Hb, colour index and differential count	240	260
Hæmoglobin estimation	633	651
Hæmoglobin estimation differential ocunt	5	—
Kahn test	9,443	6,709
Blood culture	63	75
Blood group	150	80
Widal test (103 for Br. Abortus)	503	462
Weil-Felix test	27	17
Van den Berg test	14	6
Glucose tolerance curves	35	27
Blood sugar estimation, single specimens	10	13
Blood urea estimations	113	139
Blood sedimentation rates	27	41
Icteric index	3	—
Fæces Examinations—		
For ova and cysts, etc.	10,835	10,576
For occult blood	14	33
Culture	94	138
Bile	1	—

	1149	1948
Urine Examinations—		
Routine	5,532	5,357
Culture	70	102
Quantitive sugar estimation	4	14
Urea concentration test	4	2
Urea clearance test	2	4
Chlorides	7	—
Tubercle bacilli	6	—
Cerebro-spinal Fluids—		
For organisms	33	19
For cell count	37	33
For Kahn test	18	37
For estimation of chlorides	21	27
For estimation of Protein	13	49
For estimation of Glucose	2	20
Sputa for tubercle bacilli, etc.	3,747	7,493
Smears for N. gonorrhœa	1,483	1,530
Miscellaneous smears, fluids, etc. for organisms	112	85
Throat swabs (culture):—		
For *C. diptheriæ*	102	312
For hæmolytic streptococci	13	11
Spleen smears (rat) routine examination for *B. pestis*	1,224	—
Fractional test meals	49	25
Dark ground examination	6	6
Specimens sent to the Medical Research Laboratory, Nairobi—		
Tissues for Histological examination	77	59
Miscellaneous specimens	11	—

REPORTS FROM OUT-STATIONS

Province	Station	Faeces examination	Blood Slides	Other examinations	Total
Nyanza	Kisumu	5,959	13,808	6,551	16,318
,,	Kakamega	5,036	13,570	4,680	23,286
,,	Kericho	1,088	4,367	1,570	7,025
,,	Kisii	733	1,964	756	3,453
Rift Valley	Kitale	1,161	3,156	1,490	5,807
,,	Eldoret	4,074	8,252	1,483	819
,,	Nakuru	2,537	7,579	6,084	16,200
Central	Kangundo	1,092	2,009	625	3,726
,,	Keruguya	4,235	6,677	1,591	12,503
,,	Nyeri	2,893	4,943	620	8,456
,,	Meru	2,767	4,626	3,064	10,457
,,	Embu	1,174	4,065	365	5,604
,,	Kitui	1,565	2,467	4,181	8,213
,,	Fort Hall	2,331	8,221	2,476	13,028
,,	Machakos	4,187	8,268	4,591	17,046
,,	Kiambu	2,162	3,391	3,252	8,805
,,	I.D.H. Nairobi	173	406	3,290	869
Coast	I.D.H. Mombasa	210	1,396	11,284	12,890
,,	Wesu	2,896	3,061	2,076	8,033
,,	Msambweni	3,507	3,760	4,216	11,483
,,	Kilifi	1,304	1,821	2,621	5,746
,,	Malindi	532	1,606	1,248	3,386
Masai District	Narok	509	1,015	525	2,049
,,	Kajiado	286	929	371	1,586

DIVISION OF INSECT-BORNE DISEASES—ANNUAL REPORT FOR 1949

Difficulties were experienced early in the year due to several of the European staff being on leave at the same time. However, considerable progress was made, with several interesting parasitological and entomological discoveries.

The malarial control experiment at Kericho again suffered due to the failure (for the third year in succession) of a proper malarial epidemic, but this did not prevent certain useful data from being collected. After much delay the houses for the European staff are being built and should be occupied in a few months' time.

The Division has still been unable to obtain the services of an anti-malarial engineer, which has resulted in the neglect of an important aspect of malarial control.

The present main laboratory accommodation is adequate, but there is urgent need for a proper animal house, and stores and garages for Government vans, and the mobile laboratory. The last contains valuable equipment which is in continual danger of being stolen.

A senior entomologist has recently been posted to Kisumu in a provincial capacity and a comprehensive programme laid down which includes surveys and investigations into malaria, trypanosomiasis, onchocerciasis and other insect-borne diseases.

Routine Duties

The routine identification of insects of medical importance has been continued. A summary of mosquitoes identified is given in Appendix 1. New species, some of which have been described, include: —

Anopheles (M.) notleyi van Someren.
Orthopodomyia vernoni van Someren.
Aedes (F.) phillipi van Someren.
A. (F.) madagascarensis van Someren.
Eretmapodites mahaffyi van Someren.
E. haddowi van Someren.
E. harperi van Someren.
E. gilletti van Someren.
Two *Aedes* from Kenya.
One *Uranotænia*, four *Culex*, two *Aedes* and one subspecies.
The larva and pupa of *A. (A.) mutilus* Edwards from Bwamba, Uganda.

Considerable progress has been made in the identification of sandflies, and the following species have been recorded: —

Phlebotomus sergenti Parrot.
Phlebotomus martini Parrot.
Sintonius adleri Theodor.
Sintonius affinis Theodor.
Sintonius clydei Sinton.
Prophlebotomus africans Newstead.
Prophlebotomus signatipennis Newstead.
Prophlebotomus congolensis Bequaert and Walravens.
Prophlebotomus ingrami Newstead.
Prophlebotomus serratus Parrot and Malbrant.
Prophlebotomus schwetzi Adler.
Prophlebotomus squamipleuris Newstead.

The commonest species appears to be *P. congolensis* which has been found in large numbers near Nairobi and along the coast. *P. schwetzi, africans* and *cleidei* are also common coastal species, the last being mainly confined to the Kwale region. Considerable work remains to be done on the bionomics of these insects.

The colonies of *O. moubata* and *savignyi* are still being maintained in the laboratory, but attempts to start colonies of *O. turicata* and *erraticus* did not meet with success.

The *Aedes ægypti* colony is still being maintained, and a colony of *A. gambiæ* is now in existence, started by a laboratory technician working for the Nairobi Municipality; a very creditable achievement.

Aedes Control.—The various control measures have been improved, and at Mombasa an officer of this Division has been seconded to the Municipality to supervise the now very efficient organization there.

An experiment in the control of *A. ægypti* by the application of residual insecticides to dwellings is described later in this report; the results obtained have been encouraging.

