

Annual medical report / East Africa Protectorate.

Contributors

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EAST AFRICA PROTECTORATE.

ANNUAL MEDICAL REPORT

FOR THE

YEAR ENDING 31st DECEMBER, 1914.



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MEDICAL DEPARTMENT,
HEADQUARTER OFFICES,
BRITISH EAST AFRICA.

NAIROBI,

30th December, 1915.

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 condition of the East Africa Protectorate for the year 1914, together with the Returns, &c., appended thereto.

2. I regret the delay in submitting this report which has been due to the dislocation of all routine work owing to the war.

I have the honour to be,

SIR,

Your obedient servant,

A. D. MILNE,

*Principal Medical Officer,
East Africa Protectorate.*

The Honourable,

The Acting Chief Secretary,
Nairobi.

Dear Sir,
I have the honor to acknowledge the receipt of your letter of the 10th inst. in relation to the matter of the ...
and in reply to inform you that the same has been forwarded to the proper authorities for their consideration.

I am, Sir, very respectfully,
Your obedient servant,
A. J. ...
The ...
The ...
The ...

I have the honor to ...
Very respectfully,
A. J. ...
The ...
The ...
The ...

The ...
The ...
The ...

I.—ADMINISTRATION.

SECTION I.—DEPARTMENTAL.

1.—ESTABLISHMENT.

The Medical Staff of the Protectorate as sanctioned for the year 1914-15 was as follows :—

ADMINISTRATIVE DIVISION.

Principal Medical Officer	...	..	...	...	1
Deputy Principal Medical Officer	...	...	...	...	1

MEDICAL DIVISION.

Senior Medical Officers	...	...	...	...	2
Medical Officers, permanent staff	...	...	...	...	9
Medical Officers, probationary staff	...	...	...	...	11
District Surgeon	..	...	...	...	1

SANITATION DIVISION.

Chief Sanitation Officer	...	...	...	...	1
Medical Officers of Health	...	...	...	...	3
Assistant Health Officer	...	...	...	...	1

LABORATORY DIVISION.

Director of Laboratories	...	...	...	...	1
Pathologist	...	...	...	...	1
Analyst	...	...	...	...	1
					33

EUROPEAN NURSING ESTABLISHMENT.

Matron	...	..	...	...	...	1
Nursing Sisters	...	...	...	...	...	9
Nursing Sister, Sanitation Division	...	...	...	...	...	1
						11

JUNIOR EUROPEAN ESTABLISHMENT.

Office Superintendent, P.M.O.'s Office	...	...	...	...	1
Assistant Clerks, do.	...	...	...	...	2
Medical Storekeeper	...	...	...	...	1
Superintendent, Lunatic Asylum	...	...	...	...	1
Matron, do.	...	...	...	...	1
Dispensers	...	...	...	...	4
Sanitary Inspectors	...	..	...	...	6
					16

SUBORDINATE ESTABLISHMENT.

Medical :—

Assistant Surgeons ...	...	...	...	...	6
Sub-Assistant Surgeons ...	...	...	...	...	40
Hospital Compounders ...	...	...	...	...	15

Sanitation :—

Assistant Surgeons ...	...	...	...	...	6
Sub-Assistant Surgeons ...	...	...	...	...	4
Hospital Compounders ...	...	...	...	...	4
Chief Vaccinator ...	...	...	...	...	1

Laboratory :—

Laboratory Assistants ...	...	...	...	...	3
---------------------------	-----	-----	-----	-----	---

Clerical :—

3rd Grade Clerks ...	...	...	...	...	5
4th do. do. ...	...	...	...	...	7

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NATIVE ESTABLISHMENT.

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Laboratory ...	...	...	...	11
Lunatic Asylum ...	...	...	...	17
Headquarters Office ...	...	...	...	8
Total ...	...	...	...	222

The additional increased staff sanctioned in August, 1913, to cope with the insanitary conditions of the town of Mombasa and the plague epidemic continued their operations till April, 1914.

Of the six temporary Medical Officers sanctioned for plague work in Mombasa, four have been absorbed into the Protectorate establishment as Probationary Medical Officers and two have proceeded home on termination of engagement.

This increased staff was as follows :—

SANITATION DIVISION.

Medical Officers ...	...	...	...	...	6
Junior European Staff ...	...	...	...	...	2
Clerical ...	...	...	...	...	3
Asiatics and Africans ...	...	...	...	...	82
Total ...	...	...	...	...	93

The highest total number of staff employed in the Medical Department was 466 as against 471 last year, and in April this number had resumed normal proportions. At the end of the year the total number was 373.

2.—APPOINTMENTS.

The following appointments were made during the year :—

PROBATIONARY MEDICAL OFFICERS.

Dr. N. P. Jewell, 28th December, 1914.

NURSING SISTERS.

Matron, Miss M. Atkey, 17th June, 1914.

Nursing Sister I. Wilson, 25th March, 1914.

„ „ S. J. Harrison, 23rd April, 1914.

JUNIOR EUROPEAN STAFF.

Sanitary Inspector, Mr. E. E. Williams, 23rd April, 1914.
 " " " F. Strawbridge, 20th May, 1914.
 " " " P. Cairns, 7th September, 1914.
 Dispenser, Mr. C. A. J. Speller, 20th May, 1914.

SUBORDINATE ESTABLISHMENT.

Assistant Surgeon, Mr. P. Hira Nand, 13th May, 1914.
 " " " P. C. D'Cruz, 9th June, 1914.
 " " " A. C. Marchant, 9th June, 1914.
 " " " H. L. Sargent, 24th June, 1914.
 " " " W. N. Sargent, 23rd July, 1914.
 Sub-Assistant Surgeon, Mr. Bodh Raj Kapur, 4th April, 1914.
 " " " Saiyed Asghar Ali, 10th July 1914.
 " " " Karta Ram, 21st August, 1914.
 " " " Tricumlal Maganlal, 23rd Sept.,
 1914.

CLERICAL ESTABLISHMENT.

4th Grade Clerk, Mr. Hassan Din, 1st May, 1914.
 " " " S. M. Pinto, 3rd July, 1914.
 " " " C. F. De Souza, 10th July, 1914.

3.—REDUCTIONS IN STAFF.

INVALIDING.

Matron, Miss K. E. Stollard, on 23rd February, 1914.
 Sub-Assistant Surgeon, Mr. Sardara Singh, on 10th March,
 1914.

RESIGNATIONS.

Dr. R. Hamilton, 25th June, 1914. (Ill-Health.)
 " A. Robertson, on 10th June, 1914.
 Nursing Sister, Miss M. MacMillan, on 20th April, 1914.
 Sub-Assistant Surgeon, Mr. D. P. Chablani, on 8th June, 1914.
 4th Grade Clerk, Mr. Chota Lal Patel, on 7th May, 1914.

TERMINATION OF SERVICES.

Sanitary Inspector, Mr. H. Lyons, on 14th July, 1914.

REDUCTION OF ESTABLISHMENT.

Compounder, Mr. M. H. D. Munshi, on 7th September, 1914.

RECALLED TO INDIAN ARMY.

Assistant Surgeon, Mr. W. E. Cody, on 7th August, 1914.

4.—PROMOTIONS.

Dr. C. J. Wilson, Probationary Medical Officer, was appointed Medical Officer on the permanent establishment.

Compounder S. F. Da Costa, promoted Sub-Assistant Surgeon on 9th June, 1914.

5.—CHANGES.

The title of "Chief Sanitation Officer" was changed to that of "Principal Sanitation Officer," as owing to military operations the abbreviated telegraphic address of "C. S. O." was confused by the same letters also applying to the "Chief Staff Officer."

6.—LEAVE OF ABSENCE.

Name.	Appointment.	Period granted	
		From	To
Dr. R. Small...	Medical Officer of Health, Mombasa	23rd March, 1914 ...	15th October, 1914.
„ A. Mouat ...	Medical Officer of Health, Kisumu	29th June, 1914 ...	15th October, 1914.
Miss M. MacMillan ...	Nursing Sister ...	20th April, 1914 ...	—
„ A. M. Marston...	„ „ ...	20th July, 1914 ...	12th November, 1914

7.—RESUMPTION OF DUTY.

Name.	Appointment.	Date.
Dr. T. F. Lumb ...	Medical Officer ...	15th May, 1914.
„ G. R. H. Chell ...	„ ...	4th August, 1914.
„ J. O. Shircore ...	„ ...	4th August, 1914.
„ C. J. Wilson ...	„ ...	4th August, 1914.
„ P. H. Ross ...	Bacteriologist ...	16th October, 1914.
„ R. Small ...	Medical Officer of Health ...	16th October, 1914.
„ A. Mouat ...	„ „ ...	16th October, 1914.
Mr. G. Gillespie ...	Dispenser ...	21st January, 1914.
„ F. Knott ...	„ ...	7th July, 1914.

8.—STAFF POSTINGS THROUGHOUT THE YEAR.

THE COAST ZONE.

The Civil Hospital, Mombasa.—Dr. J. Pugh was relieved by Dr. J. O. Shircore in November, when the former was posted to a Field Ambulance for duty.

THE MOUNTAINOUS ZONE.

The Civil Hospital, Nairobi.—Dr. H. H. V. Welch was in charge till April, when he was relieved by Dr. J. H. Thomson on being posted to the Northern Frontier District for duty.

The Lunatic Asylum, Nairobi.—Dr. V. G. L. van Someren was relieved of this charge in March, 1914, by Dr. W. O. Prichard, and the latter continued in charge till relieved by Dr. J. H. Thomson in December, 1914.

The Hospital and Dispensary, Nakuru.—Dr. R. W. Spence took over from Dr. A. D. J. Williams in January, 1914, and continued in Medical charge throughout the year.

THE KENIA AND NYANZA PROVINCES.

No changes.

THE DESERT AREA.

Marsabit Dispensary.—Dr. A. Robertson resigned in June, 1914, and was succeeded by Dr. T. F. Lumb.

Kismayu Dispensary.—Dr. F. Collar succeeded Dr. T. H. Massey in June, 1914, and continued in charge till the end of the year.

The Military Hospital, Serenli.—Dr. J. M. Mackinnon was in charge from March to September, 1914, and was succeeded by Assistant Surgeon A. N. Nyss.

Owing to the outbreak of hostilities the following Medical Officers were gazetted to military rank in the East Africa Medical Service for service with the Volunteer Forces who took the field and in the Base Hospitals and Medical Mobile Units.

Dr. A. D. Milne	...	Lieut.-Colonel.
" J. A. Haran	..	Major.
" W. J. Radford	...	"
" L. D. Lowsley	...	Captain.
" W. O. Prichard	...	"
" C. L. Chevallier	...	"
" F. L. Henderson	...	"
" J. O. Shircore	...	"
" G. R. H. Chell	...	"
" J. L. Gilks	...	"
" B. W. Cherrett	...	"
" J. Pugh	...	"
" C. J. Wilson	...	"
" V. G. L. van Someren	...	"
" A. D. J. B. Williams	...	"
" J. H. Thomson	...	"
" J. H. H. Pirie	...	"
" W. Tudhope	...	"
" F. Collar	...	"
" E. N. Russell	...	"
" J. M. Mackinnon	...	"
Mr. V. H. Kirkham, Analyst		"

SECTION II.—EXTRA DEPARTMENTAL.

9.—REGISTRATION OF MEDICAL PRACTITIONERS AND DENTISTS.

This Ordinance came into force on the 24th September, 1910, and between that time and the end of 1914 there have been placed on the Register the following :—

Registered Medical Practitioners	...	...	56
Licensed Medical Practitioners	...	...	6
Dentists	...	...	5
			67

37 of the Medical Practitioners were in Government service, and 30 were private practitioners.

During the year the following were admitted to the rolls :—

- Mackinnon, John McPhail, M.B., Bac. Surg. (Univ. Edin.).
- Mackinnon, Murdoch, M.B., Ch.B., M.D. (Univ. Edin.), D.P.H. (Oxford.)
- Nicholls, Lucius, L.S.A. (Lond.), M.B., Bac. Surg., M.D. (Univ. Camb.).
- Butler, Eustace Norman, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- Taylor, Robert Stanley, M.R.C.S. (Eng.), L.R.C.P. (Lond.), M.B., B.C. (Univ. Camb.).
- Jewell, Norman Parsons, M.B., B.Ch. (Univ. Dubl.).
- Seymour, Louis Napoleon, L.D.S. (R.C.S., Eng.).

The Board convened for the purposes of the Ordinance consisted of :—

Dr. W. E. Kelbe, Nairobi,
 Dr. W. Owen Prichard, S.M.O.,
 Dr. L. D. Lowsley, S.M.O.,
 Dr. W. J. Radford, C.S.O.,
 Dr. J. A. Haran, C.M.G., Deputy P.M.O.,

with the Principal Medical Officer as President and Registrar.

The Board held five meetings during the year.

10.—THE DRUGS AND POISONS ORDINANCE, 1909.

This Act controls the licensing of chemists and druggists and the sale of poisons throughout the Protectorate. Since its promulgation in 1910 and up to the end of 1914 ten names have been placed on the Register. Three of these were by examination.

The Board constituted under the Act consisted of the following :—

Mr. L. A. Howse, Nairobi,
 Mr. B. A. Bull, Nairobi,
 Mr. A. A. White, Nairobi,
 Mr. V. H. Kirkham, Government Analyst,
 Dr. W. Owen Prichard, S.M.O.,
 Dr. L. D. Lowsley, S.M.O.,
 Dr. W. J. Radford, C.S.O.,
 Dr. J. A. Haran, C.M.G., Deputy P.M.O.,

with the Principal Medical Officer as President and Registrar.

Mr. B. A. Bull resigned in May and was succeeded by Mr. A. A. White.

The Board held seven meetings during the year.

11.—ENTOMOLOGICAL RESEARCH.

In accordance with instructions received from the Secretary of State, the responsibility of the Medical Department in regard to entomological research was more fittingly transferred to the Government Entomologist of the Agricultural Department.

II.—PUBLIC HEALTH.

(a.) GENERAL REMARKS.

(i.) GENERAL DISEASES.

THE PROTECTORATE.

Last year the general average of a more or less satisfactory year's progress was considerably modified by the visitation of epidemic outbreaks of plague and cerebro-spinal-meningitis; this year it may be recorded that the work of what would have otherwise been a normal year was considerably upset by the outbreak of war in August, 1914. Bordering on the German Imperial possessions in East Africa, this Protectorate was immediately plunged into the struggle, the Medical, as well as one or two other Departments, being swept into the vortex of military organization. This entailed a considerable re-arrangement of ordered lines of working, and involved the Medical Department in a very considerable increase of work—the conversion of a peace establishment into a war footing, and the bringing up of the material resources of the Department to meet military requirements.

The area occupied by hostile operations was that lying between the whole length of the Uganda Railway and the Anglo-German boundary from the borders of the Indian Ocean to where it impinged on the Victoria Nyanza.

One psychological effect of the war stood out quite clearly at the beginning—the sudden diminution in the demands of the population, European and Native, general and official, for medical treatment. It was a fortunate thing this was so, as it enabled time to be given to adapt a civil staff into a military unit and to enable the due performance of civil duties to be carried on side by side with purely military responsibilities.

To the war, therefore, may be ascribed an upset in the accuracy of the civil statistical returns and a corresponding increase in the number of military cases. It has been exceedingly difficult for medical officers to keep pace with what has been demanded of them.

The grand total (including those returned as military) treated during the twelve months is shown as follows:—

	Admissions.	Deaths.
1914	120,056	712
1913	108,520	1,052
1912	93,408	535

The recorded diseases call for much the same comment as last year. There was an increase in the number of malarial fevers, a contributory cause of which was evenly distributed rains. There was a welcome decrease in the amount of epidemic and infectious diseases to contend with.

The fighting forces in the country up till December maintained a good general standard of health.

THE COAST ZONE.

There was a large increase of both out and in-patients during the year, referable chiefly to Mombasa, and due, needless to remark, to the war. Apart from this, it might be said that the general health of these two Provinces was about the same as in former years. Increases of sickness, *e.g.*, bronchitis, was,

as noted last year, apparent in the imported up country labour. It is curious to note that at Lamu there was an entire absence of cases of lobar pneumonia.

The total admissions and deaths for the two Provinces were :

	Admissions.	Deaths.
European Officials	... 159	—
Native Officials	...1,105	—
European General Population ...	... 128	7
Native General Population ...	...3,371	224

THE MOUNTAINOUS ZONE.

The general health, both European and Native, has been satisfactory in all the hill stations.

The total admissions and deaths were :—

	Admissions.	Deaths.
European Officials	... 299	2
Native Officials	...1,567	4
European General Population ...	... 352	13
Native General Population ...	...3,775	281

THE KENIA AND NYANZA PROVINCES.

Owing to the upset caused by the war, the Lake district being intimately connected with the operations on the Victoria Nyanza at various points, and being deeply concerned with the raising of carriers, the usual routine information available is very fragmentary.

Beyond the usual amount of respiratory and digestive diseases, and local injuries, there is no particular ailment to comment upon.

The admissions and deaths for the year were :—

	Admissions.	Deaths.
European Officials	... 57	1
Native Officials	... 316	5
European General Population ...	... 40	—
Native General Population ...	...2,299	157

THE DESERT ZONE.

Nothing special to record. General average of health about the same as last year. Tuberculosis is common amongst Somalis. Rheumatism and neuralgia are prevalent during south-west monsoon.

The total admissions and deaths were :—

	Admissions.	Deaths.
European Officials	... 24	—
Native Officials	... 72	—
European General Population ...	... 1	—
Native General Population ...	... 722	18

Preservation of health in the arid wastes of the Northern Frontier district, and in the sandy deserts, or along the steaming banks of the Juba, is very largely dependent on the individual temperament of the officers whose lot it is to be stationed in these outposts. The immense difficulties of transport, with the consequent privations, for want of the necessary and accustomed stores of European supplies, and the blazing sun, all tend to re-act after a certain length of residence unfavourably on health, and more especially on the mental attitude. Length of residence of officers in these areas is to be very carefully watched.

(ii.) COMMUNICABLE DISEASES.

MOSQUITO- OR INSECT-BORNE.

THE COAST ZONE.

Malaria.—It is satisfactory to record that there was a notable decrease in the number of out-patients treated in Mombasa, due to the anti-malarial work which has been somewhat vigorously prosecuted during the year.

In fact the total number of in and out-patients added together is actually less than the out-patient returns alone for 1913. The total of 5,489 cases, with 17 deaths, is the lowest for the last three years in the Coast Zone, being 696 cases fewer than in 1913; the deaths being 17, as compared with 22 in 1913. The figures for 1912 were 6,344 admissions and 22 deaths. Sub-tertian is easily the commonest variety.

Dr. Dunderdale gives the incidence of the different varieties for his Province approximately as follows :—

Simple Tertian	17%
Quartan	17%
Subtertian	66%

Blackwater fever.—In 1914 7 cases occurred in the Mombasa and Kilindini district, with 3 deaths. Of these 4 were Europeans, 2 being fatal. Three of these cases were in subjects who had suffered from neglected malaria. The quarters in which they lived were new brick barracks in a clean vicinity.

In 1913 there were 11 cases with three deaths; in 1912 3 cases and 2 deaths.

THE MOUNTAINOUS ZONE.

Malaria.—Compared with previous years, a larger number came for treatment than usual. The total admissions for the three years were :—

1914	3,851
1913	3,536
1912	3,647

In Nairobi the infection appears to be widespread amongst natives, as post-mortem examination reveals a large percentage with enlarged spleen. The subtertian variety is much the most common. In the Nairobi European Hospital of the 101 cases admitted only 1 was quartan and 2 of the benign-tertian type.

Naivasha town and Kyambu are themselves apparently quite free from malaria.

Blackwater fever.—Eight cases were reported—5 European, 3 native, 1 European died. In 1913 3 cases—2 European and 1 native; and in 1912 2 cases—1 European and 1 African.

THE KENIA AND NYANZA PROVINCES.

Malaria.—Over 4,000 cases were treated; 2,300 in the Nyanza and 1,900 in the Kenia Province. The figures for the last three years are as follows :—

1914	4,227
1913	3,267
1912	3,181

These figures show a regrettable yearly rise.

Blackwater fever.—Two Europeans were attacked non-fatally, 1 at Kisumu and 1 at Embu. In 1913 1 case; and in 1912 2 cases with 1 death.

Trypanosomiasis.—Four cases of sleeping sickness were reported, with 1 death. Two of the cases were treated at Mumias.

THE DESERT ZONE.

Nothing special to record. General average of health about the same as last year. Tuberculosis is common among Somalis; rheumatism and neuralgia are prevalent during south-west monsoon.

