

Annual medical and sanitary report / Uganda Protectorate.

Contributors

Uganda Protectorate. Medical Department.

Publication/Creation

London : [Government Printer], [1918]

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UGANDA PROTECTORATE.

ANNUAL

MEDICAL AND SANITARY REPORT

FOR THE

YEAR ENDED 31ST DECEMBER, 1918.

Published by Command of His Excellency the Governor.



ENTEBBE :

PRINTED BY THE GOVERNMENT PRINTER, UGANDA.

1919.

THE LONDON SCHOOL OF
TROPICAL MEDICINE
MEDICAL AND BACTERIAL REPORT



THE PRINCIPAL MEDICAL OFFICER'S OFFICE,

ENTEBBE, UGANDA,

27th June, 1919.

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 Uganda Protectorate for the year 1918, together with the Returns, etc., appended thereto.

I have the honour to be,

Sir,

Your obedient servant,

G. C. STRATHAIRN,

*Acting Principal Medical Officer,
Uganda Protectorate.*

THE CHIEF SECRETARY,

TO THE GOVERNMENT,

UGANDA PROTECTORATE.

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UGANDA PROTECTORATE.

ANNUAL MEDICAL REPORT

FOR THE

YEAR ENDED 31st DECEMBER, 1918.

SECTION I.

ADMINISTRATIVE.

(A) Medical Staff.

(1) THE SANCTIONED ESTABLISHMENT FOR THE MEDICAL STAFF WAS:—

EUROPEAN:

Principal Medical Officer.	8 Temporary Medical Officers.
Deputy Principal Medical Officer.	1 Dental Surgeon.
Medical Sanitary Officer.	1 Matron.
2 Senior Medical Officers.	2 Nursing Sisters.
14 Permanent Medical Officers.	2 European Dispensers.
1 Bacteriologist.	1 Laboratory Assistant.
2 Medical Officers of Health.	1 European Sleeping Sickness Inspector.

ASIATIC:

1 Assistant Surgeon.	21 Sub-Assistant Surgeons.
	7 Compounders.

NATIVE:

A varying number of Native Attendants including:—

Hospital and Dispensary Attendants.	Native Vaccinators.
Isolation Hospital and Camp Attendants, etc.	Plague Inspectors.
Clerks and Interpreters.	Sleeping Sickness Inspectors.
	Menial Staff.

(2) SHORTAGES ON ESTABLISHMENT:—

- 1 Permanent Medical Officer (restored to active list of the Army) for whole year.
- 1 Permanent Medical Officer seconded to R.A.M.C.
- 1 Medical Officer of Health for whole year.
- 4 Temporary Medical Officers do
- 5 Sub-Assistant Surgeons do
- 1 Sub-Assistant Surgeon for 7½ months.
- 1 Sub-Assistant Surgeon for 8 months.
- 1 Compounder for 10½ months.

(3) CLERICAL STAFF AT HEADQUARTERS:—

EUROPEAN:

Office Superintendent.	Assistant Clerk.
	Medical Storekeeper (Relief).

ASIATIC:

1 3rd Grade Clerk.	3 4th Grade Clerks.
--------------------	---------------------

NOTE:—The 3rd Grade Clerk resigned on 29th September, 1918, and his place was taken by a 4th Grade Clerk.

AFRICAN:

1 Native Clerk.

(4) APPOINTMENTS, CHANGES, ETC., IN STAFF:—

Appointments—Dr. C. A. Wiggins, D.P.M.O., to act as P.M.O. from 18th February, 1918, to 24th December, 1918 (proceeded on leave).

Dr. G. C. Strathairn, S.M.O., to act as D.P.M.O. from 1st August, 1918, to 24th December, 1918.

do to act as M.S.O. from 19th August, 1918, to 17th November, 1918.

do to act as P.M.O. from 25th December, 1918.

Dr. J. H. Reford, M.O., to act as S.M.O. and M.O.H. from 14th August, 1918.

Dr. J. H. Goodliffe, M.O., to act as D.P.M.O. from 25th December, 1918.

Miss E. M. Pratt, Nursing Sister, to act as Matron European Hospital, Entebbe, from 1st July, 1918, to 24th October, 1918.

Mrs. J. Brigham to be Relief Nursing Sister, 1st August, 1918.

Miss D. M. Ivers to be Relief Nursing Sister, 19th June, 1918.

Compounder Mela Ram, 28th February, 1918.

Mr. Sohan Singh Sandhu, 4th Grade Clerk, 1st April, 1918.

Mr. C. Moniz, 4th Grade Clerk, 1st October, 1918.

Secondments—Captain J. Currie, S.M.O., W.A.M.S., on secondment from Nigeria remained for service in Conquered Territory (Mwanza).

S. A. S. Hukam Singh, on secondment to E.A.P. returned to Protectorate Staff on 21st January, 1918.

S. A. S. Karta Ram, on secondment from E. A. P. returned there on 7th January, 1918.

Promotions—Dr. W. L. Webb was promoted to the Permanent and Pensionable Staff with effect from 13th August, 1916.

Mr. H. Flint, Chief Clerk to P.M.O., was appointed Office Superintendent with effect from 1st April, 1918.

Terminations of Appointments—Dr. N. S. Williams terminated his appointment on 2nd January, 1918.

Mr. H. G. Blackman, Medical Storekeeper, terminated his appointment on 7th May, 1918.

S. A. S. B. P. Das terminated his appointment on 10th April, 1918.

Resignations—Miss D. K. Freear, Relief Nursing Sister, on 18th March, 1918.

Mr. C. P. Lobo, 3rd Grade Clerk, on 29th September, 1918.

Retirements—Dr. A. C. Rendle retired on pension on 4th April, 1918.

Invalidings—Dr. Lionel Sells.

Mr. J. D. Buckland, Dispenser.

S. A. S. Mahommed Barkat Ullah.

Deaths—Lt. F. E. Westray, Dispenser, died whilst on active service in German East Africa on 19th December, 1918.

Leaves—The following were on leave during the period stated opposite their names:—

	From	To
Dr. A. D. P. Hodges, C.M.G., P.M.O. ...	9th March, 1918	End of year. <i>Retiring on pension</i>
Dr. C. A. Wiggins, D.P.M.O. ...	25th December, 1918	End of year
Dr. C. J. Baker, M.S.O. ...	22nd August, 1918	17th Nov., 1918 in B.E.A.
Dr. R. A. L. van Someren, S.M.O. ...	22nd May, 1918	5th Aug., 1918 in B.E.A.
Dr. A. C. Rendle ...	1st January, 1918	3rd April, 1918. <i>Retired on pension</i>
Dr. J. H. Reford ...	1st January, 1918	3rd Aug., 1918
Dr. C. H. Marshall ...	1st January, 1918	21st Jan., 1918
Dr. L. Sells ...	6th March, 1918	End of year, <i>Invalided</i>
Dr. R. E. McConnell ...	1st January, 1918	15th February, 1918
Dr. A. H. Owen ...	6th August, 1918	End of year
Dr. H. R. Neilson ...	19th September, 1918	8th Dec., 1918 in B.E.A.
Dr. W. L. Webb ...	1st January, 1918	18th Dec., 1918. <i>Seconded to R.A.M.C.</i>
Dr. H. L. Duke, Bacteriologist ...	27th September, 1918	End of year
Mr. G. S. Bateman, Dental Surgeon ...	3rd June, 1918	18th Aug., 1918 in B.E.A.
Matron B. Petherbridge ...	2nd August, 1918	19th Dec., 1918 in South Africa.

	From	To
Nursing Sister E. M. Pratt ...	25th October, 1918	End of year in India
Nursing Sister Hudson, <i>nee</i> Gordon ...	1st January, 1918	16th October, 1918
Mr. J. D. Buckland ...	9th February, 1918	End of year. <i>Invalided</i>
Mr. J. Stewart, Laboratory Assistant ...	1st January, 1918	30th April, 1918
Mr. P. J. L. Waters, Assistant Clerk ...	9th March, 1918	End of year
Mr. H. G. Blackman ...	1st January, 1918	7th May, 1918. <i>Appointment terminated.</i>
Sub-Assistant Surgeon Hukam Singh ...	25th April, 1918	10th October, 1918
Sub-Assistant Surgeon M. Barkatullah ...	1st January, 1918	17th April, 1918. <i>Invalided</i>
Sub-Assistant Surgeon Diwan Chand ...	30th September, 1918	End of year
Sub-Assistant Surgeon Mukand Ram ...	30th September, 1918	do
Sub-Assistant Surgeon B. P. Das ...	28th March, 1918	10th April, 1918. <i>Agreement terminated.</i>
Compounder Karm Dad ...	9th February, 1918	End of year
Compounder E. F. X. Fernandes ...	1st January, 1918	11th May, 1918

Of the above Dr. A. D. P. Hodges, C.M.G., retires on pension on completion of his leave and Dr. Lionel Sells and Mr. J. D. Buckland are invalided out of the service on completion of their period of leave.

(5) MEDICAL OFFICERS AND MEMBERS OF THE SUBORDINATE STAFF ENGAGED ON MILITARY DUTY DURING 1918.

Engaged solely on Military Duty outside the Protectorate:—

(a) EUROPEANS:

	From	To
Major H. B. Owen, D.S.O. ...	...	The whole year
Major G. J. Keane, D.S.O., R.A.M.C. ...	...	The whole year
Captain J. Currie, S.M.O., W.A.M.S. ...	...	The whole year
Captain G. D. H. Carpenter ...	1st January, 1918	19th November, 1918
Captain H. L. Duke, Bacteriologist ...	1st January, 1918	5th April, 1918
Captain A. H. Owen ...	1st January, 1918	7th May, 1918
Captain W. L. Peacock ...	1st January, 1918	18th December, 1918
Lieut. F. E. Westray, Dispenser ...	1st January, 1918	18th December, 1918 (<i>date of death</i>)

(b) ASIATICS:

Sub-Assistant Surgeon Hukam Singh	1st January, 1918	8th April, 1918
Sub-Assistant Surgeon Karta Ram	1st January, 1918	6th January, 1918
		(<i>seconded for service from E.A.P.</i>)
Sub-Assistant Surgeon Basant Singh	...	The whole year
Sub-Assistant Surgeon Ram Chand	...	The whole year
Compounder Ahmed Din	...	The whole year

Engaged on Civil and Military Duty in the Protectorate:—

(a) EUROPEANS:

	From	To
Lt.-Col. A. D. P. Hodges, C.M.G., P.M.O.	1st January, 1918	9th March, 1918 <i>went on leave</i>
Major C. A. Wiggins, D.P.M.O. ...	1st January, 1918	8th December, 1918 <i>went on leave</i>
Major G. C. Strathairn, S.M.O. ...	1st January, 1918	30th June, 1918
Capt. J. H. Goodliffe ...	1st January, 1918	30th January, 1918
Capt. B. Spearman ...	1st January, 1918	18th December, 1918
Dr. H. R. Neilson ...	{ 1st January, 1918	{ 8th January, 1918
	{ 21st April, 1918	{ 18th August, 1918
Matron B. Petherbridge ...	1st January, 1918	2nd August, 1918
Nursing Sister E. M. Pratt ...	1st January, 1918	25th October, 1918

(b) ASIATICS:

Assistant Surgeon B. T. Thadani	...	The whole year
Sub-Assistant Surgeon Achhru Ram	1st January, 1918	30th June, 1918
Sub-Assistant Surgeon Mangal Sain	1st January, 1918	8th January, 1918

The Clerical Staff at the Headquarter Office and Store have performed military duty in addition to their civil duties.

The shortage of Medical Officers with its consequent result is to be regretted, and there is little hope of any improvement during the coming year as so many of the staff are long overdue for leave. It has been considered advisable for reasons of health to allow as many as possible to take their leave so that there will be some chance of a more or less normal number of the staff ready for duty by the end of the year.

The Sub-Assistant Surgeons class has been greatly under strength.

The necessity for a better class of Native Attendant and consequently a higher paid one has been brought to our notice as a result of the German East Africa campaign, and we have taken the opportunity as far as our finances will allow of enrolling some of the African Native Medical Corps in our ranks.

At the outbreak of war Major G. J. Keane, D.S.O., enlisted and trained a body of Uganda Native boys as Medical Assistants, numbering some 260, and called it the "Uganda Native Medical Corps." This Corps proved itself of such use that Major Keane received instructions to increase his personnel to 1,000 and the name was changed to the "African Native Medical Corps." This Corps has, I understand, proved itself most useful throughout the East African campaign and has earned universal praise. Sixty per cent of its enlistments, which numbered about 1,650, were Baganda boys.

Their work in East Africa has proved that these boys are capable of being trained to a high degree of proficiency as Hospital Attendants, Vaccinators, Sanitary Inspectors, etc., as also for the more technical duties of Laboratory and Dental Assistants.

It will be necessary to start a training college for new boys and proposals will be submitted during the year for this very necessary work.

With regard to the necessity for this school, attention must be drawn to the need for very much improved hospital accommodation in the Protectorate. The native in the more civilized parts of the country expects more in the quality and quantity of hospital accommodation that he can at present get, and there is need for improvement. Such improvement will require improved Hospital Attendants.

(B) Financial.