Field Investigations and Surveys Carried Out During the Year

The following investigations and surveys were carried out during the year: —

(1) Investigation of outbreak of sleeping sickness at Kibigori and Kadimu in the Nyanza Province.
(2) Survey of Kerio Valley.
(3) Malarial survey at Nanyuki.
(4) Snail surveys at and near Naivasha, and of the Ruiru dam.
(5) A rodent survey.

Investigation of Sleeping Sickness at Kibigori and Kadimu.

Early in the year an outbreak of sleeping sickness was reported from the Kibigori region. Kibigori was visited and 58 cases diagnosed by gland puncture. Most of the infections were in an early stage, and trypanosomes were seen in blood smears on several occasions. Although most of the cases came from near Kibigori, others were also found at Muhoroni, Fort Ternan, Koru and Songhor. The causative trypanosome is *gambiense* and caused very chronic infections in white rats, with short stumpy forms in the peripheral blood, similar to what has been described with a Nigerian strain. The only tsetse in the area is *G. palpalis*, the main concentrations being along the Kapchure and Mbogo Rivers. These and other rivers in the vicinity are being cleared. Other cases have occurred throughout the year, and altogether 210 infections have been diagnosed. Treatment has been instituted on a large scale, but the large numbers of defaulters is giving rise to concern.

Another outbreak has also been reported from the Kadimu area. Sixty-nine cases have been diagonsed at Hembo near Lake Kanyaboli, and 59 at Ho about six miles to the west in the direction of Lake Victoria. *G. palpalis* is widely distributed throughout the area. Although the infections are presumably due to *T. gambiense* the reaction of the trypanosome in white rats has been atypical and more suggestive of *rhodesiense*. Numerous trypanosomes appeared in the blood of these animals, but without posterior nucleated forms. The human infections are more acute than is usual with gambiense, and a number of cases were diagnosed from blood smears. The occurrence of two new outbreaks of sleeping sickness in Kenya Colony in a year is disturbing, and strenuous efforts are being made to bring them under control.

Survey of Kerio Valley.

Observations have been made in the Kerio Valley throughout the year, but the dry weather has interfered with the work. A number of sandflies have been caught including the following species:—

Sintonius adersi Theodor, *Prophlebotomus congolensis* B.W. and *Prophlebotomus schwetzi* Adler. *Ornithodorus moubata* Murray was found in native huts at the bottom of the Elgeyo Escarpment, but all proved non-infective when emulsified with saline and inoculated into laboratory animals. Ornithodorus ticks were also found in porcupine burrows and a number of rodents were caught and examined. Very few *A. funestus* or *gambiæ* were caught during the year.

Malarial Survey Near Nanyuki.

A small survey was made after a report that there was a sharp outbreak of malaria on a farm at Naro Moru near Nanyuki. Seventy blood slides from adults and children were all negative for malarial parasites and the only anopheline found was *A. christyi*.

Snail Survey at and near Naivasha, and of the Ruiru Dam.

A number of *Planorbis* and *Bulinus* sp. were collected from Lake Naivasha: simple cercariæ were obtained from the former and bifid from the latter. Attempts to infect guinea pigs, white rats and mice were unsuccessful. Snails were found in a dam on a farm in the vicinity, mostly *B. forskali* and *P. pfeifferi*; they were all negative for cercariæ. A large number of *Planorbis* sp. were recovered from the Ruiru Dam and when placed in water released simple cercariæ.

A Rodent Survey.

Work on rodents was begun this year in an attempt to find reservoirs of human disease and any other parasites of academic interest. After many trials it was found that the easiest way to catch rodents was by digging up their burrows. Small burrows on Crescent Island were found harbouring pygmy gerbilles (*Dipodillus* sp.). A spirochæte of great interest was isolated from these animals and is referred to in greater detail in the next section. Other parasites observed in blood slides were *Trypanosoma lewisi* Kent and *Grahamella*. Pygmy gerbilles were also caught on the Ngong Hills and on the Wajir road about 20 miles from Isiolo; none were found infected with parasites. A list of rodents caught during the year is now given, with localities:—

Tree squirrel, *Heliosciur undulatus* True, Kerio Valley.

Ground squirrel, *Euxerus erythropus fulvior* (Thomas), Kerio Valley; *Dipodillus harwoodi* (Thomas), Lake Naivasha, Magadi, Isiolo.

Gerbilles, *Tatera vicina* (Peters), Kerio Valley; *Taterillus* sp., Archer's Post.

Tree mouse, *Dendromus insignis*, Lake Naivasha.

Spiny mouse, *Aconmys ignitus*, Kerio Valley.

Striped mouse, *Lemniscomys barbarus massaicus* Pagenstecher, Kerio Valley.

Porcupine, *Hystrix galeata*, Kerio Valley; *Æthomys kaiseri medicatus* Wroughton, Kerio Valley; *Rattus coucha*, Kerio Valley, Kisumu; *Leggada musculoides emesi* Heller, *Arvicanthis abyssinicus*, Nairobi, Meru.

After identification blood slides were taken from the rodents, stained with Leishman, and examined. The animals were then killed, their brains emulsified with saline, and inoculated into laboratory animals.

A number of elephant shrews, mostly from the Kerio Valley, were also examined in the same way, but were negative for parasites.

Research

Relapsing Fever.

A very interesting discovery was the isolation of a spirochæte from the brains of pygmy gerbilles (*Dipodillus harwoodi harwoodi*) caught on Crescent Island, Lake Naivasha. The spirochæte, which is morphologically identical with *S. duttoni*, causes prolonged infections in white rats and mice, but is only midly pathogenic to man and monkeys. Guinea pigs are insusceptible. It is probably related to *S. merionesi* and *microti* which have been recovered from rodents in North Africa and Persia. The vector is thought to be *O. erraticus*, one tick being found in a *Dipodillus* burrow; this is of considerable interest as *O. erraticus* has never before been found in East Africa.

Numerous *O. moubata* have been found in large burrows inhabited by porcupines. It was at first thought that the animal reservoir of *S. duttoni* had been found, but all the ticks and the brains of four porcupines proved non-infective when emulsified and inoculated into laboratory animals. The burrows containing the ticks were very large and deep and had probably been dug by ant bears, although other species of animals may sometimes use them. *O. moubata* have now been found in burrows by Lake Naivasha, at Nyeri and in the Kerio Valley, and searches will be made in other places.