Malaria.—There was an appreciable drop in the number of cases recorded this year; 1,547 cases as against 2,125 in 1913 in Jubaland.

It is, of course, common along the banks of the Guaso-Nyiro and to increased safaris en route towards the Abyssinian boundary.

Blackwater fever.—Two cases were reported at Serenli—the first that have been brought to notice since 1902. One was a Somali and 1 Nandi.

Dengue.—Was diagnosed on one occasion on a European at Serenli.

INFECTIOUS OR EPIDEMIC.

THE COAST ZONE.

Cerebro-spinal meningitis.—Happily shows no signs of assuming such proportions as have prevailed in other parts of the Protectorate. There were 33 new cases in Mombasa, with 15 deaths; this is more than the previous year, when 13 cases and 10 deaths were recorded.

Dysentery.—The prevalence at Mombasa amongst the imported Kikuyu shows no signs of abating.

The figures for the year are 621, with 75 deaths (67 of these in Mombasa Native Hospital). In 1913, 475 were admitted, of whom 38 died, and in 1912 only 239, with a comparatively large number of deaths—55. The reason for this increased prevalence is that given in last year's report, *viz.*, the immigration into the coast belt of up-country natives.

Enteric.—Eight cases (3 European) were admitted in 1914, with 2 deaths. The Europeans recovered. In 1913, 3 Europeans contracted the disease and all died.

Leprosy.—One case was reported from the Shimba Hills camp. There is of course the voluntary settlement at Lamu, with 16 cases. There is another small colony of some 15 lepers of Malindi.

Plague.—As against the 27 admissions recorded in 1912 and the epidemic of last year of 208, it is very satisfactory to state that, despite a close watch being kept, only 2 cases, both fatal, came to the notice of the medical men in Mombasa.

I do not think any better tribute could be paid to the soundness of the anti-plague campaign inaugurated by Professor Simpson the previous year. That the danger is ever present is shown by the occurrence of 1 death of plague at Lamu, the patient being an Indian who was proceeding from Mombasa to Kisumu on board one of the coast steamers. He stopped on shore to see some friends in Lamu, got very ill and on returning to the ship died the same night. A spleen smear confirmed the suspicion of plague.

Infected rats were found in various localities several times during the year.

Small-pox.—2 cases were recorded during the year, compared with 33 admissions in 1913, with 10 deaths, and 295 in 1912, with 63 deaths.

THE MOUNTAINOUS ZONE.

Cerebro-spinal meningitis.—136 cases are recorded, with 51 deaths. Of this number 106 cases and 47 deaths occurred at Nairobi. In 1913 there were 288 cases, with 152 deaths.

Dysentery.—1,471 cases. It is common, but it is not so often fatal as at the coast, only 49 deaths being notified.

Both types were present—bacillary and amoebic. In Nairobi Native Hospital the disease reacted well to treatment—emetine combined with salines.

Dr. Thomson gives a table showing the incidence of dysentery during several months of the year. The last quarter of the year the disease was much more prevalent, especially in December, following a heavy rainfall in November.

Enteric.—The returns show an increase on the previous 3 years, with a more severe death-roll :—

				Admissions.	Deaths.
1914	...	...	...	46	10
1913	...	...	...	21	1
1912	...	...	...	23	2

Dr. Gilks states that the cases during the first half of the year were of a much more virulent type than in the preceding twelve months. No cases came under observation that had been previously inoculated.

Plague.—Nine cases of plague occurred in Nairobi (6 fatal), and 1 case at Makindu. The death at Machakos from plague was a case remaining over from last year. No cases of small-pox were recorded.

Pneumonia.—Is prevalent in this area, 377 cases being noted, with 52 deaths.

Venereal.—Some improvements appear from the returns in the number of cases of syphilis, with practically no difference in the figures for gonorrhœa :—

Syphilis.—1914	...	...	...	363
1913	...	...	...	471
1912	...	...	...	462
Gonorrhœa.—1914	...	...	...	317
1913	...	...	...	320
1912	...	...	...	315

THE KENIA AND NYANZA PROVINCES.

Cerebro-spinal meningitis.—45 cases in all were reported during the year, a very decided improvement over 1914. There were 28 deaths. The epidemic would have appeared to have almost completely died out in Kenia Province.

Dysentery.—There was a slight increase this year—492—as against 428 last year, with an increased death-roll—18 as against 9.

Enteric.—There were 9 cases recorded, with one death. Three of the cases occurred amongst Europeans—no deaths. In 1913 there were 7 cases (4 Europeans) and no deaths.

Leprosy.—Seven cases were seen in the Nyanza Province—4 at Kisumu and 3 at Mumias.

Plague.—41 cases amongst natives, 38 fatal, were admitted in Kisumu, and 1 European lady, who happily recovered. There were 31 cases for 1913 and 79 in 1912, with a case mortality respectively of 87·09 and 89·87 per cent.

Small-pox.—For the second year in succession no case was reported from Nyanza Province, and only 1 in the Nyeri district.

Venereal.—Nearly the same number of cases came in for treatment as last year.

Syphilis.—	1914	...	...	...	407
	1913	...	...	...	413
	1912	...	...	...	458
Gonorrhœa.—	1914	...	...	...	125
	1913	...	...	...	162
	1912	...	...	...	180

Tetanus.—One case occurred at Kisumu.

Yaws.—Some 71 cases were recorded (the large majority of which were amongst the wealthy Kikuyu).

THE DESERT ZONE.

Beri-Beri.—Is still liable to be a source of anxiety in the upper reaches of the Juba. The type, however, appears to be milder, 70 cases being treated as out-patients and 2 as in-patients, with no deaths. Dr. Mackinnon reports that cases only occurred among troops from Nyasaland, except in three instances, which were Nandi who had had previous attacks of beri-beri in Zanzibar. The period of residence of the Nyasas in Serenli and Merehan district was noted to have been two years. It will be remembered that Serenli was visited with a severe epidemic two years ago, 2 cases only being reported in 1913.

Cerebro-spinal meningitis.—Two cases occurred in police lines, Kismayu—both fatal.

Dysentery.—Is still much too common, there being 373 cases, due to conditions commented upon in last year's report. The cause is stated to be of the amoebic variety. The treatment by emetine injection gave the best result.

Leprosy.—One case came to light, but this does not represent the incidence amongst the tribes living in the low-lying lands of the delta.

Small-pox.—One case occurred at Serenli. As no other cases are reported for this area, it is possible that the infection came from the Italian side of the River Juba.

Venereal.—Syphilis is not common, and is generally contracted in Mombasa and Nairobi. Gonorrhœa is very prevalent, not only on the coast but in the interior.

Tetanus.—Is reported as occurring occasionally along the coast veldt. One case was seen at Kismayu. It is 12 years since cases were last noted at the same port.

Scurvy.—Several cases occurred at the Prison at Kismayu, and Dr. Massey noted a connection between this disease and recovery from dysentery. Though the symptoms were not typical, appropriate treatment rapidly effected the cure.

HELMINTHIC.

THE COAST ZONE.

The total number of cases in Mombasa diagnosed by microscopical examination alone was 65.

Several of these were also infected with the following :—*Lumbricoides* 44, *Tænia saginata* 29, due to the large amount of beef consumed in the town. A few cases have been seen whose history showed long standing infections. Such patients are hypochondriacal, melancholic and stupid, giving one the

impression that the tape-worm is in some way the primary factor which gives rise to the absorption of a toxin deleterious to the nerve cells in the cerebral cortex. *Tænia dispar*, 44 cases; some single infections of this worm have been seen which differ only slightly in effects from ankylostomiasis, the anæmia not being so intense. *Schistosoma mansonii*, 5 cases; *Oxyuris vermicularis*, 2 cases; apparently uncommon in Mombasa. The number of cases of tape-worm and ascaris in Lamu shows a distinct decrease from last year, attributed to the fact that the quality of the beef sold in the market has been maintained at a better standard.

THE MOUNTAINOUS ZONE.

There seems to be a widespread infection among the natives of all sorts of intestinal parasites. The majority cause no symptoms sufficient for treatment to be asked for, and unless a systematic investigation was conducted as a routine measure no general conclusion can be arrived at.

Tape-worm.—A few cases were treated during the year.

Ascaris.—One or two cases were treated during the year.

Filariasis.—You see a good many cases of elephantiasis when on the roads round about Nairobi, but not many come up for treatment unless ulcers break out on the affected parts. Elephantiasis of the genitalia is not common here.

THE KENIA AND NYANZA PROVINCES.

Ascaris Lumbricoides.—Several cases; and one case of guinea-worm in an Indian but recently arrived from India, recorded at Meru.

THE DESERT ZONE.

Though up to date no admissions had been recorded under this heading, it is not to be supposed that these two areas of the Protectorate enjoy any singular immunity from the common varieties of worm infection.

(b.) EUROPEAN OFFICIALS.

GENERAL REMARKS.

THE COAST ZONE.

It is satisfactory to record that no European officials died in the Coast Zone during 1914.

There were 159 admissions (in-patients) recorded; the chief causes being—9 malaria, 8 dysentery and 18 digestive troubles.

There were 4 cases of invaliding :—

- (1) Injuries inflicted by elephant.
- (2) Neurasthenia.
- (3) Otorrhœa.
- (4) Enteric fever.

THE MOUNTAINOUS ZONE.

There were 299 in-patients and 146 out-patients treated during the year. By far the most common causes of illness were malaria, disorders of the digestive system and local injuries. There were, however, only two deaths recorded—one from blackwater fever and one from appendicitis.

There were 8 cases of invaliding due to :—

- (1) Arthritis.
- (2) Goitre.
- (3) Albuminuria.
- (4) Nephritis.
- (5) Piles.
- (6) Mental.
- (7) Dysentery.
- (8) Neurasthenia.

THE KENIA AND NYANZA PROVINCES.

General health calls for no special comment. Only 57 cases were treated as in-patients, with one death from septicæmia. Of the total admissions 33 were for malaria.

Only one case was invalided, the cause being tuberculosis.

THE DESERT ZONE.

Considering the conditions of life, the difficulty in obtaining supplies of fresh meat and vegetables and housing, the general standard of health was maintained at about the same average as in previous years; such cases of illness as occurred were due to malaria. Twenty-four cases were treated as in-patients; no deaths.

Four cases were invalided, the causes being—neurasthenia (3) and gunshot wound (1).

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES
AMONGST EUROPEAN OFFICIALS AT THE COAST ZONE.

	1912.	1913.	1914.
Total number of officials resident	108	250	242
Average number resident... ..	91	133	158
Total number on sick list... ..	123	134	159
Total number of days on sick list	766	797	1,284
Average daily number on sick list	2.09	2.18	3.52
Percentage of sick to average number resident	2.30	1.64	2.24
Average number of days on sick list to each patient	6.20	5.95	8.08
Average sick time to each resident	7.09	3.18	5.31
Total number invalided	2	4	4
Percentage of invaliding to total residents	1.85	1.60	1.65
Total deaths	—	3	—
Percentage of deaths to total residents	—	1.20	—
Percentage of deaths to average number resident	—	2.25	—
Number of cases of sickness contracted away from residence	—	1	—

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES
AMONGST EUROPEAN OFFICIALS IN THE MOUNTAINOUS
ZONE.

	1912.	1913.	1914.
Total number of officials resident	336	654	776
Average number resident... ..	272	433	535
Total number on sick list	239	295	299
Total number of days on sick list	2,052	2,570	3,256
Average daily number on sick list	5.61	7.04	8.92
Percentage of sick to average number resident ...	2.06	1.63	1.67
Average number of days on sick list to each patient ...	8.58	8.71	10.89
Average sick time to each resident	6.11	3.93	4.20
Total number invalided	5	5	8
Percentage of invaliding to total residents	1.49	.76	1.03
Total deaths	2	3	2
Percentage of deaths to total residents	.59	.46	.26
Percentage of deaths to average number resident ...	.73	.69	.37
Number of cases of sickness contracted away from residence	—	—	—

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES
AMONGST EUROPEAN OFFICIALS IN THE KENIA AND
NYANZA PROVINCES.

	1912.	1913.	1914.
Total number of officials resident	123	138	157
Average number resident... ..	60	84	102
Total number on sick list	87	71	57
Total number of days on sick list	587	614	418
Average daily number on sick list	1.60	1.68	1.14
Percentage of sick to average number resident ...	2.66	2.00	1.12
Average number of days on sick list to each patient ...	6.75	8.64	7.33
Average sick time to each resident	4.77	4.45	2.66
Total number invalided	1	2	1
Percentage of invaliding to total residents	.81	1.45	.64
Total deaths	2	—	1
Percentage of deaths to total residents	1.62	—	.64
Percentage of deaths to average number resident ...	3.33	—	.98
Number of cases of sickness contracted away from residence	—	—	—

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES
AMONGST EUROPEAN OFFICIALS IN THE DESERT ZONE.

	1912.	1913.	1914.
Total number of officials resident	—	46	42
Average number resident... ..	—	32	26
Total number on sick list... ..	—	6	24
Total number of days on sick list	—	98	193
Average daily number on sick list	—	.27	.53
Percentage of sick to average number resident ...	—	.84	2.04
Average number of days on sick list to each patient ...	—	16.33	8.04
Average sick time to each resident	—	3.06	4.59
Total number invalided	—	2	4
Percentage of invaliding to total residents	—	4.33	9.52
Total deaths	—	1	—
Percentage of deaths to total residents	—	2.17	—
Percentage of deaths to average number resident ...	—	3.12	—
Number of cases of sickness contracted away from residence	—	—	—

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST EUROPEAN OFFICIALS IN THE EAST AFRICA PROTECTORATE.

	1912.	1913.	1914.
Total number of officials resident	567	1,088	1,217
Average number resident... ..	423	682	821
Total number on sick list... ..	449	506	539
Total number of days on sick list	3,405	4,079	5,151
Average daily number on sick list	9.30	11.17	14.11
Percentage of sick to average number resident	2.19	1.64	1.72
Average number of days on sick list to each patient	7.58	8.06	9.56
Average sick time to each resident	6.01	3.74	4.23
Total number invalided	8	13	17
Percentage of invaliding to total residents	1.41	1.19	1.40
Total deaths	4	7	3
Percentage of deaths to total residents	.71	.64	.25
Percentage of deaths to average number resident	.95	1.02	.37
Number of cases of sickness contracted away from residence	—	1	—

(c.) NATIVE OFFICIALS.

THE COAST ZONE.

Malaria easily heads the list, due largely to evasion of quinine and exposure to infection.

There were 1,105 admissions (in-patients) and no deaths. 687 of this number were malaria and 40 dysentery.

There were 4 cases of invaliding, due to tuberculosis (1), cataract (2) and digestive trouble (1).

THE MOUNTAINOUS ZONE.

The general health was good.

The chief causes of admission were the same as for European officials.

Four deaths were recorded—pneumonia (1), apoplexy (1), ascites (1) and urinary (1).

The 15 invalidings were due to eye affections (6), injuries (1), asthma (2), tubercle (2), inflammation of liver (1), valvular disease of heart (1), mania (1) and old age (1).

THE KENIA AND NYANZA PROVINCES

Maintained a very satisfactory standard of health. 316 cases were treated as in-patients, malaria being responsible for 198 of this number. No deaths were recorded. One case was invalided for chronic bronchitis.

THE DESERT ZONE.

With the exception of one case of a bullet wound (accidental) in the shoulder there were no cases which call for special notice. 72 cases admitted.

There were no invalidings or deaths.

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES
AMONGST NATIVE OFFICIALS AT THE COAST ZONE.

	1912.	1913.	1914.
Total number of native officials resident...	—	600	655
Average number resident...	—	424	500
Total number on sick list...	—	785	1,105
Total number of days on sick list	—	4,183	5,681
Average daily number on sick list	—	11.46	15.56
Percentage of sick to average number resident...	—	2.70	3.11
Average number of days on sick list to each patient	—	5.33	5.14
Average sick time to each resident	—	6.97	8.67
Total number invalided	—	2	4
Percentage of invaliding to total residents	—	.33	.61
Total deaths	—	2	—
Percentage of deaths to total residents	—	.33	—
Percentage of deaths to average number resident	—	.47	—
Number of cases of sickness contracted away from residence	—	—	—

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES
AMONGST NATIVE OFFICIALS IN THE MOUNTAINOUS
ZONE.

	1912.	1913.	1914.
Total number of native officials resident	—	881	1,037
Average number resident...	—	618	736
Total number on sick list...	—	1,184	1,567
Total number of days on sick list	—	14,253	12,448
Average daily number on sick list	—	39.05	33.28
Percentage of sick to average number resident	—	6.31	4.52
Average number of days on sick list to each patient	—	7.98	7.75
Average sick time to each resident	—	16.17	11.71
Total number invalided	—	6	15
Percentage of invaliding to total residents	—	.68	1.44
Total deaths	—	4	4
Percentage of deaths to total residents	—	.45	.38
Percentage of deaths to average number resident	—	.64	.54
Number of cases of sickness contracted away from residence	—	—	—

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES
AMONGST NATIVE OFFICIALS IN THE KENIA AND
NYANZA PROVINCES.

	1912.	1913.	1914.
Total number of native officials resident...	—	201	240
Average number resident...	—	139	166
Total number on sick list...	—	335	316
Total number of days on sick list	—	1,485	775
Average daily number on sick list	—	4.06	2.12
Percentage of sick to average number resident	—	2.92	1.28
Average number of days on sick list to each patient	—	4.43	2.45
Average sick time to each resident	—	7.38	3.23
Total number invalided	—	—	1
Percentage of invaliding to total residents	—	—	.42
Total deaths	—	1	5
Percentage of deaths to total residents	—	.49	2.08
Percentage of deaths to average number resident	—	.71	3.01
Number of cases of sickness contracted away from residence	—	—	—

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES
AMONGST NATIVE OFFICIALS IN THE DESERT ZONE.

	1912.	1913.	1914.
Total number of native officials resident ...	—	46	34
Average number resident... ..	—	34	25
Total number on sick list... ..	—	18	72
Total number of days on sick list ...	—	112	184
Average daily number on sick list ...	—	30	50
Percentage of sick to average number resident ...	—	88	20
Average number of days on sick list to each patient ...	—	6.22	2.55
Average sick time to each resident ...	—	2.43	5.41
Total number invalided	—	2	—
Percentage of invaliding to total residents ...	—	4.34	—
Total deaths	—	—	—
Percentage of deaths to total residents ...	—	—	—
Percentage of deaths to average number resident ...	—	—	—
Number of cases of sickness contracted away from residence	—	—	—

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES
AMONGST NATIVE OFFICIALS IN THE EAST AFRICA
PROTECTORATE.

	1912.	1913.	1914.
Total number of native officials resident... ..	1,283	1,728	1,966
Average number resident... ..	1,202	1,215	1,427
Total number on sick list... ..	1,266	2,922	3,060
Total number of days on sick list	7,809	20,033	18,788
Average daily number on sick list	22.34	54.88	51.47
Percentage of sick to average number resident ...	1.77	4.51	3.61
Average number of days on sick list to each patient ...	6.18	6.85	6.14
Average sick time to each resident	6.09	11.59	9.56
Total number invalided	18	10	20
Percentage of invaliding to total residents	1.40	.57	1.02
Total deaths	1	7	9
Percentage of deaths to total residents	.08	.40	.46
Percentage of deaths to average number resident ...	.08	.57	.63
Number of cases of sickness contracted away from residence	—	—	—

(d.) **GENERAL EUROPEAN POPULATION.**

THE COAST ZONE.

Of the 128 cases recorded as in-patients, 64 were malaria, 4 blackwater fever and 5 dysentery.

There were seven deaths :—Enteric, 2 ; malaria, 2 ; blackwater fever, 2 ; and gout, 1.

The estimated population was :—

1912	...	...	...	352	} Approximately.
1913	...	...	...	397	
1914	...	...	...	420	

The number of births registered was 7, as against 13 in 1913 and 4 in 1912. The number of deaths registered was 12, as compared with 8 in 1913 and 7 in 1912.

THE MOUNTAINOUS ZONE.

Complete statistics are not available, as many cases are treated by civil practitioners from whom no returns are received. The figures given are, therefore, only for those who have reported sick at Government institutions, and who have been attended by Government doctors.

Only 352 cases were treated as in-patients, and 13 deaths are recorded.

Of the admissions 40 were dysentery, 85 malaria, 10 enteric, 6 tuberculosis, 44 injuries and 55 digestive diseases.

The 13 deaths occurred in the various hospitals, and were :—Dysentery, 1 ; enteric, 3 ; pneumonia, 1 ; tuberculosis, 2 ; laryngitis, 1 ; ulceration of stomach, 1 ; hepatitis, 1 ; cirrhosis of liver, 1 ; Bright's disease, 1 ; cystitis, 1.