Estimated Expenditure 1918-1919.

PERSONAL EMOLUMENTS.—		£
Principal Medical Officer and Deputy Principal Medical Officer	....	1,550
Clerical Staff, Medical Storekeeper, Packers, Messengers, etc.	....	1,335
Permanent Medical Officers	....	8,212
Temporary Medical Officers and Subordinate Staff for the suppression of Sleeping Sickness	....	1,876
Temporary Medical Officers and Subordinate Staff for dealing with Venereal Diseases	....	1,475
Temporary Medical Officers and Subordinate Staff for dealing with Epidemic Diseases	....	1,960
Dental Surgeon	....	453
Sanitation—		
Medical Sanitary Officer and Medical Officers of Health	....	1,730
Laboratory Division—		
Bacteriologist	....	550
Subordinate Staff	....	200
TOTAL PERSONAL EMOLUMENTS		£19,341
OTHER CHARGES.—		£
For Anti-Malarial measures (petty)	....	450
For the suppression of Sleeping Sickness	....	1,740
For dealing with Venereal Diseases	....	50
For dealing with Epidemic Diseases	....	1,925
Miscellaneous charges	....	2,265
TOTAL OTHER CHARGES		£6,430

HOSPITALS AND DISPENSARIES.—

PERSONAL EMOLUMENTS.—				£
Nursing Staff	....	....	....	835
Dispensers	....	....	....	450
Indian Medical Assistants	....	....	....	2,995
Native Attendants	....	....	....	790
Miscellaneous allowances	....	....	....	10
TOTAL PERSONAL EMOLUMENTS				£5,080
OTHER CHARGES.—				£
Medical and Surgical Stores	....	....	....	2,500
Upkeep and Equipment of Hospitals	....	....	....	900
Upkeep and Equipment of Laboratory	....	....	....	150
Miscellaneous Charges	....	....	....	888
TOTAL OTHER CHARGES				£4,438
TOTAL CHARGES.—				£
Personal Emoluments	....	....	....	24,421
Other Charges	....	....	....	10,868
TOTAL				£35,289

The Estimated Revenue for 1918-1919 was £355.

SECTION II.

PUBLIC HEALTH.

(A) Vital Statistics.

Table IIIA, page 10, shows the deaths under 23 main headings as returned by the Native Chiefs for the five districts which send in such returns. The births and still-births for the year under review are also given in the last two columns of this table.

Table IIIc shows the births and deaths during each year for the same five districts for the last six years.

Table IIIB shows the estimated native population, the number of births and deaths and the rates per thousand for the Provinces or Districts from which returns are made, and the percentage of still-births to total births.

These returns are not generally considered to be very accurate as regards diagnosis; but they form the only basis on which an estimate can be made of the state of the general public health, and they may be regarded as fairly accurate as regards their totals. Much can be done to improve these returns by tours of inspection of Medical Officers in charge of districts, and proposals have been submitted to allow of this being carried out. The importance of these statistics in estimating the effect of our measures for the improvement of the public health, *e.g.*, the Anti-Venereal Campaign, will justify the appointment in the near future of a Registrar General.

These tables continue to show a most unsatisfactory state of affairs. Small-pox has caused 4,191 deaths as against 1,977 last year and has become second in point of numbers amongst the causes of death.

Table IIIB shows that Bunyoro death rate per 1,000 is 39.57 and that the birth rate per 1,000 is only 14.50 and the percentage of still-births to total births is 35.12.

If we compare the figures in this table with those of last year it will be seen that, with the exception of the enormous rise in the Bunyoro death rate the rate per thousand figures are approximately the same. Bunyoro and Toro continue to show the worst figures with regard to still-births. The great cause of this is syphilis. The campaign against this disease has remained in abeyance during the year owing to shortage of staff.

Table IIIc which has been re-arranged this year to facilitate comparison brings out the following points. In the six years under review:—

- (a) The progressive and rapid decrease in the total number of births in Bunyoro.
- (b) A gradual increase in births in Ankole.

TABLE IIIA.—TABLE OF DEATHS FOR THE FIVE DISTRICTS OF BUGANDA, BUSOGA, BUNYORO, ANKOLE AND TORO FOR THE YEAR 1918. CAUSE OF DEATH.

COUNTY.	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26	
	C. S. M.	Fever.	Sleeping Sickness.	Plague.	Small-pox.	Measles.	Syphilis.	Gonorrhoea.	Dysentery.	Diarrhoea.	Leprosy.	Cancer.	Tuberculous.	Malaria or (Malar Fever)	Dropsy.	Chest Complaints.	Pile.	Paralysis.	Abscess.	Wounds and Injuries.	Snake bite.	Child-birth.	Other Causes.	Total Deaths.	Total Births.	Still-Births.																										
Buganda	14	3,070	—	177	1,155	18	766	1,035	84	158	124	255	350	414	140	1,422	138	787	119	31	29	189	3,685	14,160	10,287	1,082																										
Busoga	—	382	75	485	1,598	124	571	292	247	507	130	76	25	220	171	860	96	567	125	22	68	360	2,238	9,229	10,782	669																										
Bunyoro	192	119	5	—	1,110	1	119	178	131	244	12	79	157	108	43	579	49	144	52	17	5	50	1,106	4,500	1,649	893																										
Ankole	664	1,742	55	81	62	50	617	24	53	88	21	198	248	527	49	124	39	163	26	22	35	208	740	5,839	6,615	820																										
Toro	—	145	100	—	255	10	182	63	67	12	10	42	71	304	137	113	16	9	22	19	14	80	390	2,072	3,729	1,510																										
TOTAL	870	5,458	285	743	4,191	203	2,255	1,592	582	1,009	290	650	851	1,573	540	3,098	338	1,570	344	111	151	887	8,159	35,800	33,062	4,974																										

TABLE IIIB.—NATIVE POPULATIONS.—BIRTHS, DEATHS AND RATES PER 1,000, FOR PROVINCES OR DISTRICTS FOR WHICH RETURNS MADE, AND PERCENTAGE OF STILL-BIRTHS TO TOTAL BIRTHS.

1918	BUGANDA		BUSOGA		BUNYORO		ANKOLE		TORO		TOTAL	
	Population	...	Population	...	Population	...	Population	...	Population	...	Population	...
Population	803,775	...	255,686	...	113,771	...	267,325	...	129,604	...	1,570,161	...
Births (living).	10,287	...	10,782	...	1,649	...	6,615	...	3,729	...	33,062	...
Deaths.	14,160	...	9,229	...	4,500	...	5,839	...	2,072	...	38,062	...
Rates per 1,000	12.79	...	42.17	...	14.50	...	21.84	...	28.77	...	21.05	...
Still-Births per cent of Total Births and Still-Births	1,082 = 9.52 per cent.	...	669 = 5.84 per cent.	...	820 = 35.12 per cent.	...	820 = 11.92 per cent.	...	1,510 = 28.81 per cent.	...	4,974 = 13.07 per cent.	...

TABLE IIIc.

BIRTHS.

	BUGANDA.	BUSOGA.	BUNYORO.	TORO.	ANKOLE.
1913	8,971	10,992	5,527	5,156	5,638
1914	9,061	9,470	4,737	3,933	5,863
1915	8,319	9,634	3,081	3,739	5,577
1916	9,737	12,093	1,763	3,509	5,877
1917	8,818	11,132	1,680	3,029	6,214
1918	10,287	10,782	1,649	3,729	6,615
TOTALS	55,193	64,103	18,437	23,095	35,784

DEATHS.

1913	11,989	7,870	6,019	2,397	4,241
1914	10,949	7,770	4,852	1,729	4,290
1915	12,231	7,228	3,043	1,474	5,434
1916	12,802	7,771	2,280	1,645	5,079
1917	13,203	8,892	3,126	1,446	5,357
1918	14,160	9,229	4,500	2,072	5,839
TOTALS	75,334	48,760	23,820	10,763	30,240

STILL-BIRTHS.

1913	925	611	2,032	2,056	681
1914	976	360	1,566	1,659	622
1915	978	480	1,217	1,391	711
1916	968	548	841	1,473	787
1917	971	726	806	1,211	763
1918	1,082	669	893	1,510	820
TOTALS	5,900	3,394	7,355	9,300	4,384

(B) General Remarks.

Although the number of cases treated at Government Dispensaries shows a decrease from 70,236 cases with 967 deaths in 1917 to 60,281 cases with 824 deaths in 1918, the general health continues unsatisfactory.

The above totals do not include the cases treated at Military Hospitals.

2. The epidemic of small-pox which was reported last year continued to increase in the first half of the year and gradually died out towards the end of the year. The factors mentioned last year continued to be responsible for the continuance and spread of this disease, namely, recruiting for the King's African Rifles, shortage of Medical Staff, and inefficient lymph. Another factor must be noted in connection with this disease. The small amount of rain which fell in certain parts of the country caused a degree of famine that at one time promised to be serious. Shortage of food leads to two conditions that aid in the spread of this disease, namely, depressed vitality, and the necessity of people travelling long distances in search of food.

Dr. Collyns, the Medical Officer of Health at Kampala, who was responsible for controlling the outbreak of this disease around the K.A.R. Headquarters at Bombo, calls attention to the severity of the type experienced. "The disease at its height was of a virulent type and one particular form in which the pocks were hard, flattened, and scaly, not proceeding to suppuration and generally covering the whole body was almost invariably fatal. This form was called by the natives 'Kawali wa Mbajwe.'"

3. Cerebro-spinal meningitis which was raging at the beginning of the year decreased so much that few cases were reported at the end of the year; 68 cases with 43 deaths were treated during 1918 as compared with 469 cases with 347 deaths in 1917.

4. Influenza broke out in the Protectorate at the beginning of the last quarter and spread very rapidly through the country; 4,663 cases were treated in the Government Hospitals with 184 deaths. The Baganda coined a word for it, "Muyegu," which is taken from the root word meaning a storm. No deaths amongst Europeans occurred,

but there were a considerable number of deaths amongst Asiatics. There is no doubt that the insanitary conditions in which they live together with their habit of fleeing from an infected area when the illness commenced helped in producing fatal results. Circulars were issued giving directions as to care and treatment of cases.

5. In the three main townships of Entebbe, Kampala and Jinja it is pleasing to record there were no cases of plague and only six cases of cerebro-spinal meningitis as compared with 159 in 1917. Small-pox shows a large increase to 705 cases as compared with 460 in 1917. In this connection it must be remembered that the small-pox cases counted in these townships are those treated in the Isolation Camps for the township, and that the great majority come from the surrounding country within a radius of ten miles.

TABLE A.

	PLAGUE.						CEREBRO SPINAL MENINGITIS.						SMALLPOX.					
	1913	1914	1915	1916	1917	1918	1913	1914	1915	1916	1917	1918	1913	1914	1915	1916	1917	1918
ENTEBBE Cases	2	36	..	2	..	1	18	14	..	..	..	41	8	16	161
Deaths..	1	33	..	1	..	1	7	7	..	..	..	4	4	3	33
KAMPALA Cases	238	122	..	1	..	..	21	141	3	..	..	46	40	331	414
Deaths..	216	110	..	1	..	1	13	106	1	..	..	9	9	67	128
JINJA Cases	23	1	62	8	..	1	5	1	18	4	3	1	47	41	24	113	140
Deaths..	..	14	1	54	7	..	1	4	1	15	4	3	..	..	14	7	30	47
TOTALS Cases	23	1	302	166	..	4	5	2	57	159	6	1	47	128	72	460	705
Deaths..	..	14	1	271	150	..	3	4	2	35	117	4	..	..	27	20	100	213

The need for Isolation Hospital accommodation was pointed out last year, and it is hoped to start building in the coming financial year 1919-1920.

COMMUNICABLE DISEASES.

(1) MOSQUITO OR INSECT BORNE.

1. Blackwater Fever shows a decrease in 1918 to 29 cases with 4 deaths as against 46 cases with 7 deaths in 1917.

11 cases with 3 deaths were treated at the Church Missionary Society's Hospitals.

It is interesting in this connection to note the decrease in malaria here reported.

2. Relapsing Fever shows a decrease from 105 cases with 7 deaths in 1917 to 65 cases with 3 deaths in 1918.

3. Pyrexia of uncertain origin shows an increase from 2,653 cases with 8 deaths in 1917 to 3,333 cases with 10 deaths in 1918, while malaria decreases from 4,414 with 6 deaths in 1917 to 2,941 cases with 8 deaths in 1918.

In this connection I may mention that we have enrolled certain of the African Native Medical Corps, who have had some training in Military Laboratories during the last two years and whose skill in staining and diagnosing routine blood slides is wonderfully good.

4. *Trypanosomiasis*.—In Government Hospitals 15 cases with 8 deaths are reported. One occurred at Gulu in the Northern Province and 14 cases with 8 deaths are reported from Jinja in Usoga. Of these, 8 cases with 5 deaths were from a small outbreak on the Iganga road. Practically all supervision in connection with Sleeping Sickness preventive measures has been in abeyance since the outbreak of war and it is time that a Medical Officer was put in charge of these matters again. Fishing areas have been gazetted and require supervision. The Mpologoma area requires delimitation and persons living in the prohibited area should be removed. The amount of clearing necessary at ferries must be defined. It is essential that a medical man with practical knowledge of the bionomics of the fly should be detailed for this duty. This subject is dealt with at some length as the conditions which have existed during the past four years may lead to some recrudescence of the disease. In the Native returns a notable increase is returned by the Toro district where the deaths from this disease have risen from 4 in 1917 to 100 in 1918. (See Table B.)