An attempt has been made to study the development of *S. duttoni* in human lice. Large numbers were fed on heavily infected animals and serial sections cut daily for three weeks, the lice being kept alive by being fed daily on ourselves.

Rat-bite Fever.

While examining a number of rats (mostly *R. rattus rattus* Kijabius) from Kwale in the Coast Province an organism was recovered morphologically identical with *S. minus*. A few months later a similar organism was recovered from an African with high fever, bitten by a rat a fortnight previously. Several *R. rattus rattus* and one *Otomys angoniensis elassodon* Osgood caught in Nairobi were also found infected with spirilla. The organisms from the coastal and Nairobi rodents were inoculated into patients with general paralysis who developed typical attacks of rat-bite fever. Infections were very prolonged in white mice and comparatively short in white rats. Guinea pigs were the most susceptible, usually dying after a few weeks with corneal involvement and alopecia. Monkeys were only slightly susceptible and rabbits not at all. As many as seven of 44 rats examined from Kwale harboured spirilla and it is remarkable that the human disease is so rare. Only two cases of rat-bite fever have been recorded from East Africa in the past.

Malaria.

The D.D.T. impregnation experiments were continued at Kericho.

D.D.T. Impregnation of Huts—Fourth Year's Results.

The same area was treated as in 1948, about 3,000 huts being treated once in March with D.D.T. dispersible powder. There was no proper annual epidemic, although malarial transmission increased considerably between May and July. Blood slides were taken in April and July (the short period of increased malarial transmission making it necessary to take the second blood slides a month earlier). In April the parasite rate for the control was 10 per cent and for the treated area 3 per cent; in July the rates were 21 per cent and 7 per

cent respectively. This shows that malarial transmission in the treated area was only one-third that of the control, a sufficiently striking result. A 5 per cent D.D.T. dispersible powder in water was used, the dosage applied being approximately 200 mgs. per square foot. It would appear that the D.D.T. dispersible powder was as effective as the 5 per cent kerosene solution used in previous years. *A. gambiæ* appeared in fair numbers in March and reached a peak in April which is unusually early; by June the numbers were considerably reduced. A number of *A. funestus* were also caught over the same period. The infectivity rate for *A. gambiæ* caught in the control area throughout the year was 1.4 per cent and for *A. funestus* 0.9 per cent, and it is probable that both vectors played a part in malarial transmission. Only four *A. gambiæ* were caught in the treated area during 1949 as compared with 923 in the control area.

Onchocerciasis.

Observations were continued in the Kakamega–Kaimosi region, where the rivers and streams have been treated with D.D.T. in an attempt to eradicate *Simulium neavei*. A few flies were caught at intervals throughout the year especially in the Kakamega region where the Isioka River had to be re-treated. The first fly was caught in January and another in February. The whole area then appeared free for a number of months until another fly was caught towards the end of the year. The experiment has proved tantalizing, and although when a fly is caught the rivers and streams in the vicinity are at once treated with D.D.T. the total elimination of the vector is likely to be difficult. The area will have to be watched with vigilance for a number of years. A skin-snipping survey was carried out in July, and of 214 children five to six years old 25 were found infected with *O. volvulus*, an infection rate of 12 per cent. A more extensive survey will be made in about five or six years to discover whether the disease has been eliminated.

The Kodera District, which was successfully treated in 1946, was visited in July and an intensive search was made along the Kitale and Sandra Rivers: no flies were caught. It is now three and a half years since adult *S. neavei* were caught in this district and elimination appears complete. The Riana area where bush was cleared from along the river seven years ago was visited but no flies were caught after an intensive search. It would appear that method of control instituted by Dr. (now Professor) Buckley was successful.

Following a report that a European on a farm near Fort Ternan had contracted onchocerciasis the area was surveyed. A number of rivers and streams and a large river near Fort Ternan were found free of *S. neavei* and 30 to 40 labourers working on the farm itself showed no signs of the disease. It was later thought that the European had probably been infected near Kakamega, and it was concluded that no focus of the disease exists in the area.

In 1950 a human and vector survey will be carried out in Bassi and at Ngoina, the only known remaining foci of cochocerciasis in Kenya Colony. Further attempts to discover the larval and pupal stages of *S. neavei* at Ngoina did not meet with success; this problem has now baffled several workers.

Yellow Fever.

The following sera were sent to the Virus Institute, Entebbe, for the mouse protection test:—

Human sera from Langata: 59 tested, nine positive.

Human sera from Kerio Valley: 12 tested, all negative.

Monkeys from Kerio Valley: 11 tested, all negative.

Gedi monkeys: four tested, all negative.

Gedi bush babies (Gallagos): nine tested, two positive, two toxic.

Kwale bush babies: 15 tested, three toxic.

Tanganyika monkey: one tested, negative.

Protective sera are still being found in the Langata Forest, and the discovery of nine positives during the year merits a special investigation. Further work in this direction has been hampered by lack of staff and the unco-operative attitude of the natives in the forest. Bush babies are now being tested from different places along the coast, but so far the only definite positives have come from Gedi.

Investigations into the bionomics of *Aedes ægypti* have begun in an uncontrolled area near Mombasa. A platform has been built in a coco-nut plantation and simultaneous 24-hourly catches are being made at different levels. Although it is easy to find numerous *ægypti* larvæ in utensils with water in village dwellings it is extremely rare to find the adults biting. This is different from the West Coast of Africa and South America where they bite with avidity. Adults have been obtained in huts by pyrethrum space-spraying in the proportion of 1 in 10 of all mosquitoes caught. Preliminary day catches near Mombasa, using human bait, suggests that the most favourable time for biting is between 11 a.m. and 2 p.m. However, too few have been caught biting for final conclusions to be drawn. An interesting find was an *Aedes woodi* caught while biting at Ganda near Malindi; only three have been taken in the last 30 years.

An experiment in Aedes control with residual D.D.T. has been started at Mambrui, and details are given below.

D.D.T. Impregnation Experiment at Mambrui.

In November all buildings in Mambrui, a small village about ten miles north of Malindi, were sprayed with D.D.T. dispersible powder. There is no Aedes control at Mambrui and the normal larval index varies from 30 to 40 per cent. Immediately after the spraying all *Aedes ægypti* larvæ and adults disappeared from the houses, and none were found six weeks later. The effect on other mosquitoes were equally striking, numerous *Culex fatigans* disappearing at the same time. Observations will be made monthly to assess the duration of the residual action on the mosquito population.