There were 47 deaths registered throughout the zone, but only the above cases were recorded in Government institutions.

The estimated population was :—

1912	...	...	...	3,475	} Approximately.
1913	...	...	...	4,596	
1914	...	...	...	5,000	

The number of births and deaths registered for the past three years were :—

				Births.		Deaths.
1912	...	...	...	68	...	33
1913	...	...	...	84	...	46
1914	...	...	...	137	...	47

THE KENIA AND NYANZA PROVINCES.

The total number of cases that came under treatment was 40, and no deaths amongst this number are reported.

The population in these provinces is small and very scattered, and for comparative purposes the figures regarding health are of little use, but it may be generally stated that the general health was satisfactory.

The number of births and deaths registered for the last three years were :—

				Births.		Deaths.
1912	...	...	...	14	...	—
1913	...	...	...	8	...	—
1914	...	...	...	12	...	3

The census of 1911 showed the white population to be 343. It is calculated that the number for 1914 is approximately 600.

THE DESERT ZONE.

In these two areas the settler population is less this year than last owing to the war, and is entirely confined to the shambas and missions on the banks of the Juba River. The average of health is about the same as last year.

There were no births or deaths registered during the year.

The white population is probably about 60.

(e.) GENERAL NATIVE POPULATION.**THE COAST ZONE.**

There were 3,371 cases treated as in-patients, with 224 deaths recorded amongst them. The principal causes of admission were :—malaria, 1,024 cases ; dysentery, 302 ; pneumonia, 103 ; eye affections, 95 ; bronchial, 126 ; diarrhoea, 233 ; and injuries, 498.

The deaths were principally due to dysentery, 75 ; pneumonia, 30 ; malaria, 17 ; tuberculosis, 17 ; diarrhoea, 4 ; and injuries, 7.

The estimated population in the coast zone was 246,736.

Registration of births and deaths is not compulsory except for Europeans.

THE MOUNTAINOUS ZONE.

The total number of cases treated as in-patients was 3,775, and the chief causes were :—cerebro-spinal meningitis (107), chicken-pox (472), dysentery (458), enteric (28), malaria (449), pneumonia (211), bronchial affections (279), diarrhoea (152), and injuries (457).

281 deaths were recorded amongst the in-patients :—cerebro-spinal meningitis (51), dysentery (48), enteric (7), pneumonia (51), bronchial affections (36), diarrhoea (13), and injuries (15), being the chief causes.

The estimated population in the two provinces was approximately 454,280.

Registration of births and deaths is not compulsory, nor at present practicable.

THE KENIA AND NYANZA PROVINCES.

The estimated population for the two provinces is 1,886,500.

The number of in-patients treated was 2,299, with 157 deaths.

Registration of births and deaths being impracticable, no vital statistics are possible.

THE DESERT ZONE.

Medical work being confined to some half-a-dozen stations, nothing reliable is known of the conditions under which large and scattered nomadic tribes exist. There is little doubt that the population is increasing owing to the immigration of Somali warriors, who cross the Juba at a number estimated at 1,000 per annum, exclusive of women and children.

722 cases were treated at Government institutions as in-patients, amongst which number 18 deaths were recorded.

The estimated population is given as 12,000, but as no census has ever been taken it is impossible to submit vital statistics.

III.—SANITATION.

REPORT BY DR. W. J. RADFORD, PRINCIPAL SANITATION OFFICER, E.A.P.

(i.) ADMINISTRATION.

1. The personnel of the Sanitation Staff at the commencement of the year was as follows:—

- 1 Principal Sanitation Officer.
- 3 Medical Officers of Health.
- 1 Plague Officer.
- 2 Assistant Medical Officers of Health.
- 1 Nurse.
- 4 Sanitary Inspectors.
- 3 Assistant Surgeons.
- 5 Sub-Assistant Surgeons.
- 1 Compounder.
- 9 Clerks.

2. Appointments during the year:—

- 2 Acting Medical Officers of Health (Dr. Russell, 23/3/14 to 21/7/14; Dr. Shircore, 21/7/14 to 16/10/14).
- 2 Sanitary Inspectors.
- 4 Assistant Surgeons.
- 1 Compounder.
- 5 Clerks.

3. Reductions during the year:—

- 2 Acting Medical Officers of Health.
- 1 Sanitary Inspector—Services terminated.
- 7 Clerks—2 resigned, 5 absorbed.
- 1 Sub-Assistant Surgeon.
- 3 Assistant Surgeons.

4. Leave during the year:—

- Medical Officer of Health, Mombasa, 23/3/14 to 16/10/14.
- Medical Officer of Health, Kisumu, 29/6/14 to 16/10/14.

MILITARY DUTIES.

5. The following of the personnel have acted in a military capacity, or are still employed on duties additional to those in their own department; and the division has in consequence lost their services wholly, or in part, since the outbreak of hostilities in August, 1914:—

Civil Rank.	Name.	Military Rank.	Returned to Civil Duty.
1 Principal Sanitation Officer	Dr. W. J. Radford...	Major, E.A.M.S., 19/8/1914. Dy. Asst. Director of Medical Services, 23/10/1914. Sanitary Adviser to the Forces, 18/12/1914.	
1 Acting Medical Officer of Health, Kisumu.	Dr. W. Tudhope ...	Capt., E.A.M.S., 12/9/1914. Base Medical Officer, Kisumu.	
1 Asst. Medical Officer of Health and Pathologist, Mombasa.	Dr. J. O. Shircore ...	Capt., E.A.M.S., 20/10/1914. Base Medical Officer, Mombasa.	
1 Nurse	Miss Thomlinson ...	Nursing Sister, Mombasa.	
2 Sanitary Inspectors ...	F. Strawbridge ...	Volunteer Cyclist Division.	30/9/1914
4 Asst. Surgeons	E. E. Williams ...	Volunteer Artillery.	
1 Sub-Asst. Surgeon ...	—	In charge of Field Ambulances.	
		" " "	

LEGISLATION.

The work of the division has been affected by the promulgation of the following new Ordinances, or by Rules and Orders published under existing Ordinances :—

1. *Leprosy Ordinance.*2. *Public Health Ordinance No. X., 1913.*

This Ordinance confers on the Health Board powers to prescribe the provisions as to the divisions, etc., of any lands for building purposes outside a township within a five-mile radius.

3. *Infectious Diseases Ordinance.*

Proclamations concerning the outbreak of infectious diseases at Nairobi, Kisumu, Mombasa.

4. *Quarantine Ordinance.*

Additional rules *re* disinfection of persons and articles arriving from over seas.

5. *East Africa Townships Ordinance.*

Rules promulgated and affecting—

- (a) *Sale of Cattle*—Fort Hall, Nyeri, Embu, and Meru.
- (b) *Indian and Native Eating Houses*—Gobwen, Kismayu.
- (c) *Building Rules*—Nairobi.
- (d) *Lodging House Rules*—Nairobi, Nyeri.
- (e) *Stabling of Animals*—All townships.
- (f) *Nuisances*—Kipini, Siyu, Faza, Kiungu, Mkonumbi, Wangeh, Kisumu, Mombasa.
- (g) *Licensing Trade Premises*—Nairobi.
- (h) *Stockyard Rules*—Nairobi.
- (i) *Definition of Township Areas*—Chuka, Nairobi.
- (j) *Licensing Vehicles*—Kisumu.
- (k) *Cemetery Rules*—Nairobi.
- (l) *Registration of Natives*—Kisumu.
- (m) *Rickshaw Rules*—Nairobi.
- (n) *Services of Sanitary Notice*—By Medical Officer of Health, Nairobi; by Superintendent of Conservancy, Mombasa.

Mombasa Sites Board, 1914.

The Medical Officer of Health, Mombasa, was not included as a member.

The Public Health Act, which is so greatly needed, has not as yet been published.

(ii.) PREVENTIVE MEASURES.

MOSQUITO- AND INSECT-BORNE DISEASES.

MALARIA.

Malarial incidence has not appreciably decreased during the year under review, it being generally reported, as in 1913, as occurring in all stations in the Protectorate.

At Kisumu it has again been the principal cause of sickness among Uganda Railway employees, and those of other departments. At Mombasa the total number of cases reported was 3,687, though this does not represent the incidence among the general inhabitants. At Nairobi the increase in the

number of observed cases has been due to the troops sent to hospital from outside districts for treatment.

Malaria of a special virulent type has been found among natives and others traversing certain routes, especially the Fort Hall and Nairobi roads. Much of this will be controlled when sanitary rest houses are erected along the roads of communication and the movements of natives are regulated.

MALARIA, RECORDED CASES AND DEATHS.

	Year.	Cases.	Deaths.
	1912	12,658	52
	1913	15,656	81
	1914	15,096	119*

* 27 of these deaths occurred in Government Institutions.

Anti-malarial measures are being actively prosecuted in Mombasa, Nairobi, and Kisumu, the presence of Sanitary Inspectors exercising a beneficial influence.

ACTION TAKEN DURING 1914 UNDER THE MOSQUITO RULES.

		Notices Served.	Prosecutions.
Mombasa		133	4
Nairobi		286	1
Kisumu		4	2

Quinine prophylaxis has been adopted in various localities with some amount of success. At Kisumu, among the Uganda Railway employees, 10 grains were given on two consecutive days each fortnight.

Nairobi and Mombasa Health Offices have issued free doses of quinine to all applicants. Investigations in this important matter have necessarily been restricted owing to the war, and the results from observed cases are not such as to warrant any definite opinion being formed.

Million Fish have been imported from Zanzibar by the courtesy of the Health Officer there, and have been established in tanks at Mombasa. It is hoped that the supply may be maintained, and that it may prove of use in many parts of the country.

TRYPANOSOMIASIS.

The actual number of cases treated during the year was 3, with 1 death at Kisumu, and 1 at Mumias.

EPIDEMIC DISEASES.

GENERAL.

The extent and distribution of epidemic disease has fortunately been greatly reduced during the year under review, in comparison with that reported in 1913; though sporadic cases of plague, cerebro-spinal meningitis and small-pox in various parts of the country have necessitated the prosecution of active measures.

Troops from overseas, equally with the local forces, were not acquainted with local conditions, or the incidence and distribution of disease in this country; they were, therefore, not only placed at a serious disadvantage, but incidental to military operations the concentration and billeting of men and animals in various localities presented an opportunity for the spread of epidemic and preventable diseases, not only in the units, but also among the tribes where they might be operating, and in the townships where they were quartered. This possibility has since materialised, but the extent of the mischief has been partially controlled.

At Kisumu a Labour Camp is maintained, where native labourers are segregated for six days prior to their despatch to other parts of the country. During the period of their observation they are vaccinated and inoculated. This work is of considerable importance, and should be extended to other parts of the country; the numbers treated were as follows :—

Number of Porters inspected during the year	...	21,119
" " " inoculated " " "	...	20,006
" " " vaccinated " " "	...	20,225

No case of infectious disease has been noted amongst the above during the year, with the exception of chicken pox.

At Mombasa the observation camp has not been utilized.

Owing to the outbreak of hostilities and other causes, the Assistant Medical Officer of Health has not been appointed, and the Assistant Medical Officer of Health and Bacteriologist at Mombasa has been transferred to medical duties.

PLAGUE.

Plague has appeared sporadically in Mombasa, Nairobi, Kisumu, Machakos, Makindu and Maragoli.

During the year the total number of cases certified by the personnel of the Medical Department was :—

Locality.			Cases.	Deaths.
Mombasa	...	...	2	2
Nairobi	...	...	9	6
Kisumu	...	...	36	33
Machakos	...	...	1	1
Makindu	...	...	1	—
Total	...	...	49	42

In addition to the above an outbreak of plague was reported at Maragoli by a Missionary Doctor and the Assistant District Commissioner in June and July, and some 20 deaths were certified. Fortunately the measures adopted were successful, and the disease has not spread.

The types observed were bubonic, septicæmic and pneumonic in the proportions shown :—

Type.	Mombasa.	Nairobi.	Kisumu.	Other localities.
Bubonic	—	8	17	2
Septicæmic	1	—	14	—
Pneumonic	1	1	5	—
TOTAL	2	9	36	2

And according to nationalities :—

	Europeans.		Asiatics.		Natives.		Total.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Mombasa	—	—	—	—	2	2	2	2
Nairobi	—	—	5	3	4	3	9	6
Kisumu	1	—	9	9	26	24	36	33
Other Localities	—	—	—	—	2	1	2	1
TOTAL	1	—	14	12	34	30	49	42

Trained gangs of natives employed for the extermination of rats were maintained at the three principal towns in the Protectorate, but their services have been utilised in other places when necessary. The annexed tables show the work performed.

Locality.	1913.		1914.	
	Rats caught.	Number infected.	Rats caught.	Number infected.
Mombasa	1,656	Generally	10,044	17
Nairobi	2,882	8	6,839	17
Kisumu	10,183	12	11,084	19
Total	14,721	—	27,967	53

Inoculation by Haffkin's Prophylactic.—Preventive measures of this nature ceased in Mombasa in March on legal proceedings being threatened by a conscientious objector, it was deemed desirable to declare Mombasa free of plague, when all precautionary measures automatically ceased. Here, as in other places in the Protectorate, this work has been, and is carried on without the legal safeguard that is essential. In future prophylactic inoculation can only be voluntarily performed.

The following inoculations have been undertaken during the year :—

Mombasa	9,447
Nairobi	6,839
Kisumu	14,716

After long negotiations a Disinfecting Station has been erected near the Custom House, Mombasa, affording accommodation for male and female

inoculation, and is provided with disinfecting chambers. It is now available and will be of the utmost use in the treatment of Asiatic and other immigrants whenever the protective propaganda is again put in force.

At Nairobi plague appeared in the Jeevanjee Market on the 26th March, 1914. The whole building was cleared out and disinfected in four days, and some structural alterations were effected, but the main building has not been opened, pending sanitary alterations.

SMALL-POX.

Reports from the Kenia Province dispelled the impression formed last year that an epidemic was to be feared, but active measures were undertaken at the Government Stations at Fort Hall, Nyeri, Embu; and Vaccinators were sent into the out districts.

Vaccination.—Owing to the operation of the Vaccination Ordinance being restricted, the possibility of performing this necessary measure at every Medical Station in the country has been rendered impossible. Only 22 stations have rendered returns, out of a possible 34, whereas last year the work was carried out in 28 stations.

The actual number of vaccinations performed is less than last year, owing to the war rendering work of this kind very difficult, and the fortunate freedom of the country (with the exception of the Kenia Province) from any threatened epidemic. The large number of natives coming under observation at Kisumu, where the only Porter Depot is maintained, has given an opportunity to the Health Office staff to vaccinate the majority of porters requisitioned by the Military for the "Carrier Corps"; and further steps are being taken to vaccinate all such persons at the place of their recruitment prior to their joining their unit.

Labour for estate, farm and plantation purposes has been seriously curtailed.

The lymph used was prepared at the Government Laboratory, and the results obtained by the many observers speak of its success:—

(a) Glycerinated, in tubes of 3 doses =	165,524 doses
(b) Desiccated, in ampules of 36 doses =	2,484 doses
	<u>168,008</u>

The latter has proved most useful and effective, and should be still further exploited in out districts, where it would be specially useful to keep a few tubes of dry lymph in stock in case of emergency. The dry lymph has been proved to be efficacious after a period of three years.

Table showing the number of small-pox cases for the last four years, and number of vaccinations performed:—

	1914.	1913.	1912.	1911.
Cases of small-pox	8	166	323	159
Vaccinations	123,245	131,757	79,252	15,167

**STATEMENT SHOWING THE PLACES AND NUMBER OF
VACCINATIONS PERFORMED AT EACH DURING THE
YEAR 1914.**

STATIONS.	VACCINATIONS.			
	Number.	Failed.	Perfect.	Unknown.
Mombasa	536	54	82	400
Shimba Hills	310	72	208	30
Lamu	61	1	2	58
Kismayu	140	132	8	—
Eldoret	175	18	47	110
Machakos	159	9	81	69
Nairobi	14,418	83	582	13,753
N'darugu Prison	54	3	50	1
Kyambu	9	—	2	7
Kitui	830	—	488	342
Naivasha	168	32	103	33
Baringo	1,320	165	1,125	30
Eldama Ravine	1,045	170	875	—
Fort Hall	30,960	233	4,105	26,622
Nyeri	11,247	956	7,076	3,215
Embu	40,535	7,068	29,040	4,427
Meru	493	39	157	297
Kisumu	20,186	427	5,999	13,760
Mumias	133	17	65	51
Kisii	169	69	84	16
Yante	149	1	148	—
Gobwen	148	55	67	26
TOTAL	123,245	9,604	50,394	63,247

Vaccination Ordinance :—Representation was unsuccessfully made in January 1914 that the Vaccination Ordinance should be applied to the whole Protectorate, in order that public vaccinators might be permanently appointed ; and to permit systematic vaccination at all times by Medical Officers and others, who would then be able to include vaccination as part of their routine duties. At present vaccination cannot legally be performed unless small-pox is known to be prevalent and the area declared an infected one ; thus the chief means to be adopted to prevent the spread of the disease cannot be put into operation, until after the epidemic is established.

DYSENTERY.

The type generally observed has been bacillary, and its general distribution calls for special comment, especially as military operations are proceeding in many parts of the country. Attention is being directed to the water supplies, quality and quantity of ration supplies, cooking arrangements for troops and followers, and measures for the destruction of flies.

The presence of amoebic dysentery has been surprisingly small, and the good results following the exhibition of emetine have been maintained.

The following table refers to cases observed in Government hospitals and dispensaries only :—

2,813 cases, 145 deaths.

	Mombasa.		Nairobi.		Kisumu.		Other Localities.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Europeans	19	—	50	1	2	—	25	—
Other Nationalities	417	71	890	28	180	12	1,230	33
TOTAL	436	71	940	29	182	12	1,255	33

Capt. Shircore's excellent report on dysentery, diarrhoea and diseases simulating them (Appendix I.) is of special value ; and opportunities are being afforded him of continuing his investigations this year, as he is in command of the African Base Hospital, Mombasa.

ENTERIC FEVER.

Table of reported cases (61 cases, 14 deaths).

	EUROPEANS.		OTHER NATIONALITIES.	
	Cases.	Deaths.	Cases.	Deaths.
Mombasa	3	2	3	2
Nairobi	11	3	29	6
Kisumu	1	—	5	—
Eldoret	3	—	—	—
Nakuru	2	—	—	—
Fort Hall	2	—	—	—
Nyeri	1	—	—	—
Eldama Ravine	—	—	1	1
Total	23	5	38	9

Early in February an outbreak of enteric was reported near Nakuru ; some of these cases were taken to Nairobi hospital. Investigations pointed to an infected water supply on a farm. A circular was addressed to all persons in the neighbourhood calling attention to the dangerous condition of this water, and indicating the measures to be adopted.

In March and April visits were paid by the Bacteriologist and Government Analyst to the new Nakuru water supply ; and as a result of their chemical and bacteriological examination, the water of the new supply was reported on as follows :—

“ This water in its natural condition cannot be considered a safe potable water, and requires storage, liming, and filtration.”

As these necessary precautions could not be adopted, the water was turned into the existing mains in the township, and a second circular issued by order of the Government to the inhabitants “ that the inhabitants of Nakuru “ be warned that though superior to the old supply, it is not above suspicion.”

Voluntary inoculation has not generally been taken advantage of, though supplies of protective and curative serum are available. The Medical Officers of Health draw attention to the fact that no reputed European case had been inoculated against typhoid.

The necessity for protection against this disease is a matter that is receiving attention, and active measures are being taken in all parts of the country with (at the time of writing) encouraging results.

The result of investigations in townships point to the following as possible sources of infection :—

Untreated water.

Flies carrying infection from dirty latrine buckets.

Infection from person to person.

Milk adulterated with water.

The Sanitation and Bacteriological Divisions are taking a prominent part in controlling this disease both among the military and civil communities.

CEREBRO-SPINAL MENINGITIS.

The epidemic reported in 1913 is gradually disappearing, though as may be expected the majority of observed cases were reported from the Highlands, where the greatest virulence of the disease was originally noticed.

LIST OF CASES OBSERVED BY GOVERNMENT OFFICERS.

	Mountainous Zone.		Coast Zone.		Lake Zone.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Mombasa	—	—	33	23	—	—
Kismayu... ..	—	—	2	2	—	—
Nairobi	106	47	—	—	—	—
Machakos	1	1	—	—	—	—
Nakuru	5	1	—	—	—	—
Eldoret	2	—	—	—	—	—
Eldama Ravine ...	22	2	—	—	—	—
Nandi	9	—	—	—	—	—
Fort Hall	12	4	—	—	—	—
Meru	4	1	—	—	—	—
Nyeri	1	1	—	—	—	—
Kisumu	—	—	—	—	28	21
TOTAL	162	57	35	25	28	21

In October the Provincial Commissioner reported the recrudescence of cerebro-spinal meningitis in Kitosh and North Kavirondo Districts. Owing to hostilities it was impossible to detail an officer to investigate the outbreak, but from subsequent reports received from the administration it appeared to be limited to one district.