TABLE B—SHOWING THE DISTRIBUTION OF DEATHS ATTRIBUTED TO SLEEPING SICKNESS IN COMBINED NATIVE AND OFFICIAL RETURNS SINCE 1905.

Year.	PROVINCES OR DISTRICTS.							Totals.
	Buganda.	Busoga.	Bunyoro.	Ankole.	Toro.	Nile Province.	County Unknown.	
1905	8,003	No record	No record	No record	No record	No record	No record	8,003
1906	5,304	849	369	..	..	..	..	6,522
1907	3,407	593	170	..	..	5	..	4,175
1908	1,723	1,478	461	..	..	..	..	3,662
1909	925	603	254	..	..	..	..	1,782
1910	527	698	277	37	..	7	..	1,546
1911	253	1,013	168	6	46	1	..	1,487
1912	82	747	84	11	5	..	3	932
1913	57	554	41	21	29	..	6	708
1914	24	354	15	65	8	..	..	466
1915	3	244	11	88	4	2	..	352
1916	2	155	7	37	8	..	..	209
1917 .. ..	..	118	8	84	4	13	2*	229
1918 .. ..	..	75	5	55	100	..	..	235
TOTAL ..	20,310	7,481	1,870	404	204	28	11	30,308

* In Sleeping Sickness Camp.

Dr. Duke, the Government Bacteriologist, examined some of the islands in the earlier part of the year and drew attention to the diminution of the fly that had occurred and was of opinion that this diminution was probably due to the great increase in the lake level which had taken place in 1917 and was gradually subsiding at the time of his visit. His views were confirmed by Dr. C. A. Wiggins and Dr. J. M. Collins, who visited these islands in September. Later in the year Dr. G. D. H. Carpenter, in an investigation that continued to February, 1919, while admitting that the diminution probably existed as described, showed that at the time of his investigation the fly were comparatively more numerous than in former years, and he also showed that the fly were more infective. With regard to this it should be noted that this latter statement is based on only one experiment. These islands under consideration have been depopulated since 1908. All these observers draw attention to the increase in the number of Buck (*Tragelaphus Spekei*) on these islands. The lake level has fallen consistently all the year.

2. INFECTIOUS OR EPIDEMIC DISEASES.

Beri-Beri.—Dr. R. E. McConnell describes a disease occurring in the Western Nile area (see Appendix II.) which may have some relation to this disease, although he is of opinion that it may be due to ankylostomiasis.

Cerebro-Spinal Meningitis.—In Isolation Camps 68 cases were treated with 43 deaths. (See also Sanitation Section). The continuation of severe epidemics in the Northern Province is referred to elsewhere. (Page 23).

Dysentery.—A slight increase as compared with last year is shown; 527 cases with 40 deaths are recorded. Of these 161 cases with 12 deaths occurred at Jinja and 98 cases with 23 deaths occurred in the Kampala Central Jail.

With the return of repatriated porters and soldiers from the East African Campaign, we may expect outbreaks of this disease which will require careful control.

Enteric Fever.—Eight cases with one death are recorded from Government Hospitals and one case from the C.M.S. Hospital at Fort Portal. (See Appendix 3 for a special report).

Erysipelas.—One case is recorded.

Gonorrhoea.—The figures show a decrease from 1,645 with 2 deaths to 1,105 cases with 2 deaths.

Influenza.—4,663 cases with 184 deaths are recorded. Of these the Central Jail at Kampala shows 226 cases with 10 deaths. (See Appendix IV for further details).

Leprosy.—12 cases are recorded, 3 nodular and 9 anæsthetic in 1918. The number of lepers in the Vugamira Leprosy Camp is 24.

Anthrax.—See Appendix No. V.

Measles.—39 cases are recorded of which 12 occurred in the Kampala Central Jail.

Plague.—Two cases with two deaths are reported in the Hospitals. In the native returns the Medical Sanitary Officer draws attention to the fact that Cerebro-Spinal Meningitis and Plague are constantly confused by natives.

TABLE C—SHOWING THE NUMBER OF DEATHS FROM PLAGUE ACCORDING TO NATIVE RETURNS INCLUDING RETURNS BY NATIVE INSPECTORS FOR THE LAST SIX YEARS.

DISTRICT	1918	1917	1916	1915	1914	1913
Buganda ...	177	238	220	227	340	568
Busoga ...	485	518	462	273	88	468
Bukedi ...	1,052	1,661	2,562	1,912	1,963	1,671
Teso ...	698	594	458	615	651	261
Lango ...	<i>no returns</i>	753	627	951	624	222
Bunyoro ...	nil	18	17	4	4	40
Toro ...	nil	48	4	2	21	...
Ankole ...	81	201	34	44	34	62
Nile ...			<i>no returns</i>			
TOTALS...	2,493	4,031	4,384	4,028	3,725	3,292

It is to be remembered that this return is based on native diagnosis and that only two cases of plague have been diagnosed by Medical Officers during the year.

A native considers any case of severe sudden illness with no obvious symptoms as one of "Kaumpuli" (Plague).

Pneumonia.—

Year	Cases	Deaths
1917	165	40
1918	139	27

Smallpox.—Admission to Government Isolation Hospitals.

Year	Cases	Deaths
1916	104	25
1917	992	230
1918	1,374	392

TABLE D—SHOWING THE NUMBER OF DEATHS FROM SMALLPOX ACCORDING TO NATIVE RETURNS INCLUDING RETURNS BY NATIVE INSPECTORS FOR THE PAST SIX YEARS.

DISTRICT	1918	1917	1916	1915	1914	1913
Buganda ...	1,155	569	111	537	20	10
Busoga ...	1,598	1,199	334	210	870	317
Bukedi ...	1,483	1,527	1,537	815	353	...
Teso ...	1,688	674	54	370	142	...
Bunyoro ...	1,110	191	...	1	...	7
Toro ...	266	2	5	4	4	...
Ankole ...	62	16	77	4	1	3
Lango ...	908		<i>no returns</i>			
Nile Districts ...			<i>no returns</i>			
TOTALS ...	8,270	4,178	2,118	1,941	1,390	337

The increase in the number of deaths from smallpox is due to the continuance of an epidemic that broke out last year (*see* pages 11 and 24).

Syphilis.—The admissions to Government Hospitals were:—

Year	Cases	Deaths
In 1917	4,383	16
In 1918	2,991	6

The special Anti-Venereal Campaign remained in abeyance all the year.

TABLE E—SHOWING THE NUMBER OF DEATHS DUE TO SYPHILIS ACCORDING TO NATIVE RETURNS FOR THE LAST SIX YEARS.

DISTRICT	1918	1917	1916	1915	1914	1913
Buganda ...	766	760	603	413	427	561
Busoga ...	571	557	539	465	426	435
Bunyoro ...	119	84	148	230	595	591
Ankole ...	617	534	631	725	593	498
Toro ...	182	151	128	135	161	202
TOTALS ...	2,255	2,086	2,049	1,968	2,202	2,287

Tuberculosis.—

Year.	Cases.	Deaths.	Year.	Cases.	Deaths.
1917	15	4	1918	8	1

Yaws.—

1917	659	0	1918	303	0
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3. HELMINTHIC DISEASES.

Cestoda ...	1918	...	25	1917	...	85
Nematoda ...	"	"	48	"	"	148

Helminthic diseases are very prevalent throughout the Protectorate and the above figures form no measure on which we can judge of their comparative frequency.

(C) European Officials.

The number of cases amongst European Officials on the sick list was 380, and no death occurred in Uganda.

In 1916 there were 480 cases with 1 death, 430 off duty.

" 1917 there were 383 cases with 2 " 359 "

" 1918 there were 380 cases with 1* " 319 " *(died in England).

Malaria accounts for 93 of these (24.47% of total cases).

There were 41 cases of Influenza, 3 cases of Blackwater Fever, 4 cases of Dysentery, 3 cases of Enteric Fever, and Digestive and Respiratory troubles account for 82 cases.

13 European Officials were invalided:—

(a) OUT OF SERVICE.

Carcinoma ...	...	1	Disease of the digestive system	1
			Mental disease	1

(b) RECOMMENDED LEAVE TO ENGLAND.

Neurasthenia ...	...	1	Amoebic dysentery	2	(1 died in England)
Debility ...	...	1	Circulatory affections	1	
Carcinoma ...	...	1	Tuberculosis	1	
Adenitis ...	...	1			

(c) RECOMMENDED LEAVE TO B.E.A. OR SOUTH AFRICA.

Blackwater Fever	1	Neurasthenia	1
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TABLE SHOWING THE CAUSES OF INVALIDING AMONGST EUROPEAN OFFICIALS DURING THE PAST SIX YEARS.

DISEASES	1918	1917	1916	1915	1914	1913
Blackwater Fever ...	1	1	1	—	1	1
Circulatory Affections ...	1	—	1	1	—	—
General Debility ...	1	1	1	—	—	—
Nervous and Mental Diseases ...	1	1	—	—	—	2
Neurasthenia ...	2	1	1	—	1	—
Tuberculosis ...	1	1	—	—	1	—
Leukaemia ...	—	—	—	—	1	—
Digestive Disorders ...	1	—	—	2	—	—
Carcinoma ...	2	1	—	—	—	—
Alcoholic Neuritis ...	—	1	—	—	—	—
Neuritis ...	—	1	—	—	—	—
Amoebic Dysentery ...	2	—	—	—	—	—
Adenitis ...	1	—	—	—	—	—
TOTALS ...	13	8	4	3	4	3

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES OF EUROPEAN OFFICIALS DURING 1918.

STATIONS.	Total Number of officials resident.	Average number resident.	Total number on sick list.	Total number of days on sick list.	Average daily number on sick list.	Percentage of sick to average number resident.	Average number of days on sick list for each patient.	Average sick time to each resident.	Total number invalided.	Percentage of invalidings to total residents.	Total deaths.	Percentage of deaths to total residents.	Percentage of deaths to average number resident.	Number of cases of sickness contracted away from station.
Bombo ..	..	..	..	..	..	..	..	No record.	..	..	..	..	..	..
Butiaba ..	5	3-00	7	44	0-12	4-00	6-2	14-6	1	..	..	..	..	2
Entebbe ..	102	46-60	78	599	1-64	3-52	7-6	12-8	1	..	..	..	..	12
Gulu ..	15	1-25	5	309	0-57	4-56	41-8	167-2	1	..	..	..	..	..
Hoima ..	2	2-00	1	1	..	..	..	..	..	..	..	..	..	..
Jinja ..	55	15-00	48	204	0-56	3-73	4-2	13-6	1	..	..	..	..	14
Kampala ..	87	33-40	99	185	0-50	1-49	1-8	5-5	3	3-44	..	..	..	6
Kitgum ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lira ..	10	1-01	15	72	0-19	18-80	4-8	71-2	..	..	..	..	..	3
Masaka ..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Masindi ..	45	4-10	11	58	0-15	3-65	5-2	14-1	1	..	..	..	..	5
Mbale ..	21	3-80	13	54	0-14	3-68	4-1	14-2	1	..	..	..	..	2
Mbarara ..	15	3-00	11	33	0-09	3-00	3-0	11-0	..	..	..	..	..	4
Namasagali ..	12	6-00	7	61	0-16	2-66	8-7	10-1	1	..	..	..	..	..
Soroti ..	8	2-38	24	23	0-06	2-52	0-95	9-6	..	..	..	..	..	12
TOTALS ..	377	121-54	319	1,543	4-23	3-48	4-84	12-69	13	3-44	..	..	..	60

(D) Native Officials including Asiatics.

There were 1,150 cases treated during the year with 10 deaths. Of these 985 were placed off duty.

The principal causes of sickness were:—

Influenza	...	213 cases with 8 deaths
Malaria	...	429 cases with 1 death
Blackwater Fever	...	5 cases
Dysentery	...	7 cases
Enteric	...	1 case
Digestive Disorders	...	118 cases
P. U. O.	...	129 cases

and one death occurred under the Respiratory Section.

Invalidings:—(a) Out of the service.

Corneal opacities ... 1 General debility ... 1

(b) Recommended leave.

Chronic Malaria ... 1

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES OF ASIATIC AND NATIVE OFFICIALS DURING 1918.