Experiment in O. moubata *Control near Kwale.*

Near Kwale about 50 huts infested with infected *O. moubata* have been dusted with a 0.5 per cent powder of gammexane in diatomite, 25 huts being used as controls. The powder was dusted over the floors and a few inches up the walls of the huts as recommended by Jepson in Tanganyika. It is too early to draw any conclusions as only a few weeks have elapsed since the powder was applied, but already there has been a great reduction in the number of ticks. Monthly hut searches are being made.

Testing Insecticides.

Tests with residual insecticides in aircraft have been continued throughout the year. Strips of leather and cloth and squares of perspex were sprayed with D.D.T. and gammexane. The materials treated with D.D.T. were lethal to mosquitoes four months later; those treated with gammexane were effective for a shorter period.

In February an aircraft was sprayed with a 5 per cent D.D.T.-carbontetrachloride emulsion. A few days later just before starting for Entebbe 50 *A. ægypti* were released in the aircraft, all exits being closed. On arrival 15 *ægypti* were found dead and only one was seen flying. Although the remainder had probably been killed they could not be found as they became lost in various nooks and crannies in the aircraft. Of 50 *ægypti* released just before the return journey 27 dead were recovered after landing at Nairobi.

Trypanosomiasis.

The following strains of trypanosomes have been maintained in laboratory animals: —

(*a*) Two strains of *T. rhodesiense* from the Narok District and one of *T. brucei.*

(*b*) Two strains of *T. gambiense,* one from Kibigori and the other from the Kadimu area.

The Kibigori strain caused very chronic infections in white rats. Twelve days after being inoculated with infective blood scanty trypanosomes appeared and were short and stumpy with poorly developed undulant membranes and flagella.

The Kadimu strain reacted more like *rhodesiense,* numerous trypanosomes appearing in the peripheral blood; however, no posterior nucleated forms were seen. It is possible that the Kadimu trypanosome may have features common to both *rhodesiense* and *gambiense*: the application of xenodiagnostic methods might help to solve this problem.

Anthropod Histology.

A small histological section was started this year, the main object being to study the anatomy of various insect vectors by cutting serial sections and the development of parasites in their tissues. Very satisfactory traverse sections of *O. moubata* were obtained after injecting ticks with Bouin's fixative and softening the chitin with eau de javelle. Unless the under-surface of the tick was coated with paraffin before being placed in the chitin softener the fluid penetrated and damaged the tissues. Sections were stained by a modified Giemsa method (Shortt and Garnham) or with Hæmatoxylon and Eosin.

Serial sections were cut through lice which clearly revealed anatomical structures. In another experiment serial sections were cut through lice infected with *S. duttoni* after staining with silver by Fontana's method. The spirochætes showed up distinctly with some curious gramular formations which are now being examined.

Sections have also been cut for certain medical officers interested in research projects; liver biopsy specimens have been sectioned for the Native Hospital, Nakuru, and portions of human brains from Mathari.

Micellaneous Parasites.

An interesting malarial parasite was seen in the blood of a fruit bat (*Ectomophorus wahlbergi haldemani* Halowell); there were no rings or segmenting forms, only mature gametocytes. A number of small white spots were seen on the surface of the liver of one of these bats very similar to the merocysts of *Hepatocystes kochi*, recently described. It is probable that the fruit bat *plasmodium* belongs to the same genus.

A small microfilaria only about 20 microns in length was seen in the blood slide of a bird (species unidentified) from the Kerio Valley.

A number of *A. gambiæ* caught at Taveta were found to have filarial larvæ in their thoracic muscles, and it is thought that this mosquito is the vector of monkey filariasis which exists in the neighbourhood.

Publications

The following articles have been published by members of the staff during the year:—

Heisch, R. B.—"The Human Louse in the Transmission of *S. duttoni* in Nature." *British Medical Journal*, 1, 17.

Heisch, R. B.—"A Small Outbreak of Typhoid Fever in the Northern Province of Kenya." *East African Medical Journal*, 26.

Heisch, R. B., and Harvey, A. E. C.—"Experimental Transmission of *Spirochæta turicatæ* Brumpt by Lice." *East African Medical Journal*, 16.

Heisch, R. B., and Harper, J. O.—"An Epidemic of Malaria in the Kenya Highlands Transmitted by *Anopheles funestus*." *Journal of Tropical Medicine and Hygiene*.

van Someren, E. C. C.—"Ethiopian Culicidæ—Descriptions of Four New Mosquitoes from Madagascar." *Proc. R. Ent. Soc.*, London (B), 18, Parts 1–2 (Feb., 1949).

van Someren, E. C. C.—"Ethiopian Culicidæ—*Eretmapodites* Theobald: Descriptions of Four New Species of the *Chrysogaster* Group with Notes on the Five Known Species of this Group." *Proc. R. Ent. Soc.*, London (B), 18, Parts 7–8 (Aug., 1949).