QUARANTINE CAMPS.

The quarantine camp at Kipevu, originally intended for the reception of infectious cases from overseas and the treatment of ships carrying them, is not completed.

ADMISSIONS INTO QUARANTINE CAMPS.

CONTACTS.

	Mombasa.		Nairobi.		Kisumu.	
	Asiatics.	Africans.	Asiatics.	Africans.	Asiatics.	Africans.
Cerebro-spinal meningitis	—	—	17	15	4	62
Plague	—	—	4	—	32	113
Enteric	—	—	11	3	—	—
Small-pox	3	—	—	—	—	—
TOTAL	3	—	32	18	36	175

GRAND TOTAL, 264.

CASES.

Disease.	Mombasa.		Nairobi.		Kisumu.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cerebro-spinal meningitis	—	—	72	45	21	12
Chicken-pox	—	—	286	1	5	—
Dysentery	—	—	1	—	1	—
Enteric	—	—	15	1	1	—
Malaria	—	—	—	—	1	—
Plague	—	—	6	4	13	10
Pneumonia	—	—	3	1	8	2
Rheumatic fever ...	—	—	—	—	1	—
Tuberculosis	—	—	—	—	1	—
Anthrax... ..	—	—	2	—	1	—
Mumps	—	—	9	—	—	—
Measles	—	—	30	—	—	—
Other infectious diseases	—	—	5	—	—	—
Leprosy	—	—	1	—	—	—
Erysipelas	—	—	3	2	—	—
Scabies	—	—	1	—	—	—
Small-pox	2	—	—	—	—	—
TOTAL	2	—	434	54	53	24

HELMINTHIC DISEASES.

The number of in-patients treated during the year in the Government hospitals was 92, with 36 deaths.

The wide distribution of ankylostomiasis on the Coast Belt has been represented to the military authorities, and the special precautions to be adopted have in consequence been embodied in Command Orders.

Diseases of this class have been observed in all parts of the country.

(iii.) GENERAL MEASURES.

SEWAGE DISPOSAL.

No sewage works have been installed in any township in the country; night soil is disposed of by dumping into the sea, trenching, reception into cesspools, or distribution on the ground.

The duplicate bucket system is not used.

Very little advance has been made in respect of removing latrines and latrine pits inside houses and compounds, and this evil increases in proportion to the development of the towns.

A few public latrines have been erected in Mombasa, consisting of holes in the ground surmounted by a cement platform and a corrugated screen; the time-honoured custom of using the foreshore as a latrine is discouraged in every way. At Nairobi a few public latrines of an improved pattern have been erected; but the present system of trenching, often inadequately performed, presents every unsatisfactory feature it is possible to imagine, and the outstanding need for a water-borne sewage scheme with outfall works is one of the most urgent needs in this township.

SCAVENGING.

The conditions existing in townships calling for adverse criticism last year remain practically unaltered, and but little improvement has been effected.

The Public Health Act, so urgently required, has not become law, and the remedial effect resulting from the advice of Medical Officers of Health and Sanitary Inspectors has been insignificant.

At Kisumu the administration has handed over the conservancy to the Health Office, with satisfactory results, but in other towns in the Protectorate the executive control of the Health Office is practically nil.

An active and progressive policy of sanitation, assisted by adequate legislation, is necessary; if this is assured, the staff, whose work is admirable and zeal most commendable, will be encouraged to further efforts.

WATER SUPPLY.

The outbreak of hostilities, and consequent financial disturbance, has resulted in the much-needed water schemes for Kisumu and Nakuru being either held in abeyance or materially curtailed; the new water supply for Mombasa has not as yet reached that town; and the protective works at Nairobi intake have not been commenced.

DRAINAGE.

Some advance has been made in the main drainage scheme for Nairobi, but experience of its capacity emphasizes the necessity for the construction of a new sewer of sufficient dimensions to receive the drainage from areas whose development is in progress, especially the Abdul Hussein and Cross Estates and a portion of the Indian Bazaar and Market.

It is recommended that an investigation be made into the requirements of the township, and that a detailed drainage scheme for Nairobi be prepared without delay.

Much excellent work has been done in Mombasa by the Health Office Staff in draining the low lying areas in Miembeni, where various road drains have been constructed. At Nairobi 141 superficial drains have been dug or repaired by the Health Office Staff, and 5 large accumulations of water dealt with; at Kisumu all surface drains leading from springs have been kept in a good state of repair, while in each town oiling operations have been constantly carried out.

BUSH CLEARING.

A detailed report of the work done by the Sanitary gangs in the three principal towns is shown in Table IV. In many outstations similar work has been performed with most excellent results, but it has necessarily been curtailed by the limitation of funds placed at the disposal of the Division.

HOUSING.

The general conditions that have led to overcrowding in the past still obtain, and the establishment of Native Locations in order to relieve the congested districts has been deferred.

(iv.) CONDITION OF TRADES AND FACTORIES.

PUBLIC MARKETS.

Those at present constructed are :—

Mombasa	...	...	...	...	2
Nairobi	...	...	...	...	2
Kisumu	...	...	...	...	1

Plans for a new market at Mombasa have been approved and the building commenced.

The fish market is far too small for present needs.

The Jeevanjee Market at Nairobi was closed during the year on account of plague-infected rats being discovered; the building has partially been re-opened, and negotiations are in progress regarding the structural alterations of the remainder, where proper drainage is greatly needed.

SLAUGHTER-HOUSES.

Paved and drained slaughter-houses exist at the following places :—

Mombasa	...	...	...	...	2
Nairobi	...	...	...	...	1
Kisumu	...	...	...	...	2

At Nairobi the return of beasts slaughtered was :—

					Slaughtered.	Condemned.
Oxen	...	...	...	...	2,060	136
Sheep and goats	...	...	...	...	35,400	322
Pigs	...	...	...	...	195	1

AERATED WATER FACTORIES.

At Mombasa an improvement has been effected by the installation of filters at all factories. Three applications for renewal of license were refused, as the owner had not supplied a bacteria-proof filter, and 95 inspections were made. Water is still supplied from wells or tanks.

					Number of Factories.
Nairobi—European	...	...	...	...	1
Asiatic	...	...	...	...	1
					—
TOTAL	...	...	...	...	2

Five reports upon aerated waters were issued by the Government Analyst, who states that only one report was really satisfactory. Causes of complaint have been due to solids, dirt and copper, while one factory produced water containing iron and zinc.

Number of inspections 36.

At Kisumu a most constant supervision is maintained, and efforts are being made to improve the quality of the water used in the manufacture of aerated waters.

LAUNDRIES.

The water used at Nairobi is served from the town pipe supply, and it is hoped that in Mombasa a similar source will be available when the new water supply reaches the town.

DAIRIES.

The new Public Health Act will, it is hoped, give the necessary powers to regulate the supply of milk.

At Mombasa 17 registered cow byres exist, for the most part situated outside the congested districts, but their present condition constitutes a grave menace to health. It is hoped that the cow sheds originally constructed by the Public Works Department will be available in the near future.

A number of analyses of the milk supply by the Government Analyst expresses some degree of satisfaction with the samples from a chemical point of view.

Nairobi milk supply is derived from the following sources :—

1. Privately owned cattle.
2. Outlying farms.
3. Somalis.
4. Natives generally.

There is no control or supervision over the supply, and the quality is generally extremely bad, and a report from the Government Analyst in support of this statement is attached :—

“ Fifty samples of milk have been submitted by the Police, the Sanitary Inspectors and private individuals in the township. Of these samples no fewer than 35 (70 per cent.) were found to be adulterated. The condition of the milk supply of Nairobi is absolutely disgraceful, and with the exception of two or three sources which are of excellent quality it is very difficult to purchase a sample of pure milk.”

Considering that cow's milk in some form or other is the staple food of young babies in Nairobi, it is not to be wondered at that infantile diarrhoea, dysentery, etc., is much too common in Nairobi.

BAKERIES.

The regular inspections of these premises by the Health Office staff have resulted in a general improvement in the sanitary conditions prevailing.

SHIPPING.

Bills of Health issued at one port hold good for Kilindini, including Mombasa, Lamu and Kismayu.

The numbers issued during the year were :—

					1912.		1913.		1914.	
					Steamers.	Dhows.	Steamers.	Dhows.	Steamers.	Dhows.
Kilindini	...	...	...	...	383	110	427	146	420	115
Lamu	...	...	...	...	18	—	22	—	17	378
Kismayu	...	...	...	...	45	2	69	4	55	46

These numbers do not include warships, transports, hospital ships and colliers, and the decrease is due to the war.

All port medical work has been undertaken by the Medical Officer of Health, with the exception of clearances on behalf of His Majesty's ships.

SHIPPING ON VICTORIA NYANZA.

1913.		1914.	
Steamers.	Dhows.	Steamers.	Dhows.
268	246	529	671

The following table shows the number of steamers and sailing ships and dhows that have received pratique at Mombasa and Kilindini, with the numbers of persons on board :—

Year.	Number of Vessels.	Number of Dhows.	Total number of Persons.
1912	383	110	81,213
1913	427	146	81,993
1914	420	115	60,319

All restrictions, such as medical inspection, inoculation and fumigation, to which all immigrants were subjected during the late epidemic of plague at Mombasa, were withdrawn on 28th March, 1914, when the Island was officially declared free from plague. The necessity for the continuance of such measures is emphasized by the number of persons landing in the country, though not necessarily remaining there.

Year.	Europeans.	Africans.	Asiatics.	Total.
1912	3,156	1,990	6,113	11,259
1913	3,875	2,233	9,190	15,298
1914	2,793	1,368	8,814	12,975

Revenue derived from Bills of Health at the Coast Ports.—Coasting steamers do not take out fresh Bills of Health at intermediate ports, but merely have their Bills of Health endorsed. Dhows are given free Bills of Health.

Port.	1913.	1914.
	Rs. Cts.	Rs. Cts.
Kismayu	547-50	757-50
Lamu	172-50	127-50
Mombasa and Kilindini...	3,510-00	2,317-50
TOTAL	4,230-00	3,202-50

W. J. RADFORD,

Principal Sanitation Officer.

IV.—METEOROLOGY.

There is no Bureau of Meteorology in the Protectorate, and the Department which makes itself responsible for collating such statistical information as is available is the Agricultural.

Only at the Laboratory, Nairobi, are hygrometrical observations taken; nowhere are solar temperatures or notes as to the force and direction of the wind recorded.

Mr. C. W. Hobley, C.M.G., in a recent publication, drew attention to the gradual desiccation of the East African Lakes, a fact which would indicate that the rainfall in these districts is—leaving evaporation out of the question—certainly not on the increase, even if it does not remain stationary. The general average of 1914 was a dry year, a factor which had no inconsiderable bearing on the health of the troops during the latter part of the year.

TABLES SHOWING MEAN ANNUAL RAINFALL AT VARIOUS
POINTS IN THE DIFFERENT AREAS FOR THE THREE YEARS.

COAST AREA.

	1914.	1913.	1912
Malindi... ..	35.40	46.74	24.22
Mombasa	33.27	42.88	37.58
Mazeras (11 months)	31.14	43.35	35.86
Mackinnon Road	26.38	24.72	23.29
Voi	18.62	22.27	30.73
Taveta	—	28.31	25.39

MOUNTAINOUS AREA.

Masongaleni	19.26	20.11	39.52
Makindu	18.03	17.72	29.72
Kiu	14.43	42.77	29.72
Athi River	31.68	30.01	39.21
Nairobi Laboratory	—	30.71	54.21
Kabete (near Nairobi)	45.27	34.24	55.85
Naivasha	21.61	26.57	33.90
Nakuru... ..	38.16	35.03	40.93
Molo	56.76	52.98	62.35
Eldama Ravine	51.75	40.12	47.89

NYANZA AND KENIA PROVINCES.

Lumbwa	49.31	52.10	50.60
Muhoroni (10 months)... ..	73.29	39.80	91.65
Kisumu... ..	48.86	43.15	46.28
Mumias... ..	79.89	61.53	73.49
Karungu	—	—	37.86
Kericho... ..	74.91	64.85	71.38
Nandi	72.18	66.77	69.13
Fort Hall	48.76	44.33	60.52
Nyeri	26.88	43.12	37.54
West Kenia	40.93	48.91	54.34

DESERT AREA.

Kismayu	14.64	13.71	8.97
Gosha Alexandra	21.24	29.47	25.33

V.—HOSPITALS, DISPENSARIES AND INSTITUTIONS.

1.—EUROPEAN HOSPITALS AT NAIROBI AND MOMBASA.

The following table shows the admissions, discharges and deaths in the European Hospitals at Nairobi and Mombasa, with the comparison for the two previous years. The increase is due to the influx of military patients.

TABLE SHOWING ADMISSIONS AND DEATH RATES.

	1914.	1913.	1912.
Total number of beds* ...	92	29	29
Total number of admissions ...	723	347	276
Number discharged ...	641	328	265
Number of deaths... ..	27	14	11

* 50 at Nairobi, 42 at Mombasa.

Of the 723 admissions 211 were Officials and 220 Non-officials and 292 Military and Naval.

Administration.—The staff at the Nairobi European Hospital at the beginning of 1914 consisted of a Medical Officer, a Matron and five Nursing Sisters. In August, in consequence of the war, the number of beds was increased from 26 to 50, and later on Captain Fyffe, R.A.M.C., was appointed to take charge of 30 of these beds.

Also in consequence of the war three of the nursing sisters were detailed for work on the ambulance train and in other hospitals, and to fill these vacancies one nursing sister and five probationers were engaged. This arrangement worked satisfactorily.

The peace footing of the European Hospital at Mombasa consisted of one Medical Officer, one senior and two nursing sisters. In November, owing to the military and naval operations round Mombasa, it became necessary to convert one of the Administration bungalows adjoining into a naval and military hospital of 35 beds. This necessitated an increase of the nursing staff of three additional nurses, locally recruited.

Mortality.—14 deaths occurred in the European Hospital, Nairobi, and 8 at Mombasa, due to the following causes :—

Disease.	Nairobi.	Mombasa.
Dysentery	1	1
Enteric	3	2
Tetanus	—	1
Cirrhosis of liver	1	—
Gout	—	1
Appendicitis	1	—
Pneumonia	1	—
Chronic nephritis	1	—
Tuberculosis	2	—
Acute hepatitis... ..	1	—
Acute cystitis	1	—
Blackwater fever	1	2
Abdominal obstruction	1	—
Malaria	—	1

The prevailing diseases which came under treatment during the year were :—

Malaria.—At Nairobi 101 cases were admitted to hospital, of which one was of the quartan and two of the benign tertian type. There were no fatal cases.

At Mombasa 107 cases were admitted to hospital, with one death.

Blackwater fever.—Five admissions with three deaths; one case (a Government official, admitted during the year) proving fatal, following two relapses. This case had had subtertian parasites in the blood at the onset of the disease, and having developed a high temperature when the urine had cleared up he was given quinine intramuscularly, two doses of grs. X daily, and the next day he had a relapse, followed later on by a second relapse, and died of heart failure.

Enteric fever.—Eleven cases were admitted at Nairobi and six at Mombasa, with three and two deaths respectively. None of the cases had been previously inoculated.

Dysentery.—This disease showed a large increase over last year, due to campaigning in unhealthy districts. In all, 71 cases were admitted, 44 of this number having been admitted at Nairobi, and Dr. Gilks remarks that it is unfortunate that no figures can be given as to the incidence of the amoebic form, owing to the fact that the great majority of cases had been under treatment or were convalescent before admission. The routine treatment in the field has been by emetine injections combined with the administration of salts.

Operations.—In the European Hospital at Nairobi, Dr. Gilks reports that 32 operations were performed during the year, and that cure resulted in all but three cases, death being due to (1) acute appendicitis, (2) perforation of a typhoid ulcer, and (3) abdominal obstruction.

The case of abdominal obstruction was particularly unfortunate, as it occurred fourteen days after an operation for perforation of a gastric ulcer at the pyloric end of the stomach with effusion of stomach contents, and the obstruction was caused by an adhesion at the situation of a drainage tube passed into the pelvis.

The case of perforation of a typhoid ulcer did not result in death till three days after the operation.

The following is a list of the operations: Liver abscess, 2 cases; procidentia uteri and ventral hernia, 1 case; pyonephrosis, 1 case; haemorrhoids, 5 cases; dental caries, 1 case; perforated typhoid ulcer, 1 case; lion maul, 1 case; endometritis, 3 cases; gangrene of leg, 1 case; perforated gastric ulcer, 1 case; abdominal obstruction, 1 case; stricture of urethra, 2 cases, one of which was an old traumatic stricture, and for which an external urethrotomy had to be performed; tuberculosis, abscess, 1 case, on which two scrapings were done; panophthalmitis, 1 case; tonsils and adenoids, 1 case; abscess of knee, 1 case; whitlow, 1 case; fistula in ano, 1 case, traumatic gangrene, 1 case, on which two amputations of the arm were done; appendicitis, 3 cases, of which one was a case of gangrene with peritonitis.

The cases of liver abscess were interesting in that both occurred in women. One was associated with intense jaundice, and in the second the abscess was of long standing and was pointing through the ribs before being opened under local anaesthesia.

Sanitation.—One very great improvement was made during 1914 at Nairobi in the provision of a new boys' latrine at a distance from the hospital, and the destruction of the old insanitary one near the kitchen.

A temporary shed has been erected for the cleansing of bed pans, etc., to cope with the extra work entailed by the large expansion of accommodation for patients.

Plans are on foot for the building of new latrines separated by a passage from the main building.

Lime-washing and painting has been carried out in the kitchen and latrines, and various minor repairs were executed to the roof and building generally.

The drains and guttering were inspected and cleaned. There is no provision for the disposal of enteric excreta beyond disinfecting them before disposing of them in the usual receptacles.

2.—THE CIVIL HOSPITALS AND DISPENSARIES.

The statistical tables show the work at the various hospitals and dispensaries. A summary of the cases treated is as follows :—

	1914.		1913.		1912.	
	In.	Out.	In.	Out.	In.	Out.
Admissions	14,287	120,056	11,012	95,778	15,233	77,837
Deaths	712	—	764	—	522	—
Death-rate per 1,000 ...	49·88	—	69·37	—	34·26	—

Only one new station—Alexandra, in Jubaland—was added to the list of medical establishments during the year. A dispensary was established there, with a sub-assistant surgeon in charge.

The dresser staff before the war was inadequate for the work, but there is a promise that out of a large number of natives engaged in consequence of the war at the hospitals, where native soldiers and followers of the army have been treated, some, at least, will form the nucleus of a more satisfactory dresser establishment. Swahilis and Baganda are the best material available, and it is hoped that more of these tribes may be induced to take to the work.

The native civil hospitals at Nairobi, Mombasa and Kisumu have had their accommodation increased by the addition of tents and galvanized iron buildings and bandas, and have acted as the African Base Hospitals at these places since the outbreak of hostilities. The work in consequence at these hospitals has greatly increased and their African staffs have been correspondingly augmented.

3.—LUNATIC ASYLUM.

The total number of cases treated during the year was 84, of whom 6 were Europeans.

The admissions for the past three years were :—

	1912.		1913.		1914.	
	No.	Deaths.	No.	Deaths.	No.	Deaths.
Males	68	22	62	14	67	18
Females	4	Nil	6	2	11	Nil
TOTAL	72	22	68	16	78	18

Of these the following were Europeans :—

	1912.	1913.	1914.
Males	1	5	6

On looking over the native admissions it will be seen that, at present, insane people are only received from the big centres where Europeans are, more than half coming from Nairobi. As civilisation penetrates further and further into the reserve, insane people and feeble minded will lose their half holy status in their villages, and there will arise a great demand for accommodation, as there is in South Africa to-day with its vast asylums.

Eighteen cases in all were admitted for the purpose of observation. As in previous years, a history in most of them of excessive indulgence in alcohol was obtained. Five Europeans were placed under observation in four cases, in which the patients were suffering from alcoholic bouts which cleared up under treatment, and after ten days' detention they were found fit for discharge.

Of the Europeans admitted, six in all, four were suffering from delirium tremens. This means a very small amount of real insanity among Europeans; but taking factors like the increasing influx of Europeans, altitude, way of living, etc., it is likely that this number will rise higher and higher every year. In the hardy pioneer class instability was at a minimum, but now, as life is lived by a greater number of people here as in Europe, the proportion will rise in a commensurate scale.