STATIONS.	Total number of officials resident.	Average number resident.	Total number on sick list.	Total number of days on sick list.	Average daily number on sick list.	Percentage of sick to average number resident.	Average number of days on sick list for each patient.	Average sick time to each resident.	Total number invalided.	Percentage of invalidings to total residents.	Total deaths.	Percentage of deaths to total residents.	Percentage of deaths to average number resident.	Number of cases of sickness contracted away from station.
Bombo ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Butiaba ..	9	7-00	9	280	0-76	10-85	31-11	40-00	1	..	..	..	..	..
Entebbe ..	90	72-00	170	1,131	3-09	4-29	5-65	15-70	..	..	4	4-4	5-5	10
Gulu ..	7	5-80	5	37	0-10	1-72	7-40	6-38	..	..	..	..	..	..
Hoima ..	3	3-00	6	70	0-19	6-33	11-66	23-23	..	..	..	..	..	..
Jinja ..	116	51-00	314	1,334	3-65	7-15	4-24	26-15	..	..	2	1-6	3-9	12
Kampala ..	112	59-60	201	1,067	2-90	4-89	5-30	17-90	1	..	1	..	..	..
Kitgum ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lira ..	7	2-72	15	54	0-15	5-14	3-60	19-85	..	..	..	..	..	..
Masaka ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Masindi ..	22	7-43	21	212	0-58	7-75	10-09	28-34	..	..	..	..	..	7
Mbale ..	14	8-16	14	124	0-33	4-04	8-85	15-19	..	..	1	7-1	12-2	..
Mbarara ..	6	4-85	13	19	0-05	1-03	1-46	3-92	..	..	..	..	..	1
Namasagali ..	36	24-00	150	702	1-92	8-00	4-68	29-24	..	..	1	2-7	4-1	..
Soroti ..	11	3-36	67	177	0-48	14-28	2-63	52-67	1	..	1	9-0	29-7	35
TOTALS ..	433	248-97	985	5,207	14-26	5-72	5-29	20-91	3	69	10	2-30	4-01	65

SECTION IV.

METEOROLOGY.

All available information under this head is embodied in the Blue Book.

The lake level records at Entebbe for the year are as follows:—

				<i>Highest.</i>	<i>Lowest.</i>
January	...	...	...	11·36	11·26
February	...	...	...	11·30	11·20
March	...	...	...	11·20	11·14
April	...	...	...	11·26	11·14
May	...	...	...	11·31	11·28
June	...	...	...	11·30	11·27
July	...	...	...	11·28	11·15
August	...	...	...	11·14	10·92
September	...	...	...	10·92	10·84
October	...	...	...	10·84	10·75
November	...	...	...	10·74	10·68
December	...	...	...	10·70	10·62

Note.—The zero of the gauge is 3686·53 feet above mean sea level.

SECTION V.

HOSPITALS AND DISPENSARIES.**Accommodation.**

The hospital accommodation remains as shown in last year's report.

There is great need for two motor ambulances (one for epidemic work and one for ordinary work) at Kampala, and one motor ambulance at Jinja.

In Kampala when smallpox was epidemic it was common to carry on a stretcher or hammock, for 8 to 12 miles, cases of smallpox in all stages of the disease, a state of affairs that is highly undesirable. There were three Isolation Camps at different parts of the suburbs, three, five and seven miles away respectively, from the Civil Hospital and Dispensary.

Good housing of the staff is so intimately bound up with the health and comfort and hence contentedness of the staff that attention is drawn to the necessity for permanent houses for Medical Officers at Soroti, Masindi, Gulu and Lira.

Next in urgency is the office of the Principal Medical Officer at Entebbe. At Kampala sooner or later a new Native Hospital will have to be built as well as the usual houses for Assistants and Attendants. At Jinja a large European Hospital and extra Native Hospital accommodation are needed, and a house for a Medical Officer of Health. At Mbale extra temporary native accommodation is urgent. I recommend temporary buildings as the removal of the station from its present site is under contemplation.

If sanction is obtained to start a Medical School then a house for a Superintendent, and offices, class rooms, and living rooms for students attending the school must be allowed for.

A comparatively large amount of scientific work has been done in the past by members of the Department. These papers are to be found in various Reports and Bulletins. Much might be done to stimulate scientific research amongst the local members of the profession and to improve the reputation of the service if we were allowed to publish such Reports locally.

TABLE I.—RETURN SHOWING THE MEDICAL STAFF AND THE PRINCIPAL MEMBERS OF THE SUBORDINATE STAFF.

Name and Qualifications.	Rank of Appointment	Where stationed on 31st December, 1918.	REMARKS.
A. D. P. Hodges, C.M.G., M.D. (Lond.), M.R.C.S., L.R.C.P. ..	Principal Medical Officer	On leave	Retired on pension
C. A. Wiggins, M.R.C.S., L.R.C.P., F.E.S.	Deputy P. M. O. ..	Do	En route via Khar-toum
G. C. Strathairn, M.B., CH.B., D.P.H. (Edin.) ..	S. M. O. ..	Entebbe	Acting P.M.O.
R. A. L. van Someren, M.D., CH.B., D.P.H. (Edin.) ..	Do	Kampala	
Major G. Lane, R.A.M.C. (S.R.), L.R.C.S., AND P. (Edin.), L.P.P.S. (Glas.)	....	..	* Restored to active list for period of war
J. H. Goodliffe, M.D., C.M. (Aberdeen)	Medical Officer ..	Entebbe	(Awaiting boat to proceed on leave)
J. H. Reford, B.A., M.D., B.CH., B.A.O., L.M. (Dub.), D.T.M. (Liverpool).	Do ..	Jinja	Ag. S.M.O. & M.O.H.
C. H. Marshall, M.R.C.S., L.R.C.P., M.B. (Lond.) ..	Do ..	Mbale	
H. B. Owen, D.S.O., M.B., B.C., D.T.M. & H. (Camb.) ..	Do ..	..	* D.A.D.M.S., K.A.R.
L. Sells, L.R.C.P. (Edin.), L.S.A.	Do ..	On leave	(Invalidated out of the service)
J. A. Taylor, M.B., CH.B. (Edin.) L.M. (Dub.), D.T.M. (Liv.)	Do ..	Mbarara	
J. E. Hailstone, M.A. (Camb.), M.R.C.S., L.R.C.P. ..	Do ..	Masindi	
G. D. H. Carpenter, M.B.E., B.A., M.D., B.CH. (Oxf.), M.R.C.S., L.R.C.P.	Do ..	Sesse	Sleeping Sickness Investigations
R. E. McConnell, B.A., M.D., C.M. (Montreal), D.T.M. (Liverpool)	Do ..	Arua	
B. Spearman, M.A., M.B., B.C. (Camb.), D.T.M. AND H. ..	Do ..	Entebbe	
A. H. Owen, M.R.C.S., L.R.C.P., D.T.M. AND H. (Camb.) ..	Do ..	On leave	
H. R. Neilson, M.B., CH.B. (Aberdeen)	Do ..	Entebbe	En route Mbarara
Major G. J. Keane, D.S.O., R.A.M.C., M.D., CH.B., D.P.H., D.T.M. (Liv.)	Temporary M. O. ..	..	*
W. L. Webb, M.R.C.S., L.R.C.P., B.S. (Lond.)	Do ..	On leave	* Seconded to R.A.M.C.
R. S. Taylor, B.A., M.B., B.C., (Camb.) M.R.C.S., L.R.C.P. ..	Do ..	Soroti	
W. L. Peacock, M.B., CH.B. (Glas.)	Do ..	Entebbe	
J. Currie, M.R.C.S., L.R.C.P., M.D. (Lond.)	Do ..	..	Seconded from Nigeria
C. J. Baker, M.R.C.S., L.R.C.P.	M. S. O. ..	Entebbe	
J. M. Collyns, M.B., D.P.H. (Lond.), M.R.C.S., L.R.C.P.	M. O. H. ..	Kampala	
H. L. Duke, B.A., M.D., B.C., D.T.M. AND H. (Camb.) ..	Bacteriologist ..	On leave	
J. Stewart	Laboratory Assistant ..	Entebbe	
G. S. Bateman, L.D.S.R.C.S. (Eng.)	Dental Surgeon ..	Kampala	
Miss B. Petherbridge	Matron ..	Entebbe	
Miss E. M. Pratt	Nursing Sister ..	On leave in India	
Mrs. A. B. Hudson nee Gordon	Do ..	Entebbe	
Mrs. J. Brigham	Do ..	Entebbe	
Miss D. M. Ivers	Do ..	Jinja	
Mr. J. D. Buckland	Dispenser ..	On leave	Invalidated out of the service
Mr. H. Flint	Office Superintendent ..	Entebbe	
Mr. P. J. L. Waters	P. M. O.'s Office ..	On leave	
Mr. C. Chorley	Assistant Clerk ..	Entebbe	
Mr. C. W. V. Gittins	Relief Medical Storekeeper ..	..
	Sleeping Sickness Inspector	..	

* On military duty

TABLE I. (a)—RETURN SHOWING THE ASIATIC MEDICAL STAFF.

Name.	Rank.	Where stationed on 31st December, 1918.	REMARKS.
Thadani, B. T.	Assistant Surgeon	Entebbe	
Gokal Chand	Sub-Assistant Surgeon	Namasagali	
Kanade, K. R.	Do	Mbarara	
Karkhanis, A. D.	Do	Jinja	
Achhru Ram	Do	Kampala	Seconded from I. M. D.
Hukam Singh	Do	Entebbe	Do
Diwan Chand	Do	On leave	Do
Mukand Ram	Do	On leave	
Bhatt, J. J.	Do	Do	Seconded from I. M. D.
Basant Singh	Do	Mbale	Do
Ram Chand	Do	.. ..
Nayar, H. C.	Do	Masindi	
Mangal Sain	Do	Gulu	
Maqbul Haqq	Do	Soroti	
Andrews, C. P.	Do	Lira	
Das, B. P.	Do	On leave	Services terminated
Ghulam Haider	Compounder	Butiaba	
Faquir Chand	Do	Masaka	
Karam Dad	Do	On leave	
Ahmed Din	Do	.. ..
Fernandes, E. F. X.	Do	Kitgum	
Rawal, R. K.	Do	Entebbe	

* On military duty.

TABLE VII.—RETURN OF DISEASES (ALL CASES—BOTH IN AND OUT-PATIENTS) FOR THE YEAR 1918.

DISEASES				Cases	Deaths
Infective Diseases—					
Beri-Beri	....	....	....	—	—
Cerebro-Spinal Fever	...	...	...	68	43
Chicken-Pox	...	...	...	90	2
Cholera	...	...	...	—	—
Dengue	...	...	...	—	—
Diphtheria	...	...	...	—	—
Dysentery	...	...	...	527	40
Endocarditis— <i>infective</i>	...	...	...	—	—
Enteric	...	...	...	8	1
Erysipelas	...	...	...	1	—
Gonorrhoea	....	....	....	1,105	2
Influenza	....	....	....	4,663	184
Kala Azar	....	....	....	—	—
Leprosy (a) Nodular	....	....	....	3	—
(b) Anæsthetic	....	....	....	9	—
Malaria (a) Tertian	..	..	..	44	—
(b) Quartan	...	...	...	70	—
(c) Aestivo—autumnal	...	...	...	2,738	6
(d) Chronic Malaria	...	...	...	88	1
(e) Cerebral do	....	....	....	1	1
(f) Blackwater	...	...	...	29	4
Measles	....	....	....	39	—
Malta Fever	....	....	....	—	—
Plague	....	....	....	2	2
Pneumonia	....	....	....	139	27
Rabies	....	....	....	—	—
Relapsing Fever	...	...	...	65	3
Rheumatic Fever	...	...	...	26	—
Septicaemia	....	....	....	5	3
Trypanosomiasis (Sleeping Sickness)	....	....	....	15	8
Smallpox	....	....	....	1,374	392
Syphilis (a) Primary	....	....	....	505	—
(b) Secondary	....	....	....	872	1
(c) Tertiary	....	....	....	1,171	4
(d) Inherited	....	....	....	443	1
Tetanus	....	....	....	1	—
Tuberculosis	....	....	....	8	1
Whooping Cough	....	....	....	8	—
Yaws	....	....	....	303	—
Yellow Fever	....	....	....	—	—
Pyrexia—Uncertain Origin	....	....	....	3,333	10
Anthrax	....	....	....	7	1
Mumps	....	....	....	19	—
Intoxications	....	....	....	4	—
General Diseases	....	....	....	602	10
Nervous Diseases—Sub-section 1	....	....	....	193	1
Sub-section 2	....	....	....	1,188	2
Sub-section 3	....	....	....	41	2
Diseases of the Eye	....	....	....	3,258	—
Diseases of the Ear	....	....	....	949	—
Diseases of the Nose	....	....	....	843	—
Circulatory System	....	....	....	132	8
Respiratory	....	....	....	4,934	10
Digestive	....	....	....	8,148	19
Lymphatic	....	....	....	559	1
Urinary	....	....	....	47	6
Diseases of the Generative System—Male	....	....	....	685	3
Female	....	....	....	196	2
Diseases of the Organs of Locomotion	....	....	....	4,733	2
Diseases of the Connective Tissue	....	....	....	1,567	2
Diseases of the Skin	....	....	....	9,406	1
Injuries—General	....	....	....	58	7
Local	....	....	....	4,641	3
Tumours	....	....	....	23	1
Malformations	....	....	....	3	1
Poisons	....	....	....	16	6
Snake bite	....	....	....	17	—
Parasites—Animal	....	....	....	—	—
Protozoa	....	....	....	—	—
Trematoda	....	....	....	—	—
Cestoda	....	....	....	25	—
Nematoda	....	....	....	48	—
Insecta	....	....	....	—	—
Jiggers	....	....	....	186	—
TOTALS ...				60,281	824
SURGICAL OPERATIONS ...				1,933	—

ANNUAL SANITARY REPORT

FOR THE YEAR ENDED 31ST DECEMBER, 1918,

BY THE
MEDICAL SANITARY OFFICER.