APPENDIX I

	Larvæ	Adults
NAIROBI:—		
Anopheles coustani Lav.	348	3
Anopheles coustani var. *ziemanni* Grumb.	0	2
Anopheles implexus Theo.	8	111
Anopheles natalensis H. & H.	37	0
Anopheles funestus Giles	20	1,723
Anopheles leesoni Ev.	11	0
Anopheles longipalpis Theo.	18	1
Anopheles marshalli Theo.	47	5
Anopheles rhodesiensis Theo.	203	71
Anopheles demeilloni Ev.	87	7
Anopheles keniensis Ev.	0	15
Anopheles garnhami Edw.	999	42
Anopheles christyi N. & C.	1,390	27
Anopheles gambiae Giles	361	830
Anopheles cinereus Theo.	36	14
Anopheles rufipes Gough.	235	0
Anopheles pretoriensis Theo.	1,720	35
Anopheles maculipalpis Giles	138	1
Anopheles pharoensis Theo.	0	12
Anopheles squamosus Theo.	149	6
Anopheles squamosus var. *entebbiensis* Ev.	26	0
Anopheles species	2,930	31
Megarhinus brevipalpis Theo.	46	10
Megarhinus brevipalpis var. *conradti* Grumb.	0	1
Megarhinus lutescens group	1	0
Megarhinus species	18	0
Uranotaenia alboaodominalis Theo.	0	2
Uranotaenia balfouri Theo.	1	0
Uranotaenia chorleyi Edw.	3	0
Uranotaenia ornata var. *musarum* Edw.	0	73
Uranotaenia mashonaensis Theo.	19	59
Uranotaenia species	3	1
Aedomyia africana N.—L.	0	1
Ficalbia hispida Theo.	3	0
Ficalbia mimomyiaformis Newst.	16	0
Ficalbia plumosa Theo.	0	5
Ficalbia species	3	0
Taeniorhynchus metallicus Theo.	0	3
Taeniorhynchus versicolor Edw.	0	37
Taeniorhynchus maculipennis Theo.	0	21
Taeniorhynchus fuscopennatus Theo.	0	12
Taeniorhynchus aurites Theo.	0	2
Taeniorhynchus africanus Theo.	0	19
Taeniorhynchus uniformis Theo.	0	68
Taeniorhynchus species	0	1
Aedes (*Mucidus*) *mucidus* Karch.	0	1
Aedes (*Ochlerotatus*) *fryeri* Theo.	0	1
Aedes (*Finlaya*) *fulgens* Edw.	410	0
Aedes (*Finlaya*) *ingrami* Edw.	0	88
Aedes (*Finlaya*) *ingrami* Group.	30	
Aedes (*Stegomyia*) *aegypti* L.	1,110	586
Aedes (*Stegomyia*) *simpsoni* Theo.	314	559
Aedes (*Stegomyia*) *metallicus* Edw.	348	11
Aedes (*Stegomyia*) *apicoargenteus* Theo.	0	1
Aedes (*Stegomyia*) *apicoargenteus* Group.	10	0
Aedes (*Stegomyia*) *soleatus* Edw.	908	0
Aedes (*Stegomyia*) *keniensis* V.S.	0	1
Aedes (*Stegomyia*) sp. n.	845	0
Aedes (*Stegomyia*) *bambusae* s. sp. *kenyae* V.S.	1	9
Aedes (*Stegomyia*) *africanus* Theo.	0	51
Aedes (*Stegomyia*) *luteocephalus* Newst.	4	16
Aedes (*Stegomyia*) *vittatus* Big.	43	15
Aedes (*Aedimorphus*) *marshalli* Theo.	0	1
Aedes (*Aedimorphus*) *capensis* Edw.	0	41
Aedes (*Aedimorphus*) *haworthi* Edw.	60	0
Aedes (*Aedimorphus*) *tarsalis* Group.	0	1
Aedes (*Aedimorphus*) *albocephalus* Theo.	22	0
Aedes (*Aedimorphus*) *tricholabis* Edw.	0	3
Aedes (*Aedimorphus*) *abnormalis* ssp. *kabwachensis* Edw.	0	1
Aedes (*Aedimorphus*) *quasiunivittatus* Theo.	117	44
Aedes (*Aedimorphus*) *dentatus* Theo.	19	20
Aedes (*Aedimorphus*) *cumminsi* Theo.	0	17

APPENDIX I—(*Contd.*)

	Larvæ	Adults
Aedes (*Aedimorphus*) *hirsutus* Theo.	6	1
Aedes (*Aedimorphus*) *fowleri* d'Emm.	8	1
Aedes (*Aedimorphus*) *natronius* Edw.	0	18
Aedes (*Banksinella*) *lineatopennis* Ludl.	9	2
Aedes (*Banksinella*) *circumluteolus* Theo.	0	14
Aedes (*Banksinella*) *albothorax* Theo.	0	1
Aedes (*Banksinella*) *albicosta* Edw.	0	11
Aedes (*Diceromyia*) *furcifer* Edw.	0	7
Aedes (*Diceromyia*) *taylori* Edw.	0	1
Aedes (*Diceromyia*) *fucifer* or. *taylori*	328	36
Aedes (*Diceromyia*) *adersi* Edw.	21	26
Aedes (*Dunnius*) *michaelikati* V.S.	214	0
Aedes (*Skusea*) *pembaensis* Theo.	20	43
Aedes species	2,930	31
Eretmapodites silvestris ssp. *conchobius* Edw.	9	38
Eretmapodites silvestris group	10	0
Eretmapodites hightoni V.S.	0	5
Eretmapodites species	0	1
Culex (*Lutzia*) *tigripes* Grp. & C.	300	44
Culex (*Neoculex*) *salisburiensis* Theo.	57	4
Culex (*Neoculex*) *rubinotus* Theo.	5	0
Culex (*Neoculex*) *insignis* Cart.	0	32
Culex (*Neoculex*) *wigglesworthi* Edw.	0	12
Culex (*Neoculex*) *adersianus* Edw.	2	0
Culex (*Neoculex*) *horridus* Edw.	92	1
Culex (*Culiciomyia*) *nebulosus* Theo.	348	470
Culex (*Culiciomyia*) *cinereus* Theo.	8	3
Culex (*Culiciomyia*) *subaequalis* Edw.	0	1
Culex (*Mochthogenes*) *inconspicuosus* Theo.	1	0
Culex (*Culex*) *poicilipes* Theo.	1	0
Culex (*Culex*) *ethiopicus* Edw.	0	1
Culex (*Culex*) *annulioris* Theo.	864	235
Culex (*Culex*) *annulioris* ssp. major Edw.	0	11
Culex (*Culex*) *sitiens* Wied.	87	48
Culex (*Culex*) *duttoni* Theo.	259	61
Culex (*Culex*) *theileri* Theo.	118	20
Culex (*Culex*) *univittatus* Theo.	364	272
Culex (*Culex*) *simpsoni* Theo.	272	32
Culex (*Culex*) *striatipes* Edw.	11	40
Culex (*Culex*) *lacticintus* Edw.	0	1
Culex (*Culex*) *pipiens* L.	513	59
Culex (*Culex*) *fatigans* W.	734	638
Culex (*Culex*) *zombaensis* Theo.	23	36
Culex (*Culex*) *mirificus* Edw.	0	184
Culex (*Culex*) *trifilatus* Edw.	158	203
Culex (*Culex*) *andersoni* Edw.	0	74
Culex (*Culex*) *vansomereni* Edw.	436	67
Culex (*Culex*) *toroensis* Edw. & G.	160	36
Culex (*Culex*) *chorleyi* Edw.	21	28
Culex (*Culex*) *musarum* Edw.	0	33
Culex (*Culex*) *antennatus* Beck	4	1
Culex (*Culex*) *quasiquiarti* Theo.	0	22
Culex (*Culex*) *decens* Theo.	107	178
Culex (*Culex*) *perfuscus* Edw.	0	2
Culex (*Curlex*) *quiarti* Bl.	1	0
Culex (*Culex*) *grahami* Theo.	0	1
Culex (*Culex*) *moucheti* Ev.	0	2
Culex species	2,532	511