On looking over the native classification one is struck with the large preponderance of cases of dementia admitted as such, evidently primary, and not after an acute attack. The proper proportion in England would be about five per cent., but here it is about 50 per cent. It is a known fact that dementia of a particular kind, called "Dementia Praecox," is more prevalent in the near East, but not in so marked a degree as here shown. An investigation into this would repay trouble. Mania is responsible for 17 per cent., a very small proportion. At home it is usually about 50 per cent. Melancholia seems to be uncommon, there only being two admitted during the year. As regards imbecility and idiocy, one case only was admitted. A form of insanity which one would expect to find here, and which fills the asylums of Egypt and India is not common here—that is caused by smoking bhang or opium. The recent legislation on the subject will help in preventing this.

As noted in former reports the death rate is very high in the asylum—214·3 per 1,000—but many of the patients are brought in in a very exhausted condition, a large number being in a stuporose state and dying by gradual cessation of the vital faculties.

As many of the patients are encouraged to work in the shamba as is possible, about one fourth of the inmates doing so. This, affording them active exercise and preventing them from brooding over their troubles, is invaluable for them.

Ground crops of maize, beans and sweet potatoes are grown, the total number of acres under cultivation being about 13. One acre of new ground has been broken up during the year. The takings have been, maize 1,500 lbs., beans 1,000 lbs. The past season has been dry and unfavourable.

Sanitation.—The bucket system is employed and is satisfactory.

Drainage.—The surface water, etc., is carried off by drains and is most unsatisfactory.

Water supply.—During the year a water supply has been laid on from the Muthaiga estate. The supply is now ample and satisfactory.

Lighting.—Paraffin lamps are used. This is most unsatisfactory and dangerous, and if possible electric light should be installed.

Restraint had to be resorted to on 25 occasions. One continuous case of 70 days.

Under the capable supervision of the Superintendent and Matron, the general work of the asylum has been carried out in a most efficient manner. The wards and bedding are kept very clean and tidy, and the grounds look well cared for. The patients are in general happy and look well contented, a good many of them work during the day, and the percentage of labour got out of them seems higher than that got out of the same number in an English asylum. The behaviour of the attendants, male and female, towards the patients is excellent, and it is surprising to see how much tact and gentleness they use towards a refractory patient. It reflects great credit on the management of the asylum, in that they have trained raw natives in such a manner; in this respect the African could give points to many English attendants in their care of the patients.

4.—GOVERNMENT DENTAL SURGERY.

The views expressed last year regarding the prevalence of dental caries have been confirmed during 1914.

The reasons for this condition cannot be definitely set down, but the Government Dental Surgeon considers that this proneness to dental caries is due to the noticeable lack of resistive power in most individuals combined with, in many cases, insufficient care.

The presence of pyorrhoea alveolaris is also a contributory factor.

The statistical tables showing the work done during the year are shown on pages 80 and 81.

5.—GAOLS.

The overcrowding referred to in 1912 and 1913 still continued, but, fortunately, no outbreak of disease as a result has occurred. The general health of the prisoners has been on the whole satisfactory. The principal causes of admission to hospital were the same as recorded last year. One case of plague occurred in the Nairobi Prison.

TABLE SHOWING SICK AND DEATH RATES AMONGST PRISONERS AT THE MOMBASA, NAIROBI AND N'DARUGU BOMA GAOLS.

	Mombasa.		Nairobi.		N'darugu.	
	1914.	1913.	1914.	1913.	1914.	1913.
Total number of prisoners on 1st January, 1914	241	243	454	384	300	301
Number admitted during year ..	742	716	1979	2373	222	561
Average daily number in gaol... ..	249	245	440	447	298	300
Total number placed on sick list ...	434	379	361	330	159	163
Total number of days on sick list ...	4319	3771	3327	2980	1433	1231
Average number daily sick	11·84	10·33	9·11	8·16	3·92	5
Total number of deaths	8	7	22	50	2	4
Percentage of deaths to average daily strength	3·21	2·85	5	11·18	·67	1·33

The causes of death were as follows :—

Pneumonia, 8; dysentery, 4; tuberculosis, bronchitis, diarrhoea, 3 each; valvular disease of the heart, broncho-pneumonia, ankylostomiasis, 2 each, malaria, cirrhosis of liver, ascites, splenitis, nephritis, 1 each; total 32.

6.—THE GOVERNMENT LABORATORY, NAIROBI.

(i.) BACTERIOLOGICAL.

During the year the work of the Laboratory suffered from frequent changes of personnel and a constant increase of routine work, the two factors together preventing anything in the nature of continuous research. From January to September Dr. J. H. Pirie was in charge, but he then proceeded on active service, and until the return of the Director on October 19th Laboratory Assistant L. S. Pillay remained in sole charge. Dr. J. H. Pirie suffered from the absence on leave of the trained Laboratory Assistant for four months of his time, the newly appointed second assistant, although capable and willing, being quite new to laboratory work. The latter assistant also went on active service in September.

8,542 routine examinations were carried out. Of these 1,028 were blood smears. Malarial parasites were found in 238 cases—10 benign tertian, 10 quartan and 218 subtertian. In 168 cases the differential leucocyte count suggested malaria. 488 differential counts were done in which there was no evidence of malaria.

155 widal reactions were carried out, of which 61 were positive. The figures for widsals and malaria are much higher than in any previous year.

6,665 rats were examined for plague. During the first half of the year 16 rats, during the latter half none were found to be infected. In 10 human cases *B. pestis* was found.

176,109 doses of vaccine lymph were issued, the issues being to Uganda and Zanzibar as well as to this Protectorate.

(ii.) ANALYTICAL LABORATORY.

SUMMARY OF THE WORK OF THE GOVERNMENT ANALYTICAL LABORATORY FOR THE YEAR 1914, BY V. H. KIRKHAM, F.I.C., B.Sc. (LOND.), DIP. AGRIC. (CAMB.).

During the year the following cases were dealt with:—

Milk	1,064
Action of soils on dip	187
Water	62
Food	25
Soil	7
Cattle dip	481
Agricultural products of British East Africa ...	68
Toxicological	59
Minerals	23
Blood and semen stains	7
Miscellaneous... ..	12
	1,995

Milk.—Average composition of 927 normal samples:—

Fat	5.37%
Solids not fat	9.13%
Total solids	14.50%

Nairobi milk supply.—Of the 47 samples submitted by the police, Medical Officer of Health, etc., 34 (72%) were grossly adulterated, and four of the remainder were unsatisfactory, containing either blood or dirt.

Mombasa milk supply.—Of the 40 samples analysed only 4 (10%) were adulterated, a surprisingly good return when it is considered that no systematic control has existed.

Cattle dips.—Of the 481 samples of dip, 480 were the usual arsenical solution used for 3, 5 or 7 day dipping to destroy the ticks responsible for East Coast Fever. The importance of this analytical control is manifest from the fact that during the year about 20 per cent. of the samples were so far above or below strength that had not the analyses been made there would have been great loss of stock by arsenical poisoning on the one hand or by the East Coast Fever on the other.

Agricultural products.—Some attention has been given to citric acid production in this country. The composition of various citrus fruits has been determined and the results are satisfactory. Should the yield and expenses of production compare favourably with those obtaining in the West Indies, this may well prove an important industry in the future. Various essential oils were distilled from cultivated herbs—thyme, geranium, peppermint, etc. Insufficient data prevent any opinion yet being given of volatile oil production as a commercial proposition, but more data are being sought.

Water.—The 62 samples analysed were received from various parts of the country and, as usual, most of them were polluted. It was disappointing to find that the new Nakuru water supply failed to come up to a reasonable standard of purity for public supply.

Toxicological.—The 59 cases may be classified as follows:—

Human ...	Positive...	...	7	Stock ...	Positive...	...	18
	Negative	...	8		Negative	...	23
	Postmortem con-				Postmortem con-		
	tamination		1		tamination		3
			—				—
	Total	...	16		Total	...	44
			—				—

The positive cases were as follows:—

Human:—Opium 1, arsenic 2, strychnine 4, mercury 0.
 Stock:— „ 0, „ 12, „ 0, „ 5.

Food.—About half the samples were native food stuffs; attention was given to the amount of husk present and its removal by sieving was considered. In the case of maize care must be taken not to remove the germ or valuable food will be wasted. Tinned goods were examined for metallic contamination, which was found to be present in a large number of cases. It is recommended that all tinned goods should be dated by punching from the inside of the tin, and certain classes of goods should be required to have the tins lacquered on the inside to prevent metallic contamination.

Minerals.—Nothing of general interest was submitted. A collection of quartz specimens submitted for gold assay proved to be devoid of gold except for an insignificant trace in one or two cases. Building stone and road ballast were examined for the Public Works Department.

Soils.—So much time being required to carry out investigations upon soils, it was found impossible to take these cases in hand. Some observations were made upon the properties and occurrence of black cotton soil and its relationship to the red forest soil of the Highlands. These two soils are often found side by side overlying the same rocks, and their formation appears to be due to topographical conditions, especially those affecting drainage. Black soil is confined to level stretches, red soil to slopes, and the differences in the soils may probably be due to the removal of soluble salts and some of the clay from soils on slopes, and their accumulation in soils on level stretches.

Blood and semen stains.--The seven cases submitted gave negative results.

Staff.—Mr. W. Colet Birch, B.A. (Cantab.), F.I.C., arrived in August, 1914, to take up his duties as Assistant to the Government Analyst, his particular department of work being the control of the cattle dips.

In September Mr. Kirkham was appointed Analyst to the Forces, with the rank of Captain in the East Africa Medical Service, and during the last four months of the year spent most of his time visiting the military camps, inaugurating a system of water sterilisation by means of chloride of lime.

During his absence Mr. Birch, with the assistance of the Indian Laboratory Assistant (P. M. S. Pillay), endeavoured to keep the general work of the laboratory going, and they were both taxed to the utmost.

RETURNS.

TABLE I.

ADMINISTRATIVE DIVISION.

Dr. A. D. Milne ...	Principal Medical Officer.
Dr. J. A. Haran, C.M.G. ...	Deputy Principal Medical Officer.
Mr. R. Stanley ...	Office Superintendent.
Mr. T. Preston ...	Assistant Clerk, P.M.O.
Mr. J. S. Robertson ...	Medical Storekeeper.

MEDICAL DIVISION.

Dr. L. D. Lowsley...	Senior Medical Officer.
Dr. W. Owen Prichard ...	
Dr. C. L. Chevallier ...	Medical Officer.
Dr. F. L. Henderson ...	"
Dr. J. O. Shircore ...	"
Dr. G. R. H. Chell...	"
Dr. T. F. Lumb ...	"
Dr. J. L. Gilks ...	"
Dr. J. Pugh ...	"
Dr. C. J. Wilson ...	"
Dr. V. G. L. van Someren	Government Dental Surgeon.
Dr. A. D. J. B. Williams ...	Probationary Medical Officer.
Dr. T. H. Massey ...	"
Dr. G. Dunderdale ...	"
Dr. P. F. Numan ...	"
Dr. J. H. Thomson ...	"
Dr. W. Tudhope ...	Temporary Medical Officer.
Dr. H. H. V. Welch ...	"
Dr. F. Collar ...	"
Dr. E. N. Russell ...	"
Dr. R. W. Spence ...	"
Dr. J. M. Mackinnon ...	"
Dr. S. E. Jones ..	District Surgeon.
Mr. G. Gillespie ...	Dispenser.
Mr. F. Knott ...	"
Mr. H. Ogden ...	"
Mr. C. A. J. Speller ...	"
Miss M. Atkey ...	Matron, European Hospital.
Miss E. R. Brown...	Nursing Sister.
Miss A. M. Marston ...	"
Miss H. M. Whitburn ...	"
Miss S. E. Lumsden ...	"
Miss L. Merryweather ...	"
Miss R. Paul ...	"
Miss I. L. Majendie ...	"
Miss I. Wilson ...	"
Mrs. S. J. Harrison ...	"
Mr. W. Henfrey ...	Superintendent, Lunatic Asylum.
Mrs. L. A. Henfrey ...	Matron, " "

LABORATORIES DIVISION.

Dr. P. H. Ross ...	Bacteriologist.
Dr. J. H. H. Pirie...	Pathologist and Asst. Bacteriologist.
Mr. V. H. Kirkham ...	Analyst.

SANITATION DIVISION.

Dr. W. J. Radford	...	Chief Sanitation Officer.
Dr. R. Small	...	Medical Officer of Health.
Dr. A. Mouat	...	"
Dr. B. W. Cherrett	...	"
Mr. A. F. Dennett	...	Sanitary Inspector.
Mr. B. E. F. Wetkin	...	"
Mr. W. H. Wood	...	"
Mr. F. Strawbridge	...	"
Mr. P. Cairns	...	"
Miss M. A. Thomlinson	...	Nurse attached to Health Office, Mombasa.

TABLE II.

FINANCIAL.

The sanctioned Medical Budget for the year 1914-15 was a total of £56,886, as compared with £44,336 for the preceding year.

Of the 1914-15 grand total, £46,685 were expended, leaving an unexpended sum of £10,201 as savings.

EXPENDITURE.

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

SCHEDULE XIV.—MEDICAL DEPARTMENTS.

	Estimate.	Actual Expenditure.
	£	£
ADMINISTRATIVE DIVISION.		
Personal emoluments	3,036	2,952
(Under this heading are included the salaries, and any duty allowances granted, of the Principal Medical Officer, Deputy Principal Medical Officer, Office Superintendent, Medical Storekeeper, clerical establishment, messengers and packers.)		
Other charges	706	357
(Under this heading are included Conservancy rates, contingencies, transport :—passages, local travelling, travelling allowances, and carriage of goods ; typewriters and uniforms.)		
MEDICAL DIVISION.		
Personal emoluments	22,851	20,760
(Under this heading are included the salaries, and any duty allowances granted, of the Senior Medical Officers, Medical Officers, Dispensers, Nurses, Superintendent and Matron Lunatic Asylum, Assistant Surgeons, Sub-Assistant Surgeons, Hospital Compounders, Native Hospital Attendants, Lunatic Asylum Attendants, Leper Lazaretto Attendants, and uniform allowances.)		
Other charges	9,931	9,551
(Under this heading are included contingencies, upkeep of European and Native Hospitals, Lunatic Asylum and Leper Establishments, medical and surgical stores, including books ; transport :—passages, local travelling, travelling allowances and carriage of goods ; ration allowances to Medical Subordinates in Northern Frontier District and Serenli, uniforms for Medical Staff, furniture and equipment for hospitals, typewriters, conservancy rates, and fees and expenses of Medical Officers attending courses of instruction in England.)		

TABLE II.—*continued.*SCHEDULE XIV.—MEDICAL DEPARTMENTS—*continued.*

	Estimate.	Actual. Expenditure.
SANITATION DIVISION.	£	£
Personal emoluments	9,304	6,048

(Under this heading are included the salaries, and any duty allowances granted, of the Chief Sanitation Officer, Medical Officers of Health, Sanitary Inspectors, Nurse, Assistant and Sub-Assistant Surgeons, Hospital Compounders, Vaccinators, Native Attendants for Infectious Diseases Hospitals, clerical establishment, Engineers for Clayton disinfectors, office, gharri and boat boys.)

Other charges	8,319	4,706
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(Under this heading are included epidemics, Sanitary station, Zanzibar; transport:—passages, local travelling, travelling allowances, and carriage of goods; typewriters, maintenance of Infectious Diseases Hospitals, disinfectants, bush clearing, mosquito and sleeping sickness preventive measures, contingencies, furniture and equipment for Infectious Diseases Hospitals, and Quarantine Stations, ambulance services, upkeep of disinfectors, and uniforms.)

LABORATORIES DIVISION.

Personal emoluments	2,189	1,922
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(Under this heading are included the salaries of the Director of Laboratories, Pathologist and Assistant Bacteriologist, Analyst, fees to Analyst, clerical establishment, Laboratory Assistants and Attendants.)

Other charges	550	389
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(Under this heading are included upkeep of Laboratory; transport:—passages, local travelling, travelling allowances and carriage of goods, and uniforms.)

REVENUE.

The total amount of revenue collected as hospital fees, bills of health, registration fees, laboratory fees and sales of medicines and surgical stores was as follows:—

	£
Hospital fees	1,453
Bills of health	187
Registration fees	10
Laboratory fees	145
Sales of medicines, etc.	290
Total	<u>£2,085</u>

Last year the total revenue collected amounted to £2,582.

TABLE III.

RETURN OF STATISTICS OF POPULATION FOR THE YEAR, 1914.

EAST AFRICA.				Europeans and Whites.	Africans.	Asiatics.
1. Number of Inhabitants in 1914	...	...	...	7,032	3,000,000*	21,000*
2. Number of Births during 1914	...	...	...	156	†	†
3. Number of Deaths during 1914	...	...	...	62	†	†
4. Number of Immigrants during 1914...	...	...	...	2,793	1,368	8,814
5. Number of Emigrants during 1914	...	...	...	2,412	2,788	7,854
6. Number of Inhabitants in 1913	...	...	...	6,510	3,000,000*	20,000*
Increase ...	...	...	...	522	...	1,000*
Decrease ...	...	...	...	...	...	...

* Approximately.

† Not registered.

TABLE IV. (A.)

1.—SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN OF NAIROBI.

				Approximate Area.	Number of proclaimed Open Spaces.
1912	...	...	...	8½ sq. miles	1 public park.
1913	...	...	...	7 " "	1 " "
1914	...	...	...	7 " "	1 " "

2.—POPULATION.

1912	...	...	19,900 (including 610 Goans and 90 Eurasians)
1913	...	...	25,380 { " 700 " " 80 " }
1914	...	...	20,900 { " 800 " " 100 " }

				Number of Asiatics and Natives.		Number of Europeans.		Total.
				Males.	Females.	Males.	Females.	
1912	...	...	...	8,686	9,314	935	265	19,200
1913	...	...	...	23,000		1,600		24,600
1914	...	...	...	18,000		2,000		20,000

3.—HOUSING.

				Number occupied by Europeans.	Number occupied by Natives and Asiatics.
Number of Houses :—					
1912	...	...	...	319	463
1913	...	...	...	377	519
1914	...	...	...	401	551

*Number of Huts :—

1912	...	...	...	1,549
1913	...	...	...	1,583
1914	...	...	...	1,556

* This includes tin shanties, native servants' quarters, mud huts, etc.

TABLE IV. (A.)—*continued.*

4.—MOSQUITO PROTECTION OF HOUSES.

	1912.	1913.	1914.
Number of European houses wholly mosquito-protected ...	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
Number of European houses with mosquito room ...	"	"	"
Number rendered during the year wholly mosquito-protected	"	"	"
Number rendered during the year partially mosquito-protected	"	"	"

5.—ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1912.	1913.	1914.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings ...	3	2	2
Number of houses erected with sanction as to site, construction, and relation to other buildings ...	166	116	56
Number of huts erected with sanction as to site, construction, and relation to other buildings ...	46	75	62
Number of houses built without sanction ...	3	13	2
Number of huts built without sanction ...	...	...	12

ACTION TAKEN.

	Number of Prosecutions.		Number Demolished.	
	Huts.	Houses.	Huts.	Houses.
1912	...	1	...	...
1913	...	51	41	2
1914	1	8	73	1

6.—MARKETS.

	Total number.	Number paved and drained.	Number unpaved.
1912	3	2	1
1913	2	1	1
1914	2	1	1

7.—SLAUGHTER-HOUSES.

	Total number.	Number paved and drained.	Number unpaved
1912	1	1	<i>Nil</i>
1913	1	1	"
1914	1	1	"

TABLE IV. (A.)—continued.

8.—LATRINES.

	For Males.		For Females.	
	Number.	Number of Seats.	Number.	Number of Seats.
Number of public latrines :—				
1912	10	96	Public latrines are only provided for Asiatics and Africans and are used in common by males and females.	There is only one public latrine for Europeans at the railway station.
1913	10	62		
1914	12	80		
Number of new public latrines erected during the year :—				
1912	3	20		
1913	3	24		
1914	2	16		
Number of public latrines repaired during the year :—				
1912	2	...		
1913	2	16		
1914	2	16		
Number of public latrines demolished during the year :—				
1912	1	6		
1913	3	...		
1914	...	...		

	1912.	1913.	1914.
Number of private latrines	1,400	1,433	1,529
Average number of pails of night-soil removed daily... ..	1,381	1,433	1,529
Average number of soiled pails removed and clean pails substituted	...	...	...
Number of night-soil men employed to clean latrines and remove excreta	43	60	75
Number of cesspools	107	101	86
Number of cesspools cleaned	107	101	86
Number of new cesspools constructed during the year	9	7	1
Number of old cesspools abolished	1	13	16
Number of cesspools oiled regularly by Department	...	...	...