SECTION III.

SANITATION.

(A) General Review of Work done.

1. ADMINISTRATIVE.

The Medical Sanitary Officer toured the Eastern and Northern Provinces, but subsequently went on leave to British East Africa for three months.

The Medical Officer of Health, Kampala, was on duty the whole year and made tours of inspection through the Buganda Kingdom in connection with smallpox.

The European Sanitary Inspector at Kampala, on his return from leave in May, was promoted to the post of Superintendent of Conservancy. This was done because of shortage of staff and to relieve the District Commissioner of some of his municipal duties and to give the European Sanitary Inspector more control over the sanitary services.

In my opinion this has not proved satisfactory as it gives the latter too little time for inspection, etc., confines him too much to Municipal Office work, much of which has had little to do with Sanitation, and in consequence very few notices have been served to remove larvae and other insanitary conditions, and he has had no time for conducting prosecutions in Court, etc.

An Assistant European Sanitary Inspector would relieve the situation.

LAWS PASSED, ETC.

The Township Rules were amended to improve lighting and ventilation of dwellings and cesspits, slaughter houses, etc.

An extensive area was declared infected under the Infectious Diseases Ordinance (vide Smallpox) as were the Bukedi District and various towns as they became infected with Smallpox.

By a Proclamation under the Sleeping Sickness Ordinance the two miles strip of prohibited area along Lake Victoria was reduced to one.

The Factories Board, consisting of the Director of Public Works, the Director of Agriculture, two unofficial members and the Medical Sanitary Officer as Secretary and Executive Officer, was appointed to control by means of the Factories Rules under the Diseases (Cotton and Other Trades) Ordinance, the construction of cotton ginneries, etc.

Town Planning.—A Central Town Planning Board was constituted in December and includes the Principal Medical Officer (Chairman), the Director of Public Works, the Land Officer and the Medical Sanitary Officer as Secretary.

2. PREVENTIVE MEASURES.

MOSQUITO AND INSECT-BORNE DISEASES.

Malaria.

1. Petty Anti-Malarial Measures.

Anti-Malarial Gangs have been employed as formerly. A few mosquito traps of the pattern used in Panama have been made as an experiment and found satisfactory.

Bush clearing has been hampered by the impossibility of replacing worn out grass cutting machines.

2. *Major Anti-Malarial Measures.*—

The Kampala Swamp.—The system of pipe and rubble contour drains, which was begun last year, has continued to prove satisfactory. In 1918, 4,323 lineal feet of these have been added as well as 754 filled with rubble only. 3,563 feet of subsidiary open drains have been dug.

The main channels have been maintained and in places straightened.

It has not been possible to apply this system to swamps in outstations.

3. *Quinine Prophylaxis.*—

125 lbs. of quinine and 40,675 tablets and 1,210 vaporoles were issued from the Headquarter Medical Store during the year.

(B) *Spirillum Fever.*

This disease has ceased to be of importance except in the Western Province. The District Medical Officer, Ankole, reports that it is still prevalent in the district.

It is worth recording that the Lukiko Prison at Mengo, built five years ago of sun-dried brick without any cement floor, has been kept free from ticks by scrupulous cleanliness and the application of fresh cow-dung once a week.

This gaol, though visited occasionally by a Medical Officer and the District Commissioner, is entirely under native control and in view of the danger from tick infestation from the constantly changing number of criminals it reflects great credit on the control.

(C) *Trypanosomiasis.*

The settlement of natives to increase the local food supply in the environs of Jinja has encroached on the fly area with the result that a few cases of Sleeping Sickness have made their appearance.

It has therefore been necessary to undertake the clearing of a strip of jungle along nearly a mile of the right bank of the Nile. This was nearly completed at the end of the year.

It has not been possible to detail any Medical Officer for special investigation of the Mpologoma fly area since 1914 and the District Medical Officer now reports that it will be necessary to make extensive clearings at ferries and remove certain villages which are in the danger zone.

The new Sleeping Sickness boundary marked out last year on the shores of Lake Victoria has now been proclaimed by Rules under Sleeping Sickness Ordinance and consequently many square miles of country have been re-opened for native occupation.

A further area of clearing was done at the mouth of the Waki River near Butiaba on Lake Albert.

Elsewhere the clearing at ferries, road-crossings, etc., have been maintained.

Epidemic Diseases.

The exceptional drought which has prevailed throughout the year under review has not been without effect on epidemic diseases. The food shortage among a population with a staple vegetarian diet has resulted in lowered physiological resistance to disease and no doubt has been to a great extent responsible for the high sick and death-rate from smallpox, cerebro-spinal meningitis, and influenza. While on the other hand it is possible that the food shortage has had a contrary effect on the spread of plague, as in times of famine very little food is left about in houses which would attract rats, while hot dry weather has been inimical to both the rat flea and the B. Pestis.

The machinery for dealing with Epidemic Diseases in outlying parts of the Protectorate is hopelessly inadequate.

Large and thickly populated districts are beyond reach of medical assistance. The duties of Medical Officers confine them so much to their station that they are unable to exercise proper control over the native plague and smallpox inspectors.

The work of the latter has this year not been satisfactory on the whole, and arrangements are being made to employ an entirely new staff.

Plague.

The ports and towns of Jinja, Kampala and Entebbe which in 1916-1917 were all attacked by epidemic plague have in 1918 been entirely free from the disease.

Rats caught in drives at these places and examined microscopically have all proved negative as regards *B. Pestis*.

This may be attributed to:—

- (1) The general preventive measures carried out locally.
- (2) The restriction on the traffic in seed cotton on Lake Victoria.
- (3) The thorough and successful measures undertaken latterly to stamp out endemic plague at Kisumu in British East Africa which had been hitherto a constant menace to the Uganda Ports.

Deaths from plague in the endemic area in the Eastern Province has shown a decrease from the returns except those from the Teso District.

But as the highest death-rates from plague, as shown by native returns in this district, were in January and February, months in which in other years the plague incidence is low, and during the height of the epidemic of cerebro-spinal meningitis in the adjoining district of Lango, I have no doubt that the majority of these deaths were due to the latter disease.

During my tour in those months through Lango I did not come across a single case of plague though I made especial enquiries in places where plague had been formerly endemic.

The District Medical Officer of Bukedi states that he saw very little plague personally and that he believes most of the deaths in his district were due to cerebro-spinal meningitis rather than plague, while in Buganda and the Western Province though plague is recorded by natives no case has been diagnosed by Medical Officers.

Cerebro-Spinal Meningitis.

Cerebro-Spinal Meningitis which was epidemic in 1917 in the Buganda Kingdom has only fallen lightly on this Province the majority of cases being in the Military Depot at Bombo.

The epidemic continued to spread through the Eastern and Northern Provinces during the first few months and took a large toll of the population.

In January and February, accompanied by the Assistant District Commissioner, I made a tour through Lango, where there was no Medical Officer, and where the disease was very severe especially on the thickly populated north shore of Lake Chioga.

We held "Barazas" daily with chiefs and village headmen and issued instructions as to isolation of sick, quarantining of infected villages, etc. Infected huts were not burnt but the thatch removed for one month, and inter-village visiting in general was strictly forbidden.

The people were thoroughly frightened at the heavy mortality from what was to them a new disease (they had named it "Budaki" (German) because they said it was brought from German East Africa by returning military porters) and were therefore the more ready to carry out instructions and, even though a primitive people, displayed intelligent interest in the measures prescribed. One man, a minor village headman, suggested that a set hour should be appointed in which people from quarantined villages should draw water from water-holes used by other villages.

I then passed through the Acholi and Madi countries on the track of the epidemic, continuing the same practice.

In March I re-visited the part of Lango most affected and found that, as a general rule, the instructions had been well carried out and the epidemic was practically over.

In May I visited the West Nile District but the disease had died out and was practically over in the Madi district.

The result of the above tour indicates the need for more Medical Officers to deal with epidemics. In Teso and Bukedi there are District Medical Officers but their duties confine them to a great extent to their stations, and they cannot be always on tour.

Smallpox and Vaccination.

Smallpox.—The inferior lymph and the inadequate Medical Staff, as predicted last year, has failed to check the spread of smallpox in many parts of the Protectorate and a heavy death rate has been the result.

The main focus of the disease was at Bombo which was attacked in November, 1917, and by April, 1918, had become the centre of a severe epidemic.

A large training depot had been established here with above 2,000 recruits and outside the cantonment were several settlements of discharged soldiers and families of men at the front, so that altogether about 5,000 people were concentrated in about 5 square miles.

In the early stages of the outbreak cases were concealed in these settlements and therefore the cantonment boundary was extended to include these and bring them under military control. A cordon of strong military pickets was formed round the boundary through which no one was allowed without a permit from the Medical Officer, but in spite of this the disease not only spread into the surrounding district but many rejected recruits carried it to their homes in outlying parts of the Protectorate or fell sick on the way. Later these were quarantined in a special camp for 16 days before leaving the cordon.

All persons within the cordon were vaccinated but the Medical Officer in charge reports that not more than 10% showed a typical vesicle: this low percentage cannot in this case be ascribed to faulty technique; the Military Medical Staff was increased to cope with the epidemic and all possible precautions taken to prevent error.

A large camp under civil control, under the direction of Dr. Collyns, was established outside Bombo where sick and direct contacts from the Depot as well as natives from the surrounding country were collected.

An outer cordon enclosing a large tract of country round Bombo was established under civil control to enforce the Rules under the Infectious Diseases Ordinances, but in spite of this the smallpox spread into the adjoining district round Kampala and also to the branch Military Depot at Entebbe.

The thickly populated districts in the Eastern and Northern Provinces all suffered severely from smallpox.

In the Chua District the District Commissioner reported that the natives practised smallpox inoculation which spread the disease until it was checked.

Vaccination.—A certain amount of lymph which was obtained from Daressalaam gave good results but the Nairobi lymph continued to be unsatisfactory and some batches appeared to be entirely negative.

It was reported that successive series of arm to arm vaccinations had improved the quality of the lymph in some instances. I therefore advised that this should be given a further trial, but it was difficult to obtain a primary vesicle. Dr. C. H. Marshall reported that at Mbale he had failed to get a single typical vesicle in some thousands of vaccinations performed by him personally.

It was decided not to enforce universal vaccination until a reliable lymph could be obtained so as to avoid spreading the mistrust of its prophylactic value which natives have displayed.

Col. A. Balfour, C.B., C.M.G., who made enquiries on the vaccinations on his way through the Protectorate gave his opinion that the failure was greatly due to faults in technique in vaccination performed by Native Vaccinators.

That the work of the men who are sent to remote places with little chance of supervision becomes faulty is admitted. But the poor results of vaccination done by unquestionable hands justifies the opinion that the fault lies with the material rather than with the agent.

The Laboratory was opened at Entebbe in June and attempts made to start the manufacture of vaccine lymph and in anticipation Register books were prepared and arrangements made to begin universal vaccination as soon as a supply of lymph should be forthcoming, but owing partly to the failure of the ice machine and partly to an outbreak of rinderpest among the calves, no lymph was turned out before the end of the year.

Medical Officers have expressed varied opinions as to the protective value of such of the Nairobi lymph which has shown positive results. Dr. Collens who has had the most opportunity of observation states:—

“There are a certain number of cases who had been vaccinated with Nairobi lymph apparently successfully, who contracted smallpox and died of the disease but from the cases actually under my observation in the Isolation Camps near Kampala I am of the opinion that a certain amount of protection is conferred by the lymph although in a large number of cases it was not complete; mild attacks as a rule following infection if there were good recent vaccination marks.” He also refers to 12 fatal cases “which did show scars of vaccination though few if any of these were really satisfactory.”

TABLE OF VACCINATIONS (CIVIL).

Lymph.	Successful.	Modified.	Failed.	Unknown.	Totals.	Number of known results.	% of Successful (plus modified).
Lister ...	6,927	3,440	5,014	11,906	27,287	15,381	67.40
Nairobi Glycer ...	143	106	60	608	917	309	80.58
Daressalaam ...	479	150	87	538	1,254	716	87.85
Entebbe ...	7	8	13	24	52	28	53.57
Swiss ...	17	2	—	162	181	19	100.00
Arm to Arm ...	1,376	589	529	667	3,161	2,494	78.78
TOTALS ...	8,949	4,295	5,703	13,905	32,852	18,947	69.90

Military Vaccinations 1,359—Results unknown.

Enteric Fever.

366 people were inoculated against enteric during the year.

Dysentery.

There was a serious epidemic of amoebic dysentery at the Central Jail, Kampala, which persisted unchecked for a time because it was first thought that the cause of infection was either due to the food or the water supply.

Later it was suspected that flies were mainly responsible for carrying on the epidemic.