	No. of species	Total No. of larvæ examined	Total No. of adults examined
Anopheles	20	8763	2,936
Megarhinus	3	65	11
Uranotaenia	5	26	135
Ficalbia	3	22	5
Taeniorhynchus	7	0	163
Aedes	38	7,777	1,659
Eretmapodites	2	19	44
Culex	39	7,508	3,363
Total	117	24,180	8,316

APPENDIX I—(*Contd.*)

	Larvæ	Adults
KISUMU, 1948:—		
Anopheles coustani Lav.	2	0
Anopheles funestus Giles	24	13
Anopheles demeilloni Ev.	12	0
Anopheles christyi N. & C.	69	0
Anopheles gambiae Giles	222	344
Anopheles pretoriensis Theo.	23	0
Anopheles maculipalpis Giles	2	0
Anopheles species	508	0
Uranotaenia balfouri Theo.	1	1
Uranotaenia ornata var. *musarum* Edw.	9	0
Uranotaenia mashonaensis Theo.	6	0
Uranotaenia species	7	0
Ficalbia plumosa Theo.	0	1
Ficalbia uniformis Theo.	1	0
Ficalbia species	2	0
Taeniorhynchus (*C*) *metallicus* Theo.	0	6
Taeniorhynchus (*C*) *fuscopennatus* Theo.	0	2
Taeniorhynchus (*M*) *africanus* Theo.	0	5
Taeniorhynchus (*M*) *uniformis* Theo.	0	8
Aedes (*Mucidus*) *scatophagoides* Theo.	6	0
Aedes (*Stegomyia*) *aegypti* L.	117	0
Aedes (*Stegomyia*) *metallicus* Edw.	28	0
Aedes (*Stegomyia*) *apicoargenteus* group	19	0
Aedes (*Stegomyia*) *africanus* Theo.	5	0
Aedes (*Stegomyia*) *vittatus* Big.	59	0
Aedes (*Stegomyia*) *phyllolabis* Edw.	2	0
Aedes (*Finlaya*) *albocephalus* Theo.	2	0
Aedes (*Aedimorphus*) *hirsutus* Theo.	36	0
Aedes (*Aedimorphus*) *ochraceus* Theo.	2	0
Aedes (*Banksinella*) *lineatopennis* Ludl.	110	23
Aedes (*Aedimorphus*) *circumluteolus* Theo.	0	2
Aedes Species	68	0
Culex (*Lutzia*) tigripes Grp. & C.	116	0
Culex (*Neoculex*) *insignis* Cart.	0	77
Culex (*Culiciomyia*) *nebulosus* Theo.	35	0
Culex (*Culex*) *poicilipes* Theo.	3	1
Culex (*Culex*) *annulioris* Theo.	789	2
Culex (*Culex*) *duttoni* Theo.	144	12
Culex (*Culex*) *theileri* Theo.	9	0
Culex (*Culex*) *univittatus* Theo.	311	167
Culex (*Culex*) *pipiens* L.	2	3
Culex (*Culex*) *fatigans* W.	137	88
Culex (*Culex*) *trifilatus* Edw.	28	8
Culex (*Culex*) *andersoni* Edw.	7	0
Culex (*Culex*) *vansomereni* Edw.	311	0
Culex (*Culex*) *chorleyi* Edw.	23	0
Culex (*Culex*) *decens* Theo.	225	23
Culex (*Culex*) *musarum* Edw.	28	0
Culex species	968	2

Summary

	No. of species	Total No. of larvæ examined	Total No. of adults examined
Anopheles	7	862	357
Uranotaenia	3	23	1
Ficalbia	2	3	1
Taeniorhynchus	4	0	21
Aedes	12	444	25
Culex	16	3,146	383
Total	44	4,478	788

APPENDIX II

Aedes Indices for various towns in Kenya 1941 and 1949

Station	Yearly mean	1941 Highest index for the year	Yearly mean	1949 Highest index for the year
Lamu	7·91	18·0	0·88	2·15
Mombasa (Island)	9·4 (1937)	?	0·12	0·26
Mombasa (Mainland)	18·9 (1937)	?	0·12	0·31
Kwa Jomvu	3·08	17·47	0·69	4·04
Kilifi	1·83	6·0	0·11	0·28
Malindi	3·85	7·3	0·08	0·18*
Vanga	7·9	11·5	Control	Discontinued
Nairobi	?	5·8	0·14	1·20
Miritini	5·33	38·8	0·11	3·37
Mazeras	6·86	54·9	1·32	2·61
Mariakani	7·82	50·4	0·4	6·83
Samburu	2·44	20·0	Nil	Nil
Kibwezi Area	12·7	28·1	Nil	Nil
Fort Ternan	2·5	9·3	0·9	5·0
Muhoroni	1·51	4·7	0·28	4·34
Kibigori	4·46	11·7	0·16	2·88
Miwani	4·12	10·8	0·23	3·84
Kibos	4·15	12·7	0·12	2·48

*For 1st four months of year.