9.—REMOVAL OF REFUSE.

	1912.	1913.	1914.
Number of dustbins	254	550	602
Number of carts at work daily to remove refuse from streets	6	4	4
Amount of refuse removed daily	20 tons	4 cart-loads	8 cartloads
Number of carts at work daily to remove refuse from yards and premises	12	16	16
Amount of refuse removed daily from yards and premises	10 tons	33 cart-loads	32 cartloads.
Number of men employed for removing refuse	54	88	188

TABLE IV. (A.)—continued.

10.—MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse.			Daily average number of cartloads of slaughter-house and market offal.		
	1912.	1913.	1914.	1912.	1913.	1914.	1912.	1913.	1914.
Buried or trenched	1,000	1,433	1,529	...	20	...	2	3	4
Burnt	...	...	...	15	17	40	...	...	...
Thrown into sea	...	...	...	...	...	...	...	...	...
Otherwise dealt with	...	...	...	...	...	...	...	...	...

11.—AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

	1912.	1913.	1914.
	35	20	20

12.—WATER SUPPLY.

Nature of Water Supply.	1912.	1913.	1914.
Pipe-borne water :—			
Source (river, lake or spring)—	River and Spring.	River and Spring.	River and Spring.
Number of linear yards	461,500	481,930	495,234
Number of standpipes along roads	10	57	53
Number of standpipes in compounds and houses	546	610	759
Wells :—			
Public—			
Number	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
Number with pumps protected against surface water and mosquito-protected	"	"	"
Private—			
Number	2	2	2
Number protected against surface water and mosquito-protected	...	...	...
Tanks :—			
Public—			
Number underground	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
Number mosquito-protected and served by pumps	"	"	"
Number above ground	"	"	"
Number mosquito-protected	"	"	"
Number of 400-gallons capacity or less	"	"	"
Number above 400 gallons	"	"	"
Private—			
Number underground	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
Number mosquito-protected	"	"	"
Number above ground	255	270	252
Number mosquito-protected	255	270	252
Number of 400-gallons capacity or less	102	102	92
Number above 400 gallons	153	168	160
Nature of tanks :—			
Wood	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
Iron	255	270	252
Concrete	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
Barrels :—			
Number	180	170	150
Number mosquito-protected	180	<i>Nil</i>	70

TABLE IV. (A.)—continued.

13.—DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry Drains—		
Linear yards of masonry drains—		
1912	5,804	...
1913	9,493	...
1914	24,712	...
Linear yards reconstructed during the year—		
1912	<i>Nil</i>	...
1913	"	...
1914	"	...
Linear yards repaired during the year—		
1912	<i>Nil</i>	...
1913	"	...
1914	2,200	...
Linear yards of new drains constructed during the year—		
1912	300	...
1913	3,689	...
1914	15,219	...
Earth Drains or Ditches—		
Number of linear yards of ditches cleansed—		
1912	3,980	...
1913	No information	...
1914	"	...
Number of linear yards of ditches dug and graded—		
1912	3,600	...
1913	4,400	...
1914	12,893	...
Average frequency of clearing ditches of grass—		
1912	Monthly	...
1913	When necessary	...
1914	"	...

14.—CLEARANCE OF UNDERGROWTH, LONG GRASS
AND JUNGLE.

	1912.	1913.	1914.
Number of square yards of weeds, grass and vegetation cut and removed	70,000	5,481,340	6,016,120
Average frequency of clearance of rank vegetation on same area	Monthly	When necessary	When necessary.

15.—EXCAVATIONS OF LOW-LYING LAND.

	1912.	1913.	1914.
Number of pools and excavations	237	138	43
Number of excavations filled up	21	108	65
Amount of low-lying and marsh land raised and drained	6 acres	5 acres	approx. 3 acres
Number of pools, marshes, etc., fish-stocked	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
Number of cubic yards of material used for filling up pools and excavations	No information	No information	No information
Number of persons fined for making new excavations	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
Average number of men daily employed in filling up pools, etc.	60	90	10

TABLE IV. (A.)—*continued*.

16.—OILING.*

	1912.	1913.	1914.
Number of drains oiled	...	...	All mosquito breeding places are either removed or disinfected.
Number of pools and excavations oiled	50	79	
Number of tanks and barrels oiled	...	...	
Average number of men daily employed for oiling drains, pools and water-tanks or barrels	5	7	2

* NOTE.—197 mosquito breeding places have been disinfected during the year.

17.—INSPECTIONS AND PROSECUTIONS.

	1912.	1913.	1914.
Number of Inspectors employed	1	1	2
Number of houses inspected	30	898	1,552
Number of houses where larvæ were found	20	54	42
Number of notices served to remove conditions causing the breeding of larvæ	...	...	286
Number of persons fined for having mosquito larvæ on premises	...	...	1
Number of notices served to remove insanitary conditions on premises	96	906	1,080
Number of persons fined for not removing insanitary conditions after notice	...	44	94
Number of soda and aerated water factories inspected	4	3	2

TABLE IV. (B.)

1.—SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN OF MOMBASA.

	Approximate Area.	Number of proclaimed Open Spaces.
1912	Island, 3,470 acres ...	1 public garden, area, 1·8 acres.
1913	Native town, 270 acres	1 public garden, area, 1·8 acres.
1914	Island, 3,360 acres ... European Town, 194 ac. Native Town, 275 acres Railway Town, 314 „	1 public garden, area, 1·8 acres.

2.—POPULATION.

	Number of Natives.		Number of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1912	Approx. 26,500		224	62	Approx. 26,786
1913	26,724		231	42	26,997
1914	9,500	14,000	200	45	24,545

TABLE IV. (B.)—*continued*.

3.—HOUSING.

Number of Houses :—	Number occupied by Europeans.		Number occupied by Natives.	
1912	91		954	
1913	100		930	
1914	105		890	

Number of huts :—

1912	3,244
1913	3,369
1914	3,423

4.—MOSQUITO PROTECTION OF HOUSES.

	1912.	1913.	1914.
Number of European houses wholly mosquito-protected ...	Nil	Nil	Nil
Number of European houses with mosquito room			
Number rendered during the year wholly mosquito-protected			
Number rendered during the year partially mosquito-protected			

5.—ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1912.	1913.	1914.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	...	...	10
Number of houses erected with sanction as to site, construction, and relation to other buildings	28	14	34
Number of huts erected with sanction as to site, construction, and relation to other buildings	157	125	78
Number of houses built without sanction	...	...	1
Number of huts built without sanction	...	...	...

ACTION TAKEN.

	Number of Prosecutions.		Number Demolished.	
	Huts.	Houses.	Huts.	Houses.
1912	...	...	85	...
1913	...	2	29	1
1914	4	2	135	...

TABLE IV. (B.)—*continued.*

6.—MARKETS.

	Total number.	Number paved and drained.	Number unpaved.
1912	3	2	1
1913	3	2	1
1914	3	2	1

7.—SLAUGHTER-HOUSES.

	Total number.	Number paved and drained.	Number unpaved.
1912	3	2	1
1913	2	2	...
1914	2	2	...

8.—LATRINES.

	For Males.		For Females.	
	Number.	Number of Seats.	Number.	Number of Seats.
Number of public latrines :—				
1912... ..	4	5	...	3
1913... ..	4	5	...	3
1914... ..	7	16	...	...
Number of new public latrines erected during the year :—				
1912... ..	3	3	...	3
1913... ..	...	...	...	...
1914... ..	...	...	...	...
Number of public latrines repaired during the year :—				
1912... ..	...	...	...	...
1913... ..	...	...	...	...
1914... ..	2	...	...	...
Number of public latrines demolished during the year :—				
1912... ..	...	...	...	...
1913... ..	...	...	...	...
1914... ..	2	10	...	...

	1912.	1913.	1914.
Number of private latrines	190	70	194
Average number of pails of nightsoil removed daily	310	173	180
Average number of soiled pails removed and clean pails substituted	...	...	...
Number of nightsoil men employed to clean latrines and remove excreta	18	15	15
	About	About	
Number of cesspools	2,000	2,000	Unknown.
Number of cesspools cleansed	10	63	
	About	About	
Number of new cesspools constructed during the year	125	167	82
	About	About	
Number of old cesspools abolished	40	6	18
Number of cesspools oiled regularly by Department	...	...	...

TABLE IV. (B.)—*continued.*

9.—REMOVAL OF REFUSE.

	1912.	1913.	1914.
Number of dustbins	9	112	220
Number of carts at work daily to remove refuse from streets	13	20	17
Amount of refuse removed daily	12 tons	20 tons	20 tons
Number of carts at work daily to remove refuse from yards and premises	1	1	1
Amount of refuse removed daily from yards and premises ...	1 ton	1 ton	1 ton
Number of men employed for moving refuse	104	200	152

10.—MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

	Daily average number of Pails of Excreta.			Daily average number of Cartloads of Refuse.			Daily average number of Cartloads of Slaughter-house and Market Offal.		
	1912.	1913.	1914.	1912.	1913.	1914.	1912.	1913.	1914.
Buried or trenched	...	...	...	...	...	...	...	...	...
Burnt	...	...	...	24	34	...	...	...	...
Thrown into sea	310	173	180	2	3	...	225 lbs.	10 lbs.	Discharged direct unmeasured.
Otherwise dealt with	...	...	...	14	...	42	...	...	...

11.—AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

	1912.	1913.	1914.
Thrown into sea	1½	2	3

TABLE IV. (B.)—continued.

12.—WATER SUPPLY.

Nature of Water Supply.	1912.	1913.	1914.
* Pipe-borne water:—			
Source (river, lake or spring)—			
Number of linear yards	...	...	7,352
Number of stand-pipes along roads	...	...	12
Number of stand-pipes in compounds and houses ...	...	...	10
*NOTE.—Kilindini Railway quarters only. Mombasa supply is from wells and rain water tanks only.			
Wells:—			
Public—			
Number	28	28	28
Number with pumps protected against surface water and mosquito-protected	...	...	...
Private—			
Number	93	96	96
Number protected against surface water and mosquito-protected	...	...	...
Tanks:—			
Public—			
Number underground	...	...	...
Number mosquito-protected and served by pumps ...	...	...	...
Number above ground	2	2	...
Number mosquito-protected	...	...	...
Number of 400 gallons capacity or less	2	2	...
Number above 400 gallons	...	...	...
Private—			
Number underground... ..	73	66	72
Number mosquito-protected	Unknown	Unknown	72
Number above ground... ..	20	20	36
Number mosquito-protected	Unknown	Unknown	36
Number of 400 gallons capacity or less	...	...	...
Number above 400 gallons	...	66	108
Nature of tanks:—			
Wood	...	...	...
Iron	25	8	36
Concrete	70	66	72
Barrels:—			
Number	About 1,000	100	Many hundreds. Impossible to estimate.
Number mosquito-protected	...	...	50%
† These tanks are privately owned and have been inaccurately described as "public".			

TABLE IV. (B.)—*continued.*

13.—DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry Drains :—		
Linear yards of masonry drains :—		
1912	360	...
1913	2,600	...
1914	3,032	1,493
Linear yards reconstructed during the year :—		
1912	...	...
1913	250	...
1914	50	32
Linear yards repaired during the year :—		
1912	50	...
1913	30	...
1914	...	47
Linear yards of new drains constructed during the year :—		
1912	30	...
1913	250	...
1914	432	493
Earth drains or ditches cleansed—Number of linear yards of ditches cleansed :—		
1912	...	...
1913	...	...
1914	1,100	...
Number of linear yards of ditches dug and graded :—		
1912	...	...
1913	30	...
1914	1,359	...
Average frequency of clearing ditches of grass :—		
1912	...	...
1913	Twice yearly	...
1914	Twice in the dry season and fortnightly in the rains.	...

14.—CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1912.	1913.	1914.
Number of square yards of weeds, grass and vegetation cut and removed	Approx. 150 acres	Approx. 1,000 acres	{ 111½ acres maintain'd clear.
Average frequency of clearance of rank vegetation on same area	6 months	6 months	
			At least twice yearly

TABLE IV. (B.)—*continued.*

15.—EXCAVATIONS AND LOW-LYING LAND.

	1912.	1913.	1914.
Number of pools and excavations	...	2	27
Number of excavations filled up	...	2	43
Amount of low-lying and marsh land raised and drained ...	...	2	393,659 ft.* raised and levelled.
Number of pools, marshes, etc., fish-stocked	...	...	
Number of cubic yards of material used for filling up pools and excavations	<i>Nil</i>	10	800
Number of persons fined for making new excavations ...	...	...	...
Average number of men daily employed in filling up pools, etc.	...	Casual labourers	Casual labourers.

* Does not include the areas treated by actual drainage, but refers to areas actually raised by dumping material in depressions.

16.—OILING.

	1912.	1913.	1914.
Number of drains oiled	A few hundreds Many barrels	A few hundreds Many barrels	1
Number of pools and excavations oiled			2
Number of tanks and barrels oiled			130
Average number of men daily employed for oiling drains, pools, and water tanks or barrels	8	8	Casual labour only.

17.—INSPECTIONS AND PROSECUTIONS.

	1912.	1913.	1914.
Number of Inspectors employed	2	2	2
Number of houses inspected	173	1,186	4,097
Number of houses where larvæ were found	Uncounted	10	523
Number of notices served to remove conditions causing the breeding of larvæ	...	55	132
Number of persons fined for having mosquito larvæ on premises	...	...	4
Number of notices served to remove insanitary con- ditions on premises	165	1,049	649
Number of persons fined for not removing insanitary conditions after notice	1	38	42
Number of soda and aerated water factories inspected	3	3	5

TABLE IV. (C.)

1.—SUMMARY OF ROUTINE SANITARY WORK DONE DURING
THE YEAR IN THE TOWN OF KISUMU.

	Approximate Area.	Number of proclaimed Open Spaces.
1912	...	...
1913	2½ miles radius.	1
1914	Do.	1

2.—POPULATION.

	Number of Asiatics and Natives.		Number of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1912	...	...	...	...	...
1913	6,310	182	66	24	6,582
1914	4,778	219	75	25	5,097

TABLE IV. (C.)—*continued*.

3.—HOUSING.

			Number occupied by Europeans.	Number occupied by Natives.
Number of Houses :—				
1912	...	...	...	...
1913	...	...	43	...
1914	...	...	51	1
Number of Huts :—				
1912	...	...	...	...
1913	...	...	...	768
1914	...	...	...	1,083

4.—MOSQUITO PROTECTION OF HOUSES.

	1912.	1913.	1914.
Number of European houses wholly mosquito-protected	...	4	6
Number of European houses with mosquito room	...	1	1
Number rendered during the year wholly mosquito-protected...	...	...	2
Number rendered during the year partially mosquito-protected	...	5	5

5.—ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1912.	1913.	1914.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	...	1	1
Number of houses erected with sanction as to site, construction, and relation to other buildings	...	6	12
Number of huts erected with sanction as to site, construction, and relation to other buildings	...	173	315
Number of houses built without sanction	...	...	...
Number of huts built without sanction	...	15	...

ACTION TAKEN.

				Number of Prosecutions.		Number Demolished.	
				Huts.	Houses.	Huts.	Houses.
1912	...	...	...	...	...	...	...
1913	...	...	...	...	...	20	...
1914	...	...	...	...	...	67	...

6.—MARKETS.

	Total number.	Number paved and drained.	Number unpaved.
1912	...	...	...
1913	1	1 drained and unpaved.	...
1914	1	1 do.	...

TABLE IV. (C.)—*continued.*

7.—SLAUGHTER-HOUSES.

	Total number.	Number paved and drained.	Number unpaved.
1912	...	...	...
1913	2	2	...
1914	2	2	...

8.—LATRINES.

	For Males.		For Females.	
	Number.	Number of Seats.	Number.	Number of Seats.
Number of public latrines :—			Public latrines are only provided for Asiatics and Africans, and are used in common by males and females.	
1912... ..	...	...		...
1913... ..	11	97		...
1914... ..	14	115		...
Number of new public latrines erected during the year :—				
1912... ..	...	...		...
1913... ..	2	14		...
1914... ..	3	18		...
Number of public latrines repaired during the year :—				
1912... ..	...	...		...
1913... ..	6	Not recorded		...
1914... ..	7	72		...
Number of public latrines demolished during the year :—				
1912... ..	...	...		...
1913... ..	...	...		...
1914... ..	...	...		...

	1912.	1913.	1914.
Number of private latrines	...	232	240
Average number of pails of nightsoil removed daily	...	520	589
Average number of soiled pails removed and clean pails substituted... ..	...	...	...
Number of nightsoil men employed to clean latrines and remove excreta	...	33	41
Number of cesspools	...	113	119
Number of cesspools cleansed daily	...	113	119
Number of new cesspools constructed during the year	...	7	6
Number of old cesspools abolished	...	8	7
Number of cesspools oiled regularly by Department	...	10	10

9.—REMOVAL OF REFUSE.

	1912.	1913.	1914.
Number of dustbins	...	169	612
Number of carts at work daily to remove refuse from streets	...	6	7
Amount of refuse removed daily (carts)	...	12	40
Number of carts at work daily to remove refuse from yards and premises	...	6	7
Amount of refuse removed daily from yards and premises (carts)	...	12	20
Number of men employed for removing refuse	...	31	29

TABLE IV. (C).—*continued.*

10.—MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse.			Daily average number of cartloads of slaughter-house and market offal.		
	1912.	1913.	1914.	1912.	1913.	1914.	1912.	1913.	1914.
Buried and trenched ...	...	520	589	...	...	25	...	...	1
Burnt ...	...	...	...	...	...	15	...	...	...
Thrown into sea ...	...	...	...	...	...	...	...	...	...
Otherwise dealt with ...	...	...	...	...	12 carts	...	...	1 cart	...

11.—AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY, AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

	1912.	1913.	1914.
...	...	Unrecorded.	2

12.—WATER SUPPLY.

Nature of Water Supply.	1912.	1913.	1914.
Pipe-borne water:—			
Source (river, lake or spring)—	Lake	Lake	Lake
Number of linear yards ...	...	10,162	10,636
Number of standpipes along roads ...	...	8	11
Number of standpipes in compounds and houses ...	...	62	65
Wells:—			
Public—			
Number ...	...	...	...
Number with pumps protected against surface water and mosquito-protected ...	...	...	...
Private—			
Number ...	...	...	...
Number protected against surface water and mosquito-protected ...	...	...	...
Tanks:—			
Public—			
Number underground ...	...	...	...
Number mosquito-protected and served by pumps ...	...	...	...
Number above ground ...	...	...	...
Number mosquito-protected ...	...	...	...
Number of 400 gallon capacity or less ...	...	...	...
Number above 400 gallons ...	...	...	...
Private—			
Number partially underground ...	...	2	...
Number mosquito-protected ...	...	...	...
Number above ground ...	...	127	184
Number mosquito-protected ...	...	129	130
Number of 400 gallons capacity or less ...	...	...	60
Number above 400 gallons ...	...	129	124
Nature of Tanks:—			
Wood ...	...	...	...
Iron, Galvanized ...	...	95	124
Concrete ...	...	34	60
Barrels:—			
Number ...	...	...	...
Number mosquito-protected ...	...	...	...

TABLE IV. (C.)—*continued.*

13.—DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry Drains :—		
Linear yards of masonry drains—		
1912	...	...
1913	930	...
1914	930	60
Linear yards reconstructed during the year—		
1912	...	...
1913	...	...
1914	...	...
Linear yards repaired during the year—		
1912	...	...
1913	...	...
1914	...	...
Linear yards of new drains constructed during the year—		
1912	...	...
1913	...	...
1914	...	60
Earth drains or ditches :—		
Number of linear yards of ditches cleaned—		
1912	...	...
1913	700 yds. daily	...
1914	...	...
Number of linear yards of ditches dug and graded—		
1912	...	...
1913	400	...
1914	108, 365	...
Average frequency of clearing ditches of grass—		
1912	...	...
1913	daily	...
1914	monthly	...

14.—CLEARANCE OF UNDERGROWTH, LONG GRASS
AND JUNGLE.

	1912.	1913.	1914.
Number of square yards of weeds, grass and vegetation cut and removed	...	2 sq. miles	2 sq. miles
Average frequency of clearance of rank vegetation on same area	...	twice a year	twice a year

15.—EXCAVATIONS AND LOW-LYING LAND.

	1912.	1913.	1914.
Number of pools and excavations	...	...	...
Number of excavations filled	...	20	25
Amount of low-lying and marsh land raised and drained	...	...	...
Number of pools, marshes, streams, etc., fish-stocked	...	...	...
Number of cubic yards of material used for filling up pools and excavations	...	No record.	No record.
Number of persons fined for making new excavations... ..	...	...	...
Average number of men daily employed in filling up pools, etc.	...	No record.	No record.