Dr. Collens reports “It was then decided to have one of the ‘accommodation cells’ made fly-proof and all cases to be admitted for treatment to this ‘ward.’ After some delay owing in the first case to some of the windows not being made fly-proof, this was done, and the latrines were then made fly-proof too by affixing fly-proof doors to the bucket chambers, and causing the actual ‘stool’ holes to be closed, when not used, by sacking plugs which fitted the holes closely and which were being constantly dipped in Jeye’s fluid by an attendant especially told off to do the work.

“These measures had the desired effect, as within about a fortnight after their completion the epidemic was over.”

Helminthic Diseases.

There is nothing of note to record in this respect.

Sewage and Rubbish Disposal.

Bucket latrines have been established throughout the Bazaars at Mbale and Masaka.

Drainage.

Masonry drains have been improved and extended at Kampala.

Water Supply.

At Kampala it has been considerably improved by making use of the pipe and rubble contour drains at various points where there were formerly collecting basins with overflow pipes. These reservoirs are now abolished but a larger underground catchment area is tapped by pipe and rubble drains which are led into metal outflow pipes, at which people draw water.

Measures taken to spread knowledge of Hygiene, etc.

Though the war has prevented any further steps being taken in this direction by the Government, the Medical Branch of the Church Missionary Society have instituted a maternity and infant welfare scheme which should go far to reduce the infant mortality and increase the birth-rate.

Indirectly the war may, in time, prove to have been not without value in the propagation of sanitary knowledge.

Some thousands of troops and carriers are now being demobilized who have become familiar with the hygiene practised in the military camps and cantonments, and though it cannot be expected that they will revolutionize the habits of their fellow tribesmen we may hope that the seeds of a "sanitary conscience" have been sown.

In particular, over 1,000 Baganda are now being disbanded from the African Native Medical Corps. These were drawn mostly from the Chief class, most of them can read and write, some of them in English, and these have all received elementary instructions in the principles of hygiene and some of them have been employed in the military sanitary services in German East Africa during the war.

Some of these will be absorbed into the Uganda Medical and Sanitary Services while certain of the remainder who will eventually become Chiefs will bring this acquired hygienic sense to bear in assisting the Government in suppression of infectious disease and other public health measures.

Recommendations for future work of importance are:—

1. The establishment of a Sanitary Branch of the Medical Department to include the control of Sanitary Inspectors.
2. The appointment of three qualified Sanitary Inspectors.
3. The establishment of a training school for Native Sanitary Inspectors, Vaccinators, etc.
4. The extension of the system of contour drainage in the Kampala Swamp, etc.
5. The extensive use of mosquito traps on screened houses.
6. The erection of Infectious Diseases Hospitals on an extended scale.
7. The perfection of the arrangements for the manufacture of vaccine lymph.

C. J. BAKER,

Medical Sanitary Officer.

TABLE IV.

Summary of Routine Sanitary Work done during the Year.

1. NAME OF TOWN.—ENTEBBE.

		Approximate Area	Number of Proclaimed open spaces
1916	...	12 square miles	13
1917	...	12 square miles	13
1918	...	12 square miles	13

2. POPULATION.

	NUMBER OF NATIVES		NUMBER OF EUROPEANS		NUMBER OF ASIATICS		TOTAL
	Males	Females	Males	Females	Males	Females	
1916	2,523	1,985	83	42	201	96	4,930
1917	2,341	1,835	68	40	213	84	4,581
1918	3,360	1,678	127	48	240	78	5,531

3. HOUSING.

		Number occupied by Europeans	Number occupied by Natives and Asiatics, including boys' quarters
Number of Houses :—			
1916	...	89	453
1917	...	89	453
1918	...	89	448
Number of Huts :—			
1916	...	...	1,180
1917	...	...	1,160
1918	...	...	1,179

4. MOSQUITO PROTECTION OF HOUSES.

	1916	1917	1918
Number of European houses wholly mosquito-protected	89	89	89
Number of European houses with mosquito room	20	21	21
Number rendered during the year wholly mosquito-protected	—	1	2
Number rendered during the year partially mosquito-protected	—	1	—

5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1916	1917	1918
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	—	—	—
Number of houses erected with sanction as to site, construction, and relation to other buildings	—	—	1
Number of huts erected with sanction as to site, construction, and relation to other buildings	—	4	19
Number of houses built without sanction	—	—	—
Number of huts built without sanction	—	—	—

ACTION TAKEN.

	NUMBER OF PROSECUTIONS		NUMBER DEMOLISHED	
	Huts	Houses	Huts	Houses
1916	—	—	—	—
1917	—	—	—	—
1918	—	—	—	5

6. MARKETS.

		Total Number	Number Paved and Drained	Number Unpaved
1916	...	3	1	2
1917	...	3	1	2
1918	...	3	1	2

7. SLAUGHTER-HOUSES.

		Total Number	Number Paved and Drained	Number Unpaved
1916	...	1	1	—
1917	...	1	1	—
1918	...	1	1	—

8. LATRINES.

	FOR MALES		FOR FEMALES		
	Number	Number of seats	Number	Number of seats	
Number of Public Latrines :—					
1916	...	14	51	—	
1917	...	14	42	—	
1918	...	14	42	—	
Number of new Public Latrines erected during the year :—					
1916	...	1	3	—	
1917	...	—	—	—	
1918	...	—	—	—	
Number of Public Latrines repaired during the year :—					
1916	...	2	—	—	
1917	...	—	—	—	
1918	...	—	—	—	
Number of Public Latrines demolished during the year :—					
1916	...	—	—	—	
1917	...	—	9	—	
1918	...	—	—	—	
			1916	1917	1918
Number of Private Latrines	...	369	350	325	
Average number of pails of nightsoil removed daily	...	430	392	432	
Average number of soiled pails removed and clean pails substituted	...	75	22	66	
Number of nightsoil men employed to clean latrines and remove excreta	...	27	24	24	
Number of cesspools	...	826	840	830	
Number of cesspools cleansed	...	—	—	—	
Number of new cesspools constructed during the year	...	—	428	250	
Number of old cesspools abolished	...	89	412	260	
Number of cesspools oiled regularly by Department	...	—	—	—	

9. REMOVAL OF REFUSE.

	1916	1917	1918
Number of dustbins	41	48	30
Number of carts at work daily to remove refuse from streets	10	10	9
Amount of refuse removed daily	46	40	27
Number of carts at work daily to remove refuse from yards and premises	Included in above		
Amount of refuse removed daily from yards and premises	—	—	—
Number of men employed for removing refuse	12	10	9

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		
	1916	1917	1918	1916	1917	1918	1916	1917	1918
Buried or trenched ...	208	200	432	42	32	27	1	1	1
Burnt ...	206	192	—	7	8	—	—	—	—
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.

1916	1917	1918
1	1	$\frac{1}{2}$

12. WATER SUPPLY.

Nature of Water Supply	1916	1917	1918
PIPE-BORNE WATER :—			
Source (river, lake, or spring) :—			
Number of lineal yards ...	—	—	—
Number of stand-pipes along roads ...	—	—	—
Number of stand-pipes in compounds and houses ...	—	—	—
WELLS :—			
Public :—			
Number ...	25	25	25
Number with pumps protected against surface water and mosquito-protected ...	—	—	—
Private :—			
Number ...	1	1	1
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 gallons capacity or less ...	—	—	—
Number above 400 gallons ...	—	—	—
Private :—			
Number underground ...	1	2	2
Number mosquito-protected ...	1	2	2
Number above ground ...	179	180	192
Number mosquito-protected ...	1	1	1
Number of 400 gallons capacity or less ...	1	2	2
Number above 400 gallons ...	180	180	192
Nature of tank :—			
Wood ...	—	—	—
Iron ...	161	142	144
Concrete ...	19	40	50
Barrels :—			
Number ...	No record	30	27
Number mosquito-protected ...	15	12	—

13. DRAINAGE.

Nature of Drainage	Public	Private
Masonry drains :—		
Lineal yards of Masonry Drains :—		
1916 ...	2,081	413
1917 ...	2,131	582
1918 ...	2,161	612
Lineal yards re-constructed during the year :—		
1916 ...	—	—
1917 ...	—	—
1918 ...	—	—
Lineal yards repaired during the year :—		
1916 ...	—	—
1917 ...	70	—
1918 ...	10	—

13. DRAINAGE—continued.

Nature of Drainage.	Public.	Private.
Lineal yards of new drains constructed during the year:—		
1916	—	—
1917	50	169
1918	30	30
Earth drains or ditches:—		
Number of lineal yards of ditches cleaned:—		
1916	No record	No record
1917	"	"
1918	"	"
Number of lineal yards of ditches dug and graded:—		
1916	No record	No record
1917	"	"
1918	"	"
Average frequency of clearing ditches of grass:—		
1916	1 monthly	1 monthly
1917	"	"
1918	"	"

14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1916	1917	1918
Number of square yards of weeds, grass, and vegetation cut and removed	Approximately 3 sq. miles		
Average frequency of clearance of rank vegetation on same area	Approximately twice monthly		

15. EXCAVATIONS AND LOW-LYING LAND.

	1916	1917	1918
Number of pools and excavations	8	10	6
Number of excavations filled up	4	4	4
Amount of low-lying and marsh land raised and drained	—	—	—
Number of pools, marshes, streams, &c., fish-stocked	—	—	—
Number of cubic yards of material used for filling up pools and excavations	—	—	—
Number of persons fined for making new excavations	—	—	—
Average number of men daily employed in filling up pools, &c.	10	10	9

16. OILING.

	1916	1917	1918
Number of drains oiled	—	—	—
Number of pools and excavations oiled	3	3	—
Number of tanks and barrels oiled	—	—	2
Average number of men daily employed for oiling drains, pools, and watertanks or barrels	—	—	—

17. INSPECTIONS AND PROSECUTIONS.

	1916	1917	1918
Number of inspectors employed	1	1	1
Number of houses inspected	448	447	445
Number of houses where larvæ were found	38	7	15
Number of notices served to remove conditions causing the breeding of larvæ	14	4	6
Number of persons fined for having mosquito larvæ on premises	—	—	—
Number of notices served to remove insanitary conditions on premises	28	12	33
Number of persons fined for not removing insanitary conditions after notice	—	—	—
Number of soda and aerated water factories inspected	1	1	1

P. T. HANNINGTON,
District Commissioner.

TABLE IV.—*continued.***Summary of Routine Sanitary Work done during the Year.**

1. NAME OF TOWN.—JINJA.

		Approximate Area	Number of Proclaimed open spaces
1916	...	2,560 acres, approx 4 square miles	5 Tennis Courts, Europeans, Goans and Indians.
1917	....	do	do
1918	....	do	do

2. POPULATION.

		NUMBER OF NATIVES (INCLUDING ASIATICS)		NUMBER OF EUROPEANS		TOTAL
		Males	Females	Males	Females	
1916	...	2,205	1,560	34	16	3,815
1917	...	1,870	1,467	29	13	3,379
1918	...	1,915	1,509	31	12	3,467

3. HOUSING.

		Number occupied by Europeans	Number occupied by Natives and Asiatics, including boys' quarters
Number of Houses:—			
1916	...	48	175
1917	...	48	256
1918	...	48	306
Number of Huts:—			
1916	...	...	1,255 approx.
1917	...	..	1,216 "
1918	...	..	1,027 "

4. MOSQUITO PROTECTION OF HOUSES.

		1916	1917	1918
Number of European houses wholly mosquito-protected	...	29	29	30
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.

		1916	1917	1918
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	...	—	—	—
Number of houses erected with sanction as to site, construction, and relation to other buildings	...	1	1	—
Number of huts erected with sanction as to site, construction, and relation to other buildings	...	1	—	20
Number of houses built without sanction	...	—	—	—
Number of huts built without sanction	...	350	—	3

ACTION TAKEN.

		NUMBER OF PROSECUTIONS		NUMBER DEMOLISHED	
		Huts	Houses	Huts	Houses
1916	...	—	1	95	1
1917	...	—	—	39	1
1918	...	—	—	189	—

6. MARKETS.

—		Total Number	Number Paved and Drained	Number Unpaved
1916	...	1	—	1
1917	...	1	—	1
1918	...	1	—	1

7. SLAUGHTER-HOUSES.

—		Total Number	Number Paved and Drained	Number Unpaved
1916	...	1	1	—
1917	...	1	1	—
1918	...	1	1	—

8. LATRINES.

—	FOR MALES		FOR FEMALES	
	Number	Number of seats	Number	Number of seats
Number of Public Latrines :—				
1916	...	20	—	—
1917	...	18	—	—
1918	...	25	—	—
Number of new Public Latrines erected during the year :—				
1916	...	—	—	—
1917	...	—	—	—
1918	...	12	—	—
Number of Public Latrines repaired during the year :—				
1916	...	3	6	—
1917	...	6	7	—
1918	...	—	—	—
Number of Public Latrines demolished during the year :—				
1916	...	—	—	—
1917	...	2	4	—
1918	...	5	—	—

	1916	1917	1918
Number of Private Latrines	216	227	227
Average number of pails of nightsoil removed daily	400	411	450
Average number of soiled pails removed and clean pails substituted	—	—	—
Number of nightsoil men employed to clean latrines and remove excreta	20	22	22
Number of cesspools	13	2	2
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	—	—	—
Number of old cesspools abolished	—	11	—
Number of cesspools oiled regularly by Department	—	—	—

9. REMOVAL OF REFUSE.

	1916	1917	1918
Number of dustbins	1	1	1
Number of carts at work daily to remove refuse from streets	—	—	—
Amount of refuse removed daily	—	—	—
Number of carts at work daily to remove refuse from yards and premises	4	4	4
Amount of refuse removed daily from yards and premises	22	22	22
Number of men employed for removing refuse	27	27	27

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		
	1916	1917	1918	1916	1917	1918	1916	1917	1918
Buried or trenched ...	—	—	—	—	—	—	—	—	—
Burnt ...	400	411	420	22	22	22	1	1	1
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.