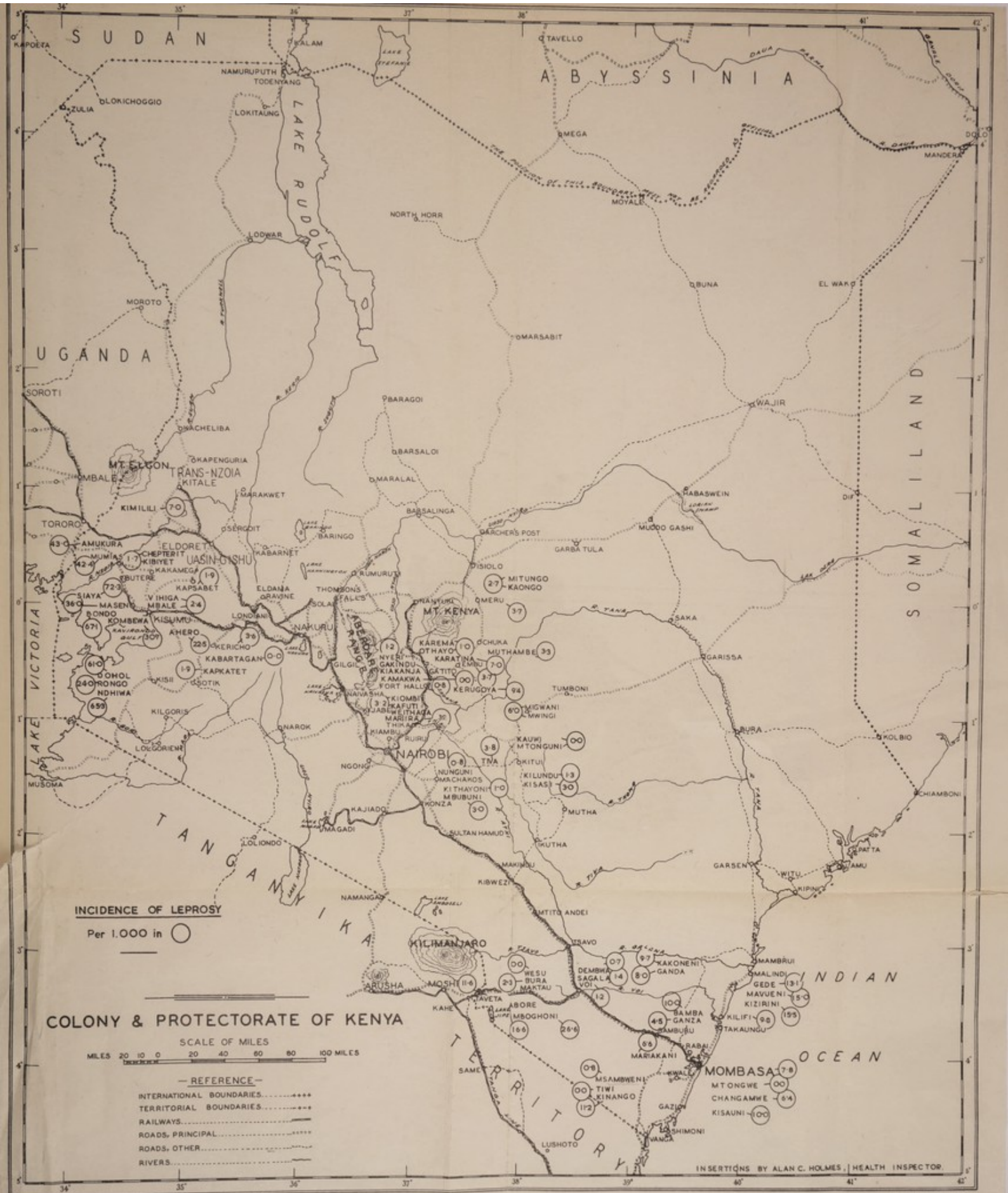
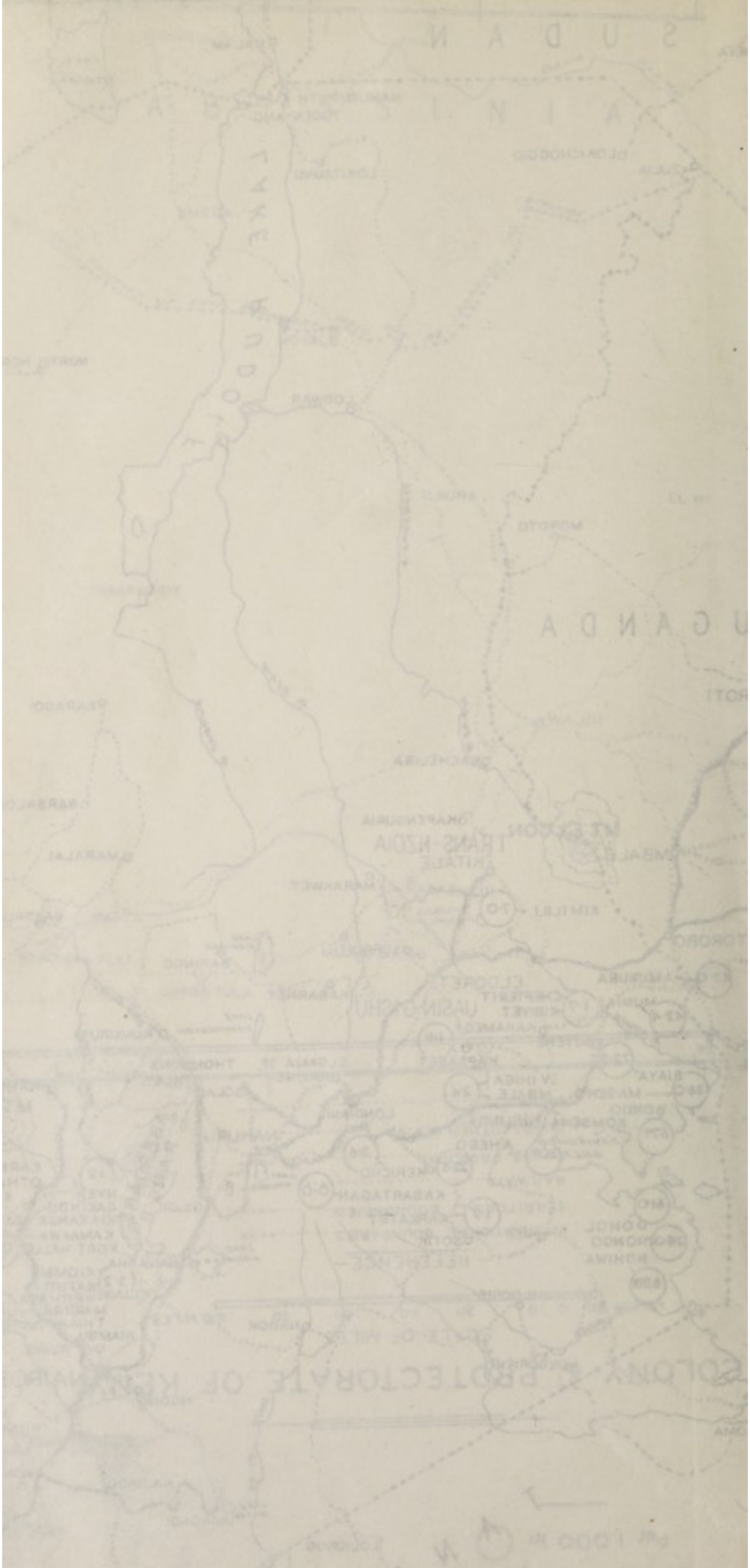
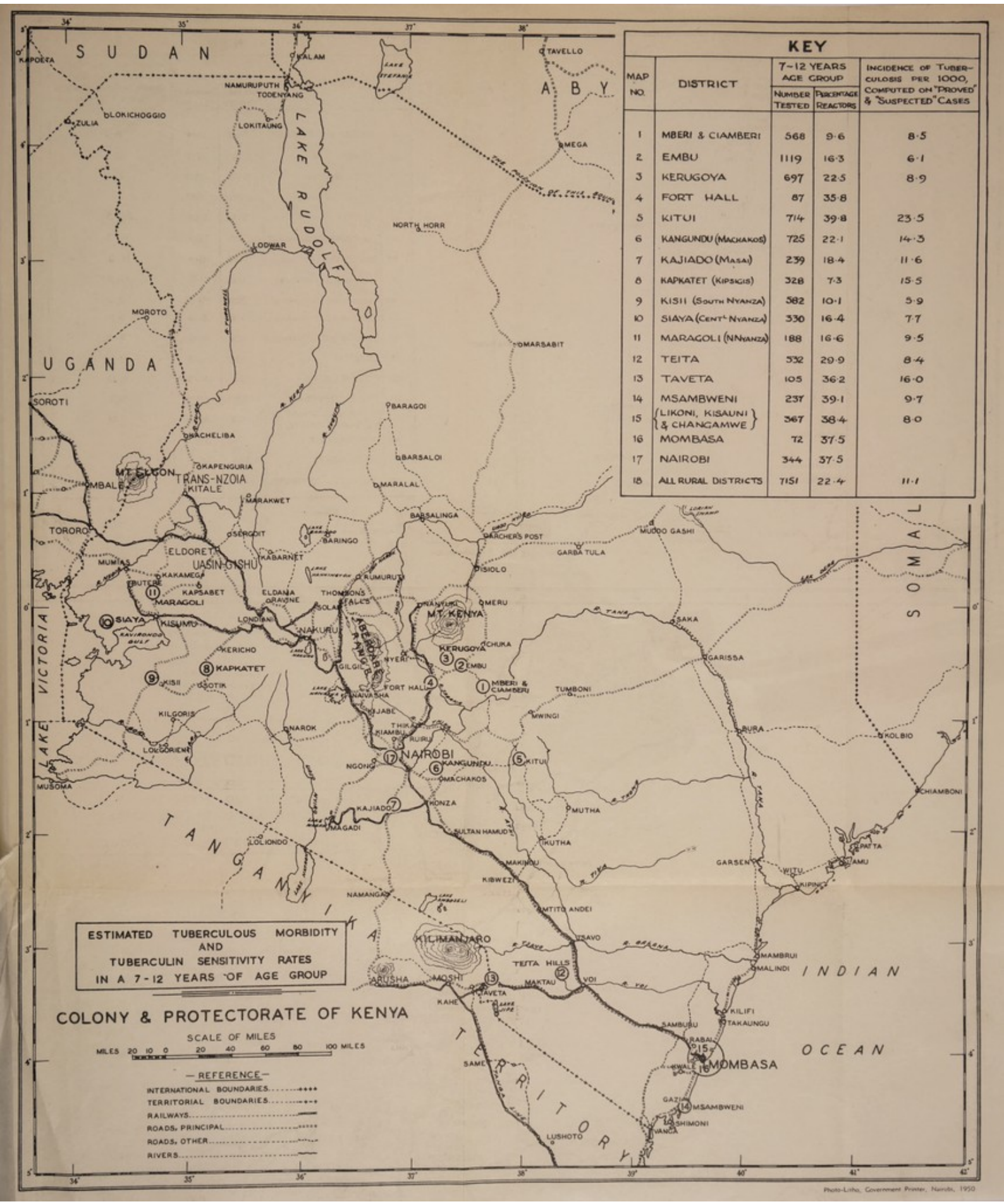