TABLE IV. (C.)—continued.

16.—OILING.

	1912.	1913.	1914.
Number of drains oiled	...	66	228
Number of pools and excavations oiled	...	130	319
Number of tanks and barrels oiled	...	24	12 tanks
Average number of men daily employed for oiling drains, pools and water-tanks or barrels	...	One man	6 men occasionally

17.—INSPECTIONS AND PROSECUTIONS.

	1912.	1913.	1914.
Number of Inspectors employed... ..	...	2	2
Number of houses inspected	...	5 daily	5 daily.
Number of houses where larvæ were found	...	6	4
Number of notices served to remove conditions causing the breeding of larvæ	...	3	4
Number of persons fined for having mosquito larvæ on premises	...	...	2
Number of notices served to remove insanitary conditions on premises	...	236	264
Number of persons fined for not removing insanitary conditions after notice	...	...	2
Number of soda and aerated water factories inspected... ..	...	1	1

TABLE V.

METEOROLOGICAL RETURN FOR THE YEAR 1914.

GOVERNMENT LABORATORY—NAIROBI.

	TEMPERATURE.						RAINFALL.			WINDS.		Remarks.
	Solar Maximum.	Minimum on grass.	Shade Maximum.	Shade Minimum.	Mean Range.	Mean.	Amount in inches.	Degree of Humidity.		General Direction.	Average Force.	
								9 a.m.	4 p.m.			
January	...	...	73·92	57·87	16·05	65·89	3·22	82·7	63·6	...	...	
February	...	...	78·3	57·54	20·76	67·92	0·54	74·3	53·1	...	...	
March ...	...	...	78·08	60·02	18·06	69·05	5·07	77·8	56·4	...	...	
April ...	...	...	76·80	57·32	19·48	67·06	11·17	82·8	61·5	...	...	
May ...	...	...	75·11	55·48	19·63	65·29	10·31	83·8	67·1	...	...	
June ...	...	...	76·55	53·00	23·55	64·77	0·12	79·2	60·2	...	...	
July ...	...	...	71·5	50·42	21·08	60·96	0·78	82·28	68·56	...	...	
August ...	...	...	72·5	50·8	21·7	61·65	1·50	80·8	66·34	...	...	
September	...	...	75·6	53·26	22·34	64·43	0·19	77·85	57·8	...	...	
October...	...	...	77·51	53·8	23·71	65·65	0·92	75·52	54·7	...	...	
November	...	...	74·33	55·85	18·48	65·09	3·77	79·27	63·3	...	...	
December	...	...	74·77	54·25	20·52	64·51	0·48	75·92	58·93	...	...	
							Total					
Year							38·07					
Average	...	...	75·41	54·96	20·45	65·19	3·17	79·35	60·96	...	...	

TABLE V.—*continued.*METEOROLOGICAL RETURN FOR THE YEAR 1914—*continued.*

KABETE FARM, NAIROBI.

MONTH.	TEMPERATURE.						RAINFALL.		WINDS.		Remarks.
	Solar Maximum.	Minimum on grass.	Shade Maximum.	Shade Minimum.	Range.	Max. and Min. Mean combined.	Amount in inches.	Degree of Humidity.	General Direction.	Average Force.	
January ...	...	...	74.0	53.0	...	63.5	4.02	...	...	...	
February ...	...	...	79.0	52.0	...	65.5	0.36	...	...	...	
March ...	...	...	77.0	56.0	...	66.5	9.09	...	...	...	
April ...	...	...	75.0	55.0	...	65.0	10.0	...	...	...	
May ...	...	...	71.0	56.0	...	63.5	7.18	...	...	...	
June ...	...	...	72.0	52.0	...	62.0	0.47	...	...	...	
July ...	...	...	69.0	50.0	...	59.5	0.81	...	...	...	
August ...	...	...	72.0	50.0	...	61.0	2.91	...	...	...	
September ...	...	...	74.0	52.0	...	63.0	0.20	...	...	...	
October ...	...	...	78.0	53.0	...	65.5	2.38	...	...	...	
November ...	...	...	73.0	56.0	...	64.5	6.80	...	...	...	
December ...	...	...	75.0	54.0	...	64.5	1.05	...	...	...	
Year Average	...	...	74.1	53.4	...	63.7	45.27 Total.	...	...	...	

MOMBASA.

MONTH.	TEMPERATURE.						RAINFALL.		WINDS.		Remarks.
	Solar Maximum.	Minimum on grass.	Shade Maximum.	Shade Minimum.	Range.	Max. and Min. Mean combined.	Amount in inches.	Degree of Humidity.	General Direction.	Average Force.	
January ...	...	...	85.0	76.0	...	80.5	1.71	...	...	...	
February ...	...	...	86.0	76.0	...	81.0	0.17	...	...	...	
March ...	...	...	87.0	78.0	...	82.5	1.34	...	...	...	
April ...	...	...	88.0	78.0	...	83.0	5.12	...	...	...	
May ...	...	...	82.0	74.0	...	78.0	8.15	...	...	...	
June ...	...	...	81.0	73.0	...	77.0	2.32	...	...	...	
July ...	...	...	80.0	71.0	...	75.5	2.40	...	...	...	
August ...	...	...	81.0	70.0	...	75.5	3.37	...	...	...	
September ...	...	...	82.0	72.0	...	77.0	1.35	...	...	...	
October ...	...	...	83.0	73.0	...	78.0	4.21	...	...	...	
November ...	...	...	85.0	75.0	...	80.0	1.60	...	...	...	
December ...	...	...	86.0	76.0	...	81.0	1.53	...	...	...	
Year Average	...	...	79.1	74.3	...	79.1	33.27 Total.	...	...	...	

TABLE V.—*continued.*
METEOROLOGICAL RETURN FOR THE YEAR 1913—*continued.*

KISUMU.

	TEMPERATURE.						RAINFALL.		WINDS.		Remarks.
	Solar Maximum.	Minimum on grass.	Shade Maximum.	Shade Minimum.	Range.	Max. and Min. Mean combined.	Amount in inches.	Degree of Humidity.	General Direction.	Average Force.	
January ...	...	...	88.08	68.0	...	78.0	3.96	...	...	...	
February ...	...	...	86.0	67.0	...	76.5	3.17	...	...	...	
March ...	...	...	84.0	68.0	...	76.0	5.05	...	...	...	
April... ..	...	...	84.0	67.0	...	75.5	2.79	...	...	...	
May ...	...	...	81.0	66.0	...	73.5	3.75	...	...	...	
June ...	...	...	81.0	65.0	...	73.0	3.60	...	...	...	
July ...	...	...	79.0	65.0	...	72.0	2.98	...	...	...	
August ...	...	...	80.0	64.0	...	72.0	7.09	...	...	...	
September ...	...	...	84.0	64.0	...	74.0	6.15	...	...	...	
October ...	...	...	86.0	66.0	...	76.0	1.72	...	...	...	
November ...	...	...	85.0	66.0	...	75.5	5.53	...	...	...	
December ...	...	...	88.0	66.0	...	77.0	3.07	...	...	...	
Year Average	...	...	83.8	66.0	...	74.9	48.86 Total.	...	...	...	

FORT HALL.

	TEMPERATURE.						RAINFALL.		WINDS.		Remarks.
	Solar Maximum.	Minimum on grass.	Shade Maximum.	Shade Minimum.	Range.	Max. and Min. Mean combined.	Amount in inches.	Degree of Humidity.	General Direction.	Average Force.	
January ...	...	...	79.0	56.0	...	67.5	4.46	...	...	...	
February ...	...	...	83.0	55.0	...	69.0	0.13	...	...	...	
March ...	...	...	80.0	53.0	...	66.5	4.30	...	...	...	
April... ..	...	...	82.0	53.0	...	67.5	8.36	...	...	...	
May ...	...	...	82.0	53.0	...	67.5	11.15	...	...	...	
June ...	...	...	83.0	52.0	...	67.5	0.57	...	...	...	
July ...	...	...	83.0	52.0	...	67.5	1.66	...	...	...	
August ...	...	...	82.0	51.0	...	66.5	0.42	...	...	...	
September ...	...	...	76.0	51.0	...	63.5	0.65	...	...	...	
October ...	...	...	83.0	53.0	...	68.0	1.70	...	...	...	
November ...	...	...	78.0	...	...	...	13.72	...	...	...	
December ...	...	...	81.0	...	...	...	1.64	...	...	...	
Year Average	...	...	81.0	52.9	...	67.0	48.76 Total.	...	...	...	

TABLE VI.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1914.

DISEASES.	EUROPEAN OFFICIALS.				NATIVE OFFICIALS.				GENERAL EUROPEAN POPULATION.				GENERAL NATIVE POPULATION.			
	Remaining in Hospital at end of 1913.	YEARLY TOTAL.		Total cases treated.	Remaining in Hospital at end of 1914.	Remaining in Hospital at end of 1913.	YEARLY TOTAL.		Total cases treated.	Remaining in Hospital at end of 1914.	Remaining in Hospital at end of 1913.	YEARLY TOTAL.		Total cases treated.	Remaining in Hospital at end of 1914.	
		Admissions.	Deaths.				Admissions.	Deaths.				Admissions.	Deaths.			Admissions.
INFECTIVE DISEASES:—																
Beri-beri													23	2	23	5
Cerebro-spinal fever											9	187	104	196	5	
Chicken-pox						6		6			27	591	6	618	51	
Cholera																
Dengue		1		1												
Diphtheria																
Dysentery		26		26	4	121		121	4	1	46	1	47	6	4	937
Endocarditis—Infective															1	1
Enteric		3		3		1		1		1	15	5	16		37	10
Erysipelas		2		2		3		3	1						5	3
Gonorrhoea		3		3	2	18		18			4		4		3	130
Influenza		6		6		53		55			2		2		1	36
Kala Azar																
Leprosy (a) Nodular														1	3	4
(b) Anæsthetic		2		2											1	1
Malaria (a) Tertian	3	37		40	1	228		228		1	11		12		16	954
(b) Quartan		5		5		54		54			1		1		104	104
(c) Estivo-autumnal		161		161	2	1072		1081	11		142	2	142	15	11	1297
(d) Chronic malaria						1		1							14	3
(e) Blackwater		2	1	2		1		1			4	2	4		4	1
Measles		1		1		1		5							1	69
Plague						6	5	6			1		1		44	40
Pneumonia		3		3		16	1	17	1		5	1	5	2	8	399
Rabies																
Relapsing fever															1	1
Rheumatic fever		3		3		55		55	1		10		10	1	8	170
Septicæmia		1	1	1							2		2		3	2
Trypanosomiasis (Sleeping sickness)															3	1
Small-pox															2	6
Syphilis (a) Primary						4		4							4	97
(b) Secondary						4		4			1		1		15	76
(c) Inherited															1	5
Tetanus															2	4
Tuberculosis	2		2			3		3			6	2	6		3	56
Undulant fever																
Whooping cough																
Yaws															20	
Yellow fever																
Other Infective Diseases		4		4		16		16							49	1
INTOXICATIONS:—																
Alcoholism															1	1
Morphinism						1		1								
Others															1	1
GENERAL DISEASES:—																
Anæmia		1		1		6		6	1		2		2		2	46
Anæmia—Pernicious																
Diabetes											1		1			
Exophthalmic goitre																
Gout		1		1							1	2	1	3		3
Leucocythæmia																
Hodgkin's disease																
Myxœdema																
Purpura																
Rickets															2	2
Scurvy															3	3
Other General Diseases		17		17	1	2		9			25		25	1	1	48
LOCAL DISEASES:—																
Diseases of the Nervous System:—																
Sub-section 1.																
Neuritis		6		6	1	1		1	1		1		1		8	9
Meningitis						1		1						1	3	4
Myelitis															3	3
Hydrocephalus																
Encephalitis																
Abscess of brain																
Congestion of brain															19	2
Sub-section 2.																
Apoplexy		1		1		3	1	3							3	3
Paralysis						2		2							10	3
Chorea										1			1			
Epilepsy						33		33							5	1
Neuralgia		2		2		18		18			1		1	1	60	61
Hysteria															4	4
Other Nervous Diseases		1		1	1	3		3			3		3	2	45	1
Sub-section 3.																
Mental Diseases—																
Idiocy															3	1
Mania															10	12
Melancholia		1		1											1	2
Dementia															16	23
Delusional insanity															2	3
Other Mental Diseases						2		2		1	4		5		18	18

TABLE VI.—RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1914—(contd.)

DISEASES.	EUROPEAN OFFICIALS.				NATIVE OFFICIALS.				GENERAL EUROPEAN POPULATION.				GENERAL NATIVE POPULATION.			
	Remaining in Hospital at end of 1913.	Admissions.	Deaths.	Total cases treated.	Remaining in Hospital at end of 1914.	Remaining in Hospital at end of 1913.	Admissions.	Deaths.	Total cases treated.	Remaining in Hospital at end of 1914.	Remaining in Hospital at end of 1913.	Admissions.	Deaths.	Total cases treated.	Remaining in Hospital at end of 1914.	Remaining in Hospital at end of 1913.
LOCAL DISEASES—continued:—																
Diseases of the Eye:—																
Conjunctivitis ...	6	6	2	49	51	7	7	7	1	5	153	158	2	6	6	1
Keratitis ...	1	1	1	3	3	1	1	1	1	1	15	16	1	12	14	...
Ulceration of cornea ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Iritis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Optic neuritis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cataract ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases ...	1	1	18	18	18	...	...	...	...	...	...	...	...	...	...	...
Diseases of the Ear:—																
Inflammation ...	5	5	7	7	7	1	1	1	1	13	13	11	...	...	...	...
Other Diseases ...	2	2	1	82	83	1	1	1	1	28	28	28	...	...	...	...
Diseases of the Nose:—																
Diseases of the Circulatory System:—																
Pericarditis ...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...
Endocarditis ...	...	...	...	...	...	...	...	...	...	...	...	9	4	9	...	...
Valvular Mitral ...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...
Aortic ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tricuspid ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pulmonary ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Arterial sclerosis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Aneurism ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases ...	4	4	...	...	...	2	2	2	2	12	12	1	12	...	...	...
Diseases of the Respiratory System:—																
Laryngitis ...	...	...	...	...	...	1	1	1	1	4	4	4	...	...	...	...
Bronchitis ...	21	21	4	217	221	10	10	10	2	7	400	4	407	9	...	...
Broncho-pneumonia ...	...	...	...	...	...	2	2	2	2	1	164	36	165	2	...	...
Abscess of lung ...	...	...	...	...	...	...	...	...	...	...	...	3	2	3	...	...
Gangrene of lung ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Emphysema ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pleurisy ...	3	3	1	16	17	2	2	2	2	4	57	2	61	1	...	...
Empyema ...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...
Other Diseases ...	2	2	1	32	33	1	1	1	1	43	43	1	43	1	...	...
Diseases of the Digestive System:—																
Stomatitis ...	1	1	2	2	2	1	1	1	1	15	15	15	1	...	...	...
Caries of teeth ...	2	2	1	8	8	1	1	1	1	12	12	13	...	...	...	...
Glossitis ...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...
Sore throat ...	8	8	6	6	6	1	1	1	1	11	11	11	...	...	...	...
Inflammation of tonsils ...	19	19	1	23	23	10	10	10	10	29	29	29	...	...	...	...
Gastritis ...	8	8	1	46	47	8	8	8	8	29	29	30	...	...	...	...
Ulceration of stomach ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hæmatemesis ...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...
Dilatation of stomach ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Stricture of stomach ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dyspepsia ...	8	8	9	9	9	6	6	6	6	28	1	28	1	...	...	...
Enteritis ...	13	13	3	3	3	15	15	15	15	13	13	13	1	...	...	...
Appendicitis ...	1	2	1	3	1	5	6	6	6	1	1	6	...	...	...	...
Colitis ...	3	3	1	1	1	...	...	...	...	...	...	1	1	...	...	...
Ulceration of intestines ...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hernia ...	...	...	...	...	...	...	...	...	...	...	...	15	2	16	...	...
Diarrhoea ...	13	13	1	58	59	10	10	10	1	7	524	18	531	10	...	...
Constipation ...	3	3	42	42	42	...	...	...	...	...	...	1	45	46	1	...
Colic ...	7	7	41	41	41	1	1	1	1	92	92	93	...	...	...	...
Hæmorrhoids ...	7	7	45	45	45	9	9	9	9	10	10	11	...	...	...	...
Pancreatitis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hepatitis (Acute) ...	2	2	5	5	5	4	4	4	4	12	12	12	1	...	...	...
Abscess ...	...	...	...	...	...	...	...	...	...	...	...	13	3	13	...	...
Cirrhosis ...	...	...	...	...	...	...	...	...	...	...	...	4	1	4	...	...
Jaundice ...	3	3	...	...	...	...	...	...	...	...	...	7	7	...	...	...
Peritonitis ...	...	...	...	...	...	...	...	...	...	...	...	3	2	3	...	...
Ascitis ...	...	...	...	...	...	...	...	...	...	...	...	13	3	13	2	...
Other Diseases ...	5	5	17	17	17	3	3	3	3	51	51	51	...	...	...	...
Diseases of the Lymphatic System:—																
Splenitis ...	...	...	...	...	...	...	...	...	...	...	...	1	30	1	31	...
Inflammation of lymphatic gland ...	5	5	7	7	7	1	1	1	1	51	51	52	1	...	...	...
Suppuration of lymphatic gland ...	...	...	...	...	...	...	...	...	...	...	...	3	36	39	...	...
Lymphangitis ...	1	1	1	1	1	...	...	...	...	...	...	4	4	...	...	...
Elephantiasis ...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...
Other Diseases ...	1	1	...	...	...	...	...	...	...	...	...	13	13	1	...	...
Diseases of the Urinary System:—																
Acute nephritis ...	3	3	...	...	...	...	...	...	...	...	...	5	2	5	...	...
Bright's disease ...	1	1	...	...	...	...	...	...	...	...	...	15	4	15	...	...
Pyelitis ...	1	1	...	...	...	...	...	...	...	...	...	1	1	...	...	...
Calculus ...	1	1	...	...	...	...	...	...	...	...	...	2	2	...	...	...
Renal colic ...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...
Cystitis ...	3	3	1	1	1	3	3	3	3	5	5	5	...	...	...	...
Vesical calculus ...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...
Suppression ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hæmaturia ...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...
Chyluria ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases ...	...	...	...	...	...	...	...	...	...	...	...	6	6	...	...	...

TABLE VII.

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1914.