1916	1917	1918
1	1	2

12. WATER SUPPLY.

Nature of Water Supply	1916	1917	1918
PIPE-BORNE WATER :—			
Source (river, lake, or spring) :—			
Number of lineal yards ...	—	—	—
Number of stand-pipes along roads ...	—	—	—
Number of stand-pipes in compounds and houses ...	—	—	—
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 gallons capacity or less ...	—	—	—
Number above 400 gallons ...	—	—	—
Private :—			
Number underground ...	—	—	—
Number mosquito-protected ...	—	—	—
Number above ground ...	40	40	40
Number mosquito-protected ...	40	40	40
Number of 400 gallons capacity or less ...	38	38	38
Number above 400 gallons ...	2	2	2
Nature of tank :—			
Wood ...	—	—	—
Iron ...	33	33	33
Concrete ...	7	7	7
Barrels :—			
Number ...	—	—	—
Number mosquito-protected ...	—	—	—

13. DRAINAGE.

Nature of Drainage	Public	Private
Masonry drains :—		
Lineal yards of Masonry Drains :—		
1916 ...	—	—
1917 ...	—	—
1918 ...	—	—
Lineal yards re-constructed during the year :—		
1916 ...	—	—
1917 ...	—	—
1918 ...	—	—
Lineal yards repaired during the year :—		
1916 ...	—	—
1917 ...	—	—
1918 ...	—	—

13. DRAINAGE—continued.

Nature of Drainage.	Public.	Private.
Lineal yards of new drains constructed during the year:—		
1916	—	—
1917	—	—
1918	—	—
Earth drains or ditches:—		
Number of lineal yards of ditches cleaned:—		
1916	} 600 yards	—
1917		—
1918		—
Number of lineal yards of ditches dug and graded:—		
1916	} 600 yards	—
1917		—
1918		—
Average frequency of clearing ditches of grass:—		
1916	} Every month	—
1917		—
1918		—

14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1916	1917	1918
Number of square yards of weeds, grass, and vegetation cut and removed	—	—	—
Average frequency of clearance of rank vegetation on same area ...	—	—	—

15. EXCAVATIONS AND LOW-LYING LAND.

	1916	1917	1918
Number of pools and excavations	—	—	—
Number of excavations filled up	—	—	—
Amount of low-lying and marsh land raised and drained	—	—	—
Number of pools, marshes, streams, &c., fish-stocked	—	—	—
Number of cubic yards of material used for filling up pools and excavations	—	—	—
Number of persons fined for making new excavations	—	—	—
Average number of men daily employed in filling up pools, &c. ...	—	—	—

16. OILING.

	1916	1917	1918
Number of drains oiled	—	—	—
Number of pools and excavations oiled	10	10	10
Number of tanks and barrels oiled	—	—	—
Average number of men daily employed for oiling drains, pools, and watertanks or barrels	7	7	7

17. INSPECTIONS AND PROSECUTIONS.

	1916	1917	1918
Number of inspectors employed	1	1	1
Number of houses inspected	223	245	260
Number of houses where larvæ were found	12	10	4
Number of notices served to remove conditions causing the breeding of larvæ	5	6	15
Number of persons fined for having mosquito larvæ on premises	—	—	—
Number of notices served to remove insanitary conditions on premises	54	53	75
Number of persons fined for not removing insanitary conditions after notice	11	—	—
Number of soda and aerated water factories inspected	—	—	—

J. R. P. POSTLETHWAITE,

President Township Authority, Jinja.

TABLE IV.—*continued.***Summary of Routine Sanitary Work done during the Year.**

1. NAME OF TOWN.—KAMPALA.

		Approximate Area	Number of Proclaimed open spaces
1916	...	322,000 acres	8
1917	....	322,000 acres	8
1918	....	322,000 acres	8

2. POPULATION.

	NUMBER OF NATIVES		NUMBER OF EUROPEANS		NUMBER OF ASIATICS		TOTAL
	Males	Females	Males	Females	Males	Females	
1916	993	533	105	44	546	208	2,429
1917	2,439	1,063	106	49	No record		3,657
1918	1,503	372	115	47	560	238	2,835

3. HOUSING.

	Number occupied by Europeans	Number occupied by Natives	Number occupied by Asiatics.
Number of Houses :—			
1916	116	296	354
1917	117	378	No record
1918	121	435	367

Number of Huts :—			
1916	...	...	571
1917	...	...	928
1918	...	..	1,197

4. MOSQUITO PROTECTION OF HOUSES.

	1916	1917	1918
Number of European houses wholly mosquito-protected	80	83	87
Number of European houses with mosquito room	12	10	12
Number rendered during the year wholly mosquito-protected	3	3	2
Number rendered during the year partially mosquito-protected	—	—	1

5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1916	1917	1918
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	3	6	4
Number of houses erected with sanction as to site, construction, and relation to other buildings	23	20	17
Number of huts erected with sanction as to site, construction, and relation to other buildings	701	525	487
Number of houses built without sanction	—	—	—
Number of huts built without sanction	16	43	52

ACTION TAKEN.

	NUMBER OF PROSECUTIONS		NUMBER DEMOLISHED	
	Huts	Houses	Huts	Houses
1916	—	—	509	12
1917	—	2	380	9
1918	—	2	270	7

6. MARKETS.

		Total Number	Number Paved and Drained	Number Unpaved
1916	...	2	—	2
1917	...	3	—	3
1918	...	3	—	3

7. SLAUGHTER-HOUSES.

		Total Number	Number Paved and Drained	Number Unpaved
1916	...	1	1	—
1917	...	1	1	—
1918	...	1	1	—

8. LATRINES.

	FOR MALES		FOR FEMALES		
	Number	Number of seats	Number	Number of seats	
Number of Public Latrines :—					
1916	...	13	56	2	14
1917	...	13	56	2	14
1918	...	13	56	2	14
Number of new Public Latrines erected during the year :—					
1916	...	—	—	—	—
1917	...	—	—	—	—
1918	...	—	—	—	—
Number of Public Latrines repaired during the year :—					
1916	...	2	6	—	—
1917	...	1	6	—	—
1918	...	1	6	—	—
Number of Public Latrines demolished during the year :—					
1916	...	—	—	—	—
1917	...	—	—	—	—
1918	...	—	—	—	—
			1916	1917	1918
Number of Private Latrines	632	635	675
Average number of pails of nightsoil removed daily	702	709	749
Average number of soiled pails removed and clean pails substituted	—	—	—
Number of nightsoil men employed to clean latrines and remove excreta	26	29	32
Number of cesspools	53	67	42
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	—	—	—
Number of old cesspools abolished	—	—	—
Number of cesspools oiled regularly by Department	—	—	—

9. REMOVAL OF REFUSE.

	1916	1917	1918
Number of dustbins
Number of carts at work daily to remove refuse from streets
Amount of refuse removed daily (cart loads)
Number of carts at work daily to remove refuse from yards and premises
Amount of refuse removed daily from yards and premises
Number of men employed for removing refuse

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		
	1916	1917	1918	1916	1917	1918	1916	1917	1918
Buried or trenched ...	830	793	825	—	—	—	—	—	—
Burnt ...	—	—	—	50	53	39	2	2	2
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.

1916	1917	1918
2	2	2

12. WATER SUPPLY.

Nature of Water Supply	1916	1917	1918
PIPE-BORNE WATER :—			
Source (river, lake, or spring) :—			
Number of lineal yards ...	—	—	—
Number of stand-pipes along roads ...	—	—	—
Number of stand-pipes in compounds and houses ...	—	—	—
WELLS :—			
Public :—			
Number ...	5	6	6
Number with pumps protected against surface water ..	5	5	5
Private :—			
Number ...	2	4	4
Number protected against surface water ...	2	1	1
TANKS :—			
Public :—			
Number underground ...	—	—	—
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 ...	9	9	10
Number mosquito-protected ...	9	9	10
Number above ground ...	115	209	234
Number mosquito-protected ...	110	193	228
Number of 400 gallons capacity or less ...	52	106	131
Number above 400 gallons ...	63	103	113
Nature of tank :—			
Wood ...	—	—	—
Iron ...	113	194	206
Concrete ...	11	15	38
Barrels :—			
Number ...	15	19	17
Number mosquito-protected ...	7	8	12

13. DRAINAGE.

Nature of Drainage	Public	Private
Masonry drains :—		
Lineal yards of Masonry Drains :—		
1916 ...	3,412	2,751
1917 ...	3,558	2,978
1918 ...	4,773	3,524
Lineal yards re-constructed during the year :—		
1916 ...	—	—
1917 ...	—	—
1918 ...	400	—
Lineal yards repaired during the year :—		
1916 ...	—	85
1917 ...	—	31
1918 ...	320	75

13. DRAINAGE—continued.

Nature of Drainage.	Public.	Private.
Lineal yards of new drains constructed during the year :—		
1916	1,342	710
1917	146	226
1918	1,215	546
Earth drains or ditches :—		
Number of lineal yards of ditches cleaned :—		
1916	3,786	No record
1917	3,329	"
1918	4,225	"
Number of lineal yards of ditches dug and graded :—		
1916	1,397	"
1917	877	"
1918	525	"
Average frequency of clearing ditches of grass :—		
1916	8	"
1917	8	"
1918	8	"

14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1916	1917	1918
Number of square yards of weeds, grass, and vegetation cut and removed	877,015	904,000	715,326
Average frequency of clearance of rank vegetation on same area	7	8	7

15. EXCAVATIONS AND LOW-LYING LAND.

	1916	1917	1918
Number of pools and excavations	No record		
Number of excavations filled up	"		
Amount of low-lying and marsh land raised and drained	sq.ft. 154,600	685,000	56,111
Number of pools, marshes, streams, &c., fish-stocked	—	—	—
Number of cubic yards of material used for filling up pools and excavations	No record	18,000 c.ft.	No record
Number of persons fined for making new excavations	—	—	—
Average number of men daily employed in filling up pools, &c....	—	—	—

16. OILING.

	1916	1917	1918
Number of drains oiled	—	—	—
Number of pools and excavations oiled	—	—	—
Number of tanks and barrels oiled	—	—	—
Average number of men daily employed for oiling drains, pools, and watertanks or barrels	—	—	—

17. INSPECTIONS AND PROSECUTIONS.

	1916	1917	1918
Number of inspectors employed	2	2	2
Number of houses inspected	702	721	762
Number of houses where larvæ were found	1,486	1,674	1,618
Number of notices served to remove conditions causing the breeding of larvæ	24	8	28
Number of persons fined for having mosquito larvæ on premises	3	3	2
Number of notices served to remove insanitary conditions on premises	87	92	74
Number of persons fined for not removing insanitary conditions after notice	7	8	2
Number of soda and aerated water factories inspected	2	2	2

Number of persons fined for adulterating milk in 1918.....14.

GEO. MACKENZIE,
for District Commissioner.

Appendices.

1. Annual Report of the Government Dental Surgeon—
By G. STANLEY BATEMAN.
2. A Report on a Disease in Bondo, Nile Province, which the natives state is new to them—
By DR. R. E. McCONNELL, M.O.
3. Annual Report on Enteric Fever—
By DR. G. C. STRATHAIRD, AG. P.M.O.
4. A Report on the Epidemic of Influenza—
By DR. J. H. GOODLIFFE, AG. D.P.M.O.
5. A Report on Anthrax in Ankole—
By DR. J. A. TAYLOR, M.O.

APPENDIX I.

SIR,

I have the honour to submit to you my Annual Dental Report for work done during 1918. During three months of the year I was on leave.

The following tables show the Dental Treatment of Officials, in addition to which I treated a number of Military Officers and men who were stationed in Uganda:—

(i)	Appointments	....	....	448
	Officials treated	....	....	171
(ii)	The following conditions were treated:—			
	Caries Simplex	....	....	263
	(Extractions 46)			
	Pulpitis	....	....	27
	Abscess	....	....	9
	Odontalgia	....	....	5
	Periostitis	....	....	6
	Erosion	....	....	18
	Stomatitis	....	....	2
	Gingivitis Acuta	....	....	4
(iii)	Conservative work: fillings, etc.:—			
	Synthetic porcelain and cement	....	....	48
	Ag. Amalgam	....	....	141
	Cu. Amalgam	....	....	5
	P. Gutta Percha	....	....	11
	T. Gutta Percha with dressings	....	....	69
	Scaling and cleaning	....	....	61
	Ag. No. 3 applications	....	....	13
(iv)	Prosthetic work:—			
	Dentures	....	....	14
	Repairs to Dentures	....	....	22
	Crowns	....	....	9
(v)	The following Out Stations were visited:—			
	<i>Station.</i>			<i>No. of visits.</i>
	Kampala	....	....	7
	Jinja	....	....	2
	Gulu	....	....	1
	Masaka	....	....	2
	Mbarara	....	....	1

I have the honour to be,

Sir,

Your obedient servant,

THE PRINCIPAL MEDICAL OFFICER,
UGANDA.