Photo-Litho, Government Printer, Nairobi, 1956





KEY

MAP NO.	DISTRICT	7–12 YEARS AGE GROUP		INCIDENCE OF TUBERCULOSIS PER 1000, COMPUTED ON "PROVED" & "SUSPECTED" CASES
		NUMBER TESTED	PERCENTAGE REACTORS	
1	MBERI & CIAMBERI	568	9·6	8·5
2	EMBU	1119	16·3	6·1
3	KERUGOYA	697	22·5	8·9
4	FORT HALL	87	35·8	
5	KITUI	714	39·8	23·5
6	KANGUNDU (MACHAKOS)	725	22·1	14·3
7	KAJIADO (MASAI)	239	18·4	11·6
8	KAPKATET (KIPSIGIS)	328	7·3	15·5
9	KISII (SOUTH NYANZA)	582	10·1	5·9
10	SIAYA (CENTL NYANZA)	330	16·4	7·7
11	MARAGOLI (NNYANZA)	188	16·6	9·5
12	TEITA	332	29·9	8·4
13	TAVETA	105	36·2	16·0
14	MSAMBWENI	237	39·1	9·7
15	LIKONI, KISAUNI & CHANGAMWE	367	38·4	8·0
16	MOMBASA	72	37·5	
17	NAIROBI	344	37·5	
18	ALL RURAL DISTRICTS	7151	22·4	11·1

ESTIMATED TUBERCULOUS MORBIDITY AND TUBERCULIN SENSITIVITY RATES IN A 7-12 YEARS OF AGE GROUP

COLONY & PROTECTORATE OF KENYA

SCALE OF MILES

MILES 20 10 0 20 40 60 80 100 MILES

— REFERENCE —

INTERNATIONAL BOUNDARIES

TERRITORIAL BOUNDARIES

RAILWAYS

ROADS, PRINCIPAL

ROADS, OTHER

RIVERS

Photo-Litho, Government Printer, Nairobi, 1950