DISEASES.	EUROPEAN OFFICIALS.		NATIVE OFFICIALS (including Asiatics).		EUROPEAN GENERAL POPULATION (NON-OFFICIALS).		GENERAL NATIVE POPULATION.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Infective Diseases :—								
Beri-beri	...	...	...	...	...	...	70	...
Cerebro-spinal fever	...	...	...	...	...	...	28	10
Chicken-pox	...	...	...	...	...	...	216	1
Cholera	...	...	...	...	...	...	...	...
Dengue	...	...	...	...	...	...	1	...
Diphtheria	...	...	...	...	...	...	...	...
Dysentery	7	...	14	...	9	8	1,456	169
Endocarditis—Infective	...	...	...	...	...	...	...	...
Enteric fever	2	...	...	...	2	1	3	...
Erysipelas	...	...	...	...	2	...	4	...
Gonorrhoea	1	...	16	...	22	...	696	17
Influenza	...	...	1	...	...	...	438	8
Kala Azar	...	...	...	...	...	...	...	...
Leprosy (a) Nodular	...	...	...	...	...	...	4	1
(b) Anaesthetic	...	...	...	...	...	...	4	1
Malaria (a) Tertian	10	...	102	...	161	49	4,657	548
(b) Quartan	8	...	...	...	2	1	4	...
(c) Estivo-autumnal	23	4	298	...	4	15	4,366	785
(d) Chronic malaria	...	...	...	...	...	...	50	6
(e) Blackwater	1	...	...	...	4	...	4	...
Measles	...	...	...	...	1	...	38	19
Plague	...	...	...	...	...	...	2	...
Pneumonia	...	...	...	...	2	2	143	24
Rabies	...	...	...	...	...	...	...	...
Relapsing fever	...	...	...	...	...	...	...	...
Rheumatic fever	1	...	15	...	6	3	681	122
Septicæmia	1	...	...	...	2	...	...	...
Trypanosomiasis (Sleeping Sickness)	...	...	...	...	...	...	1	...
Small-Pox	...	...	...	...	...	...	2	...
Syphilis (a) Primary	1	...	1	...	6	1	228	39
(b) Secondary	...	...	2	...	5	...	500	103
(c) Inherited	...	...	1	...	...	...	22	12
Tetanus	...	...	...	...	...	...	3	...
Tuberculosis	...	...	1	...	1	...	50	12
Undulant fever	...	...	...	...	...	...	...	...
Whooping cough	...	...	...	...	2	...	7	3
Yaws	...	...	...	...	...	2	60	32
Yellow fever	...	...	...	...	...	...	...	...
Other Infective Diseases	...	...	...	...	...	...	75	6
Intoxications :—								
Alcoholism	...	...	...	...	3	...	1	...
Morphinism	...	...	...	...	...	...	7	...
Others	...	...	...	...	...	...	...	...
General Diseases :—								
Anæmia	3	1	11	...	1	6	232	78
Anæmia-Pernicious	...	...	...	...	...	...	...	...
Diabetes	...	...	...	...	...	...	1	1
Exophthalmic Goitre	...	...	...	...	...	...	...	2
Gout	...	...	...	...	...	...	2	...
Leucocythæmia	...	...	...	...	...	...	...	...
Hodgkin's Disease	...	...	...	...	...	...	...	...
Myxœdema	...	...	...	...	...	...	...	...
Purpura	...	...	...	...	...	...	4	...
Rickets	...	...	...	...	...	...	2	2
Scurvy	...	...	3	...	...	...	41	...
Other General Diseases	11	1	35	...	35	17	348	55
Local Diseases :—								
Diseases of the Nervous System	25	...	116	...	25	27	3,535	182
Mental Diseases	...	...	...	...	...	...	2	...
Diseases of the Eye	5	...	92	...	21	5	2,978	905
" " Ear	21	5	47	...	15	6	1,095	195
" " Nose	16	...	110	...	6	...	1,354	51
" " Circulatory System	1	...	6	...	8	1	59	6
" " Respiratory System	39	1	308	...	37	36	10,624	1,095
" " Digestive System	116	9	621	...	182	113	17,329	2,195
" " Lymphatic System	5	...	24	...	7	1	778	47
" " Urinary System	...	...	5	...	3	...	65	8
" " Generative System	5	...	12	...	14	39	452	185
" " Organs of Locomotion	13	...	61	...	21	4	2,423	174
" " Connective Tissue	13	...	35	...	16	5	1,932	140
" " Skin	47	3	181	...	64	17	6,263	865
Injuries :—								
General	1	...	...	...	3	...	49	21
Local	50	...	364	...	89	16	25,615	2,070
Surgical Operations	...	...	...	...	5*	...	19*	...
Tumours	2	...	...	...	...	1	35	6
Malformations	...	...	...	...	...	...	...	1
Poisons	2	...	2	...	15	1	45	3
Parasites-Animal	6	...	12	...	8	...	894	449
TOTAL	436	24	2,496	...	894	377	90,978	10,654

* Recorded under respective Diseases.

TABLE VIII.

EUROPEANS.

RETURN OF INFECTIVE DISEASES TREATED AT THE VARIOUS HOSPITALS AND DISPENSARIES IN THE PROTECTORATE DURING 1914.

DISEASES.		Mombasa.	Malindi.	Lamu.	Shimba Hills.	Nairobi.	Machakos.	Makindu.	Naiyasha.	Eldoret.	Marakwet.	Maerich.	Elidama Ravine.	Londiani.	Nakuru.	Kisumu.	Mumias.	Nandi.	Kisumu.	Gobwen.	Vote.	Serenli.	Fort Hall.	Embu.	Meru.	Nyeri.	Kitui.	Total.
Cerebro-Spinal Fever	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dengue	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dysentery	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaria	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Blackwater Fever	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Plague	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculosis	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Yaws	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mumps	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

N.B.—This Table only gives the numbers *actually* treated at Government Institutions.

TABLE VIII.
NATIVES (INCLUDING ASIATICS).
RETURN OF INFECTIVE DISEASES TREATED AT THE VARIOUS HOSPITALS AND DISPENSARIES IN THE PROTECTORATE DURING 1914.

DISEASES.	Memba.	Shimba Hills.	Malindi.	Lamu.	Natrol.	Machakos.	Makindu.	Kyambu.	Nakuru.	Londoni.	Railway.	Surveys.	Natasha.	Eldoret.	Kidania Ravine.	Kabarnet.	Maerich.	Marakwet.	Kisumu.	Mumias.	Nandi.	Kericho.	Fort Hall.	Rambu.	Meru.	Nyeri.	Rhet.	Total.
Beri-beri	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	93
Cerebro-spinal meningitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Chicken-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	225
Dysentery	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	163
Enteric fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	813
Leprosy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Malaria	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,717
Blackwater fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	144
Measles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	38
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
Sleeping sickness	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
Tuberculosis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14,540
Yaws	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
Mumps	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	130
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	47
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	42
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	123
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	112
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	—
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	51

N.B.—This Table only gives the numbers *actually* treated at Government Institutions.

TABLE IX.

TABLE SHOWING DENTAL TREATMENT DURING 1914.

RESULT OF EXAMINATION OF CHILDREN IN THE EUROPEAN SCHOOL.

Of a total of 139 children examined, only 14 were passed as having sound teeth, that is, non-decayed or sound stopped teeth.

The remainder gave a return as follows :—

26	children, ages	5-7	...	109	decayed teeth of which	5	were permanent.
62	"	"	8-12	...	253	"	"
87	"	"	13-17	...	100	"	"
				Total	...	462	"
					"	"	"
					"	"	"
					"	151	"

Of the 139 children 14 showed that great care was being taken, 10 showed absolute neglect, the remainder a fair amount of cleanliness.

NUMBER OF OFFICIALS, WIVES AND CHILDREN, AND ASIATICS, &c.

	Total for year.
Appointments ...	904
Officials ...	307
Wives and Children ...	119
Asiatics, &c. ...	8
Total Official Patients ...	434

OFFICIALS, &c., ARRANGED ACCORDING TO RESPECTIVE DEPARTMENTS.

Medical ...	35
Railway ...	28
Administration ...	59
Land and Survey ...	66
Agricultural ...	23
Forestry ...	6
Public Works ...	44
Treasury ...	10
Police ...	26
Educational ...	1
King's African Rifles ...	2
Post and Telegraphs ...	21
Military ...	100
Others ...	13
Total ...	434

TABLE IX.—*continued.*TABLE SHOWING DENTAL TREATMENT DURING 1914—*continued.*

The following conditions were treated :—

	Total for year.					
Caries simplex ...	...	...	...	...	...	483
Pulpitis ...	...	...	...	...	...	136
Dento-alveolar abscess	...	...	...	...	...	166
Odontalgia ...	...	...	...	...	...	9
Periostitis ...	...	...	...	...	...	16
Pyorrhœa ...	...	...	...	...	...	89
Erosion ...	...	...	...	...	...	51
Polypus of pulp	...	...	...	...	...	8
Polypus of mucosa	...	...	...	...	...	7
Exostosis ...	...	...	...	...	...	1
Stomatitis ...	...	...	...	...	...	19
Antrum disease	...	...	...	...	...	1
Gingivitis acuta	...	...	...	...	...	12
Necrosis of jaw	...	...	...	...	...	2
Fractures—						
Dents... ..	...	...	...	...	...	10
Jaw	...	...	...	...	...	2
Gangrene of pulp	...	...	...	...	...	3
Total	...	...	...	...	...	1,015

TREATMENTS.

	Total for Year.					
Extractions	...	...	...	...	...	182
Conservative :—						
Gold	...	...	...	...	...	7
Synthetic porcelain	...	...	...	...	...	18
Cement	...	...	...	...	...	152
Amalgam Ag. ...	...	...	...	...	...	217
Amalgam Cu. ...	...	...	...	...	...	28
Cement and Amalgam...	...	...	...	...	...	109
Oxyphos. of Cu.	...	...	...	...	...	15
Calxine	...	...	...	...	...	13
P.G.P.	...	...	...	...	...	2
T.G.P.	...	...	...	...	...	156
T.G.P. with Arsenic dressing not rec.	...	...	...	...	...	18
Root fillings ...	...	...	...	...	...	17
Cleaning scaling	...	...	...	...	...	88
Total	...	...	...	...	...	1,022

PROSTHETIC WORK.

	Total for Year.					
Crowns :—						
Gold	...	...	...	...	...	10
Porcelain	...	...	...	...	...	2
Pivots	...	...	...	...	...	14
Bridges	...	...	...	...	...	2
Dentures :—						
Gold and vulcanite	...	...	...	...	...	38
Repairs :—						
Gold and Vulcanite	...	...	...	...	...	49
Total	...	...	...	...	...	115

APPENDIX I.

EAST AFRICA PROTECTORATE.

SPECIAL REPORT ON DYSENTERY, DIARRHOEA, AND DISEASES
SIMULATING THEM, BY DR. J. O. SHIRCORE.

The total number of admissions at the Native Hospital, Mombasa, for the year 1914 from all causes is 2,125; of these some 585 cases are recorded as suffering from dysentery, diarrhoea and helminthic diseases; that is 27·53 per cent., or well over one quarter.

1914.	DYSENTERY.		DIARRHOEA.		HELMINTHIC DISEASES.	
	Inpatients.	Died.	Inpatients.	Died.	Inpatients.	Died.
January	8	2	14	—	2	—
February	8	—	10	—	—	1
March	16	1	6	—	3	3
April	22	7	8	—	2	3
May	24	3	15	—	2	1
June	7	3	16	—	—	1
July	3	1	9	1	1	1
August	5	4	23	—	—	1
September	9	8	12	—	6	1
October	11	5	3	—	39	4
November	69	36	10	—	25	7
December	81	23	9	—	8	4
TOTAL	263	93	135	1	88	27

The above table gives the monthly incidence of each of these conditions, but attention is directed to the months of September, October and November, and in particular to October, when somewhat regular microscopic examination of the faeces of inpatients was undertaken. To contrast the results of these examinations in a clearer fashion the ratios during these months are given side by side.

SEPTEMBER.			OCTOBER.			NOVEMBER.		
Dysentery.	Diarrhoea.	Helminthic.	Dysentery.	Diarrhoea.	Helminthic.	Dysentery.	Diarrhoea.	Helminthic.
9	12	6	11	3	39	69	10	25
21		6	14		39	79		25

There is no doubt that a good many of the cases diagnosed haphazard, without examination of the faeces, as dysentery are not so at all, and are in reality victims of helminthic invasion.

The tables below gives the result of the first 100 examinations of these natives of indigenous races, complaining of intestinal troubles, admitted into or attending hospital.

Evidence of Helminthiasis.
83 per cent.

Not found.
17 per cent.

Of the positive the percentages of the different ova of parasitic worms found are as follows :—

Ankylostomes	...	...	...	46 per cent.
Ascaris Lumbricoides	...	...	...	44 "
Tricocephalus Dispar	...	...	...	43 "
Tænis Saginata	...	...	...	29 "
Schistosomum Mansoni	...	...	...	5 "
Oxyuris Vermicularis	...	...	...	2 "
Strongloides Stercorelis	...	...	...	3 "

Multiple infective are very frequent :—

Single	...	...	...	34.92 per cent.
Double	...	...	...	23.73 "
Triple	...	...	...	20.48 "
Quadruple	...	...	...	10.84 "

The chief single infections are *Ascaris Lumbricoides* and Tapeworm.

The more common double infections are :—

- (1) *Ascaris Lumbricoides* and Tridispar, and
- (2) *Ankylostoma Duodenale* and Tridispar.

The most frequent triple combination is Hookworm, *Ascaris Lumbricoides* and Tridispar.

The necessary preventive measures are obvious. The essential points of fundamental details are :—

(1.) *Food Supplies.*—This includes proper attention to slaughter-houses; the disposal of offal from these sources; the inspection of meat; the cleanliness of markets where food, especially meat and vegetables, are exposed for sale; sanitary condition of cattle byres and dairies, and the distribution of milk in properly protected receptacles.

(2.) *Suitable Latrines.*—Cleanliness of latrines, disposal of night soil and efficient cleansing of buckets are of high importance.

(3.) Campaign against flies, which must also be considered in their relationship to Nos. 1, 2 and 5.

(4.) *Water.*—A pipe-borne water supply is very necessary. The present sources of water supplies for natives play an important part as predisposing factors with reference to the diseases concerned.

(5.) *Refuse Disposal.*—Destruction of rubbish and putrifying vegetable matter.

(6.) *Drainage.*

25th January, 1915.

(Signed) J. O. SHIRCORE.

APPENDIX II.

EAST AFRICA PROTECTORATE.

MEDICAL DEPARTMENT.—SANITATION DIVISION.

INSTRUCTIONS REGARDING THE SANITATION OF CAMPS AND THE
TREATMENT OF WATER FOR DRINKING.

1. It is the duty of Medical Officers in charge of units to advise the Officers in charge of units on all matters concerning the prevention of disease and the physical efficiency of the troops.

The responsibility of carrying out such recommendations rests with the Officers Commanding concerned.

2. *Camping Grounds and Buildings Selected.*—The Sanitary Officer or Medical Officer detailed for the purpose will accompany the Staff Officer appointed to select buildings or camping grounds for the use of troops, and will examine into the sanitary conditions of towns and buildings which it is proposed to occupy, and near which a force is to encamp.

As far as possible the selection of ground, if it be in proximity to swamps, should be up wind.

3. *Arrangement of Camps.*—Except under the strictest military necessity, no latrine should be within 100 yards of any source, or place of storage, of water used for drinking or cooking, any kitchen or slaughter place, or place for the storage of food of any kind, or within 100 yards of any dwelling used by troops.

4. *Latrines.*—No latrine should be within 100 yards of the camps. A special place should be selected down wind from the camp, and the strictest care exercised that no other locality be used for this purpose.

Latrine trenches should be 18 inches deep and 18 inches broad, and the deposited matter should be covered with fresh earth daily. Fresh trenches should be dug, and used in rotation.

The trenches should, if possible, be screened, and the place indicated by flags.

Every man using a latrine should be careful to deposit his urine and excrement in the bottom of the trench, and to cover it with some earth; this is a most important precaution, and the most efficacious method in preventing the breeding of flies, and possible subsequent food contamination.

Should it be necessary to retain a urine receptacle in camp, a bucket or kerosine tin with a perforated bottom should be supplied; this should be filled with sawdust, and placed over a hole in the ground.

5. *Food Inspection.*—The Medical Officer in Charge should inspect all food supplies before issue to troops, and report to the Officer Commanding as to their condition; he should also advise the Officer Commanding regarding the quality and quantity of rations to be issued.

6. *Water.*—As water-borne diseases are so frequently spread by contamination of water supplies by the troops themselves, protection of the sources requires very constant attention.

All water should, if possible, be first filtered, and subsequently boiled before use. The addition of alum (6 gr. to the gallon) will generally cause the precipitation of all suspended matter.

Whenever possible the Medical Officer in charge should select the water that should be used by the troops; any supply that is considered to be unfit for use should be clearly marked by red flags, and if possible a sentry mounted to prevent its use.

Watering places for cattle and horses should not be above or near that authorised to be used by troops.

7. *Purification of Water.*—Water should be strained through blanket, canvas or sacking, stretched on an improvised wooden frame, the surface of the fabric being dusted over with ordinary wood ashes from a camp fire.

The addition of the alum before straining will help in the precipitation of suspended matter.

A simple way of securing quick clarification consists in partially submerging a barrel

with holes perforated in the bottom in the water. Within this a smaller barrel is placed with holes perforated near the top; the interspace between the barrels should be filled with clean sand, charcoal or wood ashes. The clean water can then be taken from the inner barrel.

An effective strainer may be improvised by boring a small hole in the bottom of a barrel, and placing in it 3 inches of gravel, 12 or 15 inches of sand, and 3 inches of wood ashes on the top, and the water poured into the barrel and drawn off through the hole.

N.B.—The cleansing material must be frequently renewed.

8. *Scavenging*.—All camps should be kept scrupulously clean, and no refuse of any kind permitted to be retained in the camps. All such material should be removed and deposited as far from the troops as possible.

Refuse, stable litter, offal and carcasses should, whenever possible, be burnt. In standing camps incinerators should be improvised to facilitate this.

In other cases they should be buried as far from camps as possible, as the flies that breed in collections of excreta, refuse, etc., are a constant danger on account of their ability to transmit diseases.

Burning of this material is often difficult to accomplish, but with a little ingenuity and trouble it can be made to burn. Shallow trenches should be made leading to the bottom of the mass to be burnt; these trenches act as draught holes, and so help the burning. Carcasses are difficult to dispose of; the simplest method of dealing with them is to disembowel them, bury the entrails and inside parts, and stuff the rest of the carcass with grass or other rubbish, and set fire to it. By so doing sufficient of the mass will be scorched to prevent a nuisance.

9. *Refuse Destructor, etc.*—Incinerators of a simple form can be made by digging shallow trenches intersecting each other at right angles, each trench 9 in. deep by 9 in. wide, length about 5 feet; where they intersect, a chimney or shaft 3 ft. high and 3 ft. in diameter must be built up of turf, sods, brick, or clay. Care must be exercised in providing sufficient air holes in all cases.

The use of iron bars, or bands placed across the shaft to form a grate will be of great assistance. Ant heaps can often be adopted as incinerators, or the material of which they are composed can be used as a substitute for brick.

Alternative type of incinerator are a horse-shoe shaped mound of earth or sods, so arranged as to place the mouth to the windward side, or in a circular, shallow saucer-like depression dug out from the ground 10 ft. in diameter and about 2 ft. deep. The whole should be lined with stones, and a wall built around it to exclude surface drainage. In the centre of the pit a cairn of stones should be built up 2 ft. higher than the surrounding wall in order to create a draught. A fire of dry wood or brushwood must be started, and after it is well burning refuse should be added.

N.B.—In all cases the fires should be steadily fed, and not damped down by throwing on a large amount of refuse at one time.

10. *Stop Water from Kitchens and Ablution Places*.—This sullage and greasy water should be poured on to trenches suitably dug, the upper ends of which should be filled with twigs and brushwood. This acts as a strainer, catches the grease and soap, allowing the liquid to run away. Each day this greasy brushwood should be burnt and fresh supplies substituted.

11. *Standing Camps*.—Each day the sides of tents should be laced up, all kit taken out, shaken and aired; this permits the tent floor being also sweetened and aired.

As little food as possible should be kept within a tent.

12. *Water Bottles*.—It is the duty of the Medical Officer in charge to make every endeavour to ensure that the troops obtain a supply of pure boiled or sterilized water for their water bottles, and that impure water is not obtained on the line of march.

13. *Examination of feet*.—As far as other duty permits, the men's feet should be examined daily.

Blisters should be pricked, the feet cleaned, and socks shaken out.

If a clean pair of socks cannot be supplied, it is a good plan to put the left sock on the right foot and the right sock on the left foot.

14. *Quinine*.—Five grains per diem per man should be issued to all troops on active service.

(Signed) W. J. RADFORD, MAJOR, E.A.M.S.,

Nairobi,

Principal Sanitation Officer.

August 11th, 1914.

Approved.—A. D. MILNE, Director of Medical Service.

TREATMENT OF WATER FOR DRINKING.

1. Two sizes of canvas tanks are issued by the East Africa Medical Service, one 6 ft. by 6 ft. by 2 ft. 8 in., and the other 3 ft. by 3 ft. by 2 ft. 6 in. These, when filled to within about six inches of the top, hold about 500 and 100 gallons respectively.

2. Erect tank as close as possible to the water supply. It is advantageous to strain water through Americani to remove coarse suspended matter.

3. To treat 500 gallons, take half an ounce (say dessert-spoonful) of bleaching powder (chloride of lime), add a little water, and rub into a paste. Stir till quite smooth. Fill the tin or cup in which the paste has been made with water, stir, allow lumps to settle, and pour off the milky liquid into the tank of water. Rub up the sediment and wash all into the tank. Stir water in tank and allow to stand *at least* 30 minutes. The water should have a faint, but distinct, smell of bleaching powder.

4. To destroy the bleaching powder after it has done its work add rather less than half its quantity of "Antichlor"—sulphite, bisulphite or metabisulphite of soda.

5. So far as possible tubes containing the requisite amounts of chemicals for treating 500 and 100 gallons of water will be issued, but there is no real difficulty in working from bulk as in above directions.

6. Rotary pump with flexible pipe fastened beneath a float is the best way of delivering water from tank. If bucket or can be used it must be hung on side of tank when not in use, and never allowed to be put down on ground.

7. The importance of water pickets, permits to water carriers, who alone may draw water, arrangements for proper distribution and prevention of waste, hours at which water will be issued, etc., will be apparent to Officers in Command of Camps.

V. H. KIRKHAM, CAPTAIN E.A.M.S.,

Analyst to the Forces.

Approved.—A.D. MILNE, *Director of Medical Service.*