G. STANLEY BATEMAN,
Government Dental Surgeon.

APPENDIX II.

**Report on a Disease in Bondo which the Natives state
is new to them.**

On October 28th the Chief of Bondo gave me the following description:—The first case appeared in the house of Sub-Chief Lelti at Arion about three months ago: then scattered cases, in all about 40, occurred. Ten have died and there have been no recoveries yet. They take about two months to die. They tried to bring in a child to show me but it died on the road. Old and young, men and women, are subject, though up to the present only a few women have developed it. He knows of two cases in Okoko sub-district. One at Bondo itself (where two have died) and the balance at Arion. It does not seem to be contagious. The first symptoms are malaise, with oedema of the face, then of the stomach, legs and hands. The scrotum is involved with the abdomen. The skin turns a reddish brown colour. There is no vomiting and the appetite is often enormous. The stools are usually hard and with the advent of looseness some betterment of the condition sets in. After about 20 days they cannot usually walk. I went out to Arion yesterday, saw 18 cases (6 children, 10 men, 2 women) and elicited the following further information:—Marked anæmic appearance in all cases—one boy said to be three days ill did not show it severely while in another five days ill it was very pronounced. In the adults with illness of two months duration who were making a little progress it was also less marked. In the cases of long standing oedema only showed in one man (limited to the face) he said he had had it severely at one time. In a boy of three days illness the scrotum was oedematous, while one of five days had feet, hands, face and abdomen involved. A girl with one month's illness was said to have had it severely, then to have improved and to have again developed considerable anæmia and facial oedema, though her general condition was good. Almost all the cases of long standing were very thin. They showed no temperature (1 p.m.) breathing in adults about 20: pulse accelerated and heart sounds soft and weak with no apparent dilatation: spleen and liver in gross examination normal. Only one man said he had had much sweating which came on after eating. They did not complain of shortness of breath. I saw no recent case among adults but the children showed temperatures of 99·6 to 101 (1 p.m.) and a mild degree of bronchitis. The urine is reported dark and blood-like except after drinking much water.

The illness appeared after the famine during which for a month or two they had lived almost exclusively on shea butter nuts, but these have not been eaten for over two months and two of the cases I saw developed in the last week. They were fed for a time on famine food but now have their own supply. Being Lugwari they do not drink goats' milk but do that of the cow.

The following are condensed histories of a few cases:—

(1) Man—25 years—sick two months (two children died of this disease) says he is a little better now, was formerly swollen very much including penis and scrotum—oedema appeared first in hips and thighs—in 10 days it left thighs and went to the face. He had pain in the back—also headaches early. To get up for a time he had to bend forward and do so slowly. There was no sweating. He appeared to be quite weak but moderately nourished: breathing 20: T. 98: P. 100, moderate volume—heart sounds soft, not enlarged. Eyes slightly yellow, urine said at the height of the disease to have been red and was still so unless he drank a lot.

(2) Man—40 years—sick 2 months—now somewhat puffy under eyelids but was much more swollen. Is anæmic—is the only case in a house of six. He has improved considerably. His legs never swelled only his face and abdomen. He had a little sweating. Breathing 20: T. 98·6: P. 108 and small and feeble, heart sounds soft and feeble. He states he had no headaches or pain. The sclerotics are slightly yellow.

(3) Child—three years—skin light brown—hands, feet, belly and face somewhat swollen and oedema soft. Has been sick only five days: eats rice and matama and has had no milk for six months: sclerotics slightly jaundiced: coughs and has slight bronchitis. T. 99·6: Br. 32: P. 132. Legs and back of head ache: eats much: urine said to be red.

(4) Girl of five years—from same house as case (3)—sick one month—was formerly very swollen, recovered to a great extent, and has now relapsed though anæmia is only moderate and only the face is puffy. T. 101.

(5) Small girl—anæmic—face slightly puffy—slight bronchitis, T. 99·8.

(6) Boy three years—only three days ill—slight anæmic—scrotum swollen, also abdomen slightly. T. 99·6.

(7) Boy of three years—sick nearly two months—almost a skeleton—scrotum and abdomen somewhat swollen still—mentally somewhat dazed.

(8) Two men, brothers—sick about three months—thin and anæmic.

A specimen of urine from case (3) was sent in. It was yellow, heavily phosphated but had no albumen. A sample of faeces from this case was also examined but was so full of sand and earth that it was not satisfactory, another has been sent for

The blood of four cases stained with cosin (only stain here) and with olive oil for immersion proved negative.

The symptoms point to ankylostomiasis though the high death rate reported is against this. I regret not having been able to verify this microscopically, but hope that the second sample sent for will overtake me on my way to Gulu.

ARUA,
NOVEMBER 1ST, 1918.

R. E. McCONNELL,
District Medical Officer.

APPENDIX III.

Report on Enteric Fever for the Year 1918.

The total number of cases reported during 1918 was 9 as against 11 in 1917 and 15 in 1916.

The cases were reported from the following stations:—

Entebbe	....	....	....	....	2 (European)
Kampala	....	....	....	....	2
Namasagali	....	....	....	....	3
Fort Portal	....	....	....	....	1
Mbarara	....	....	....	....	1
				TOTAL	9

Two Europeans suffered from this disease at Entebbe. One was taken off the boat, from the south of the Lake, ill, and the other developed the disease within a week of disembarking. Both these cases contracted the disease in the Mwanza area. Both recovered.

One European and two Goan clerks were reported as suffering from Enteric Fever at Namasagali. Source of infection not traced.

These three were all members of the Busoga Marine Service. This Service is staffed from the Uganda Railway Marine Service. Enteric cases have occurred occasionally during the last few years in this latter Service and there may be some connection between these three cases and the Railway Marine Service.

The case at Mbarara was a native admitted into Hospital from the district. The diagnosis was confirmed at post-mortem.

The number of anti-typhoid inoculations performed was 366 (1st and 2nd) done on military recruits at Kampala.

G. C. STRATHAIRN,
Acting Principal Medical Officer.

APPENDIX IV.

Report on the Epidemic of Influenza.

Cases of Influenza were first reported at Entebbe (in the last week of October), Kampala (27th October) and Jinja (1st November). The epidemic spread throughout the Protectorate, cases being reported at Masindi (2nd November), Masaka (2nd November), Mbarara (8th November), Mbale (11th November), Soroti (11th November), Butiaba (14th November) and Kelle (early in November). At Entebbe the wave reached its height in the 3rd week of November, and from that time declined until the middle of December, after which no further fresh cases were reported. The majority of the stations were reported clear by the end of December, though fresh cases occurred in outlying estates and shambas.

The returns from the above stations show that 4,663 cases were treated by Government Medical Officers and that 184 deaths occurred. These cases, classified racially, were as follows:—

	No. of cases.	No. of deaths.	%Mortality.
Europeans ...	104	Nil	—
Asiatics ...	1,086	71	6.53
Africans ...	3,473	113	3.25

The above statistics represent only a very small proportion of the actual cases that occurred.

In the Mbale District alone, 10,587 cases with 436 deaths were reported by Native Inspectors, as occurring amongst Natives, and in the Lira District the Chiefs reported that 75% of the population had contracted the disease, causing 5,003 deaths.

Ætiology.—The outstanding predisposing causes were overcrowding and insufficient ventilation.

Moving of the sick from one place to another appears to have greatly increased the mortality of those suffering from the disease.

The fact that whole households were prostrated at the same time, threw the burden of domestic duties on those who were just recovering from, or were sickening with, the disease, and so contributed heavily to relapses and increased mortality.

Symptoms were chiefly catarrhal: broncho-pneumonia being the most frequent cause of death. Laryngitis and otitis media were noted as complications. Haemorrhages from mucous surfaces, as the nose, stomach and bowels, and also from the lungs were common. Hyper-pyrexia with Insomnia was also frequently met with.

The most frequent sequelae were extreme debility and intense mental depression.

Treatment was mainly symptomatic. From Mbale extremely good results were reported from treatment with salicin gr. 20 every hour up to 200 grains.

The Medical Officer at Soroti reported that preparations of strychnine in the usual medicinal doses appeared to have toxic effects, and was therefore contra-indicated. Quinine, except in cases where there was a definite history of malarial infection, was found to be of little use.

Many Medical Officers laid stress on the importance of thorough ventilation, and on rest in bed from the initial symptoms, and pointed out the danger of moving the patient during the course of the disease.

J. H. GOODLIFFE.

APPENDIX V.

Anthrax.

During November and December seven cases of anthrax occurred among natives living in Mbarara Township. The source of the infection was eventually traced to the patients handling and eating the meat of a cow that had died some days previously. During December four more cows died of anthrax within a mile of the township, including one from the same herd which caused the human infection. Of these seven cases, six were of uncomplicated malignant pustule and made a quick recovery. The seventh case died of internal anthrax a few hours after admission.

2. The first case was brought to my notice by Mr. K. R. Kanade, Sub-Assistant Surgeon, on November 21st, the patient being a woman with the pustule on the cheek. Two days later a girl from the same house was brought to the hospital with the pustule on the breast. Both these cases were typical and anthrax bacilli were found in smears. Cultures were made on potato but were unsatisfactory. A stab culture in gelatine however was more or less characteristic, liquified the gelatine and showed both anthrax and staphylococci on examination. Enquiries were made at neighbouring houses and three further cases were brought to the hospital: one with a typical pustule on the chin, the other a less typical one on the forehead and one on the back. Smears of all showed anthrax bacilli.

3. The sixth case, which ended fatally, was carried into hospital on the evening of December 4th. The patient complained of great pain in the abdomen which was tense and hard. The abdominal wall was diffusely inflamed and swollen with a small pustule in the centre of the inflamed area. There was also an oblong fluid swelling about $\frac{1}{2}$ inch in breadth and extending about 4 inches round the base of the neck. There was no temperature. During the night the patient died. After death the swelling on the neck was not obvious, but smears taken from the abdominal pustule were full of anthrax bacilli. A vein opened contained dark fluid blood also full of bacilli. No further examination was considered necessary. On enquiry it was found that the man had eaten meat of a cow that had died about three weeks previously, but had only complained of illness for one day.

4. On further questioning, all the previous five cases of malignant pustule referred to above now admitted they had eaten the same meat. They had previously withheld this information.

5. The seventh case came for treatment on December 8th. This patient had a large pustule $3\frac{1}{2}$ inches in diameter over the right scapula where the raw meat from the same cow had been slung to carry home.

6. The cases of uncomplicated pustule were treated by the application at intervals of pure carbolic acid and exposure to the hot sun for as long as possible. No dressings were used and all six cases made a quick recovery.

7. On November 5th a cow of the same herd (belonging to an Indian) was reported to have died, and I immediately visited the kraal to find the carcass cut up and the meat prepared for sale. I examined all the parts remaining but beyond a small ulcer and inflammation on the hide no naked-eye changes were obvious to me. Smears taken from the ulcer and of blood from different parts of the body were, however, full of anthrax bacilli. I ordered destruction of the meat by burning also of several hides (among which was the one of the previous case) stored in the hut at the kraal.

8. On November 7th a cow of another herd of twenty belonging to natives died of anthrax. This cow is said to have been ill for some days with pain in the abdomen. No sign of any anthrax pustule could be seen on the body externally, but there were several scars where hot irons had been applied to the abdomen. On opening the body the obvious changes were:—

- (a) Haemorrhages, very large, on the external peritoneum also some scars and ulcers chiefly caused by the hot iron.
- (b) Heart full of dark fluid blood.
- (c) Spleen enlarged, soft, pulpy and friable.
- (d) Lung very anæmic.

Smears taken of the blood and different parts of the body all contained bacilli similar to anthrax.

9. Cultures (plate) from cow II liquified gelatine, but were too much contaminated with moulds and other organisms to be of diagnostic value. Stab cultures, owing to cooler weather and no artificial heat being available, took a long time to grow, but eventually showed typical anthrax.

10. The District Commissioner received authority from the Chief Veterinary Officer to prohibit the slaughter of cattle and sale of meat within five miles of the township except in the Government market after inspection. The following procedure has now been adopted:—

- (a) Cattle, goats and sheep to be killed next day are brought to the hospital in the afternoon.

- (b) If passed fit, the cattle, etc., are marked, and a man is sent to the market in the morning to see that only marked cattle are killed. He also takes slides of the heart blood of each.
- (c) The slides are then brought to the dispensary, stained with Leishman, and examined.
- (d) The meat is allowed to be cut up, but not sold until the result of the examination reaches the market master.

11. On enquiry it appears that anthrax has been well known in Ankole for many years. On both persons and cattle the malignant pustule is called "Kirasi," but if the beast dies it is said to have died of "Obuzimba." Or, if a beast dies suddenly in a herd where one has previously had "Kirasi" it is also said to have died of "Obuzimba" although there may be no external lesion. In any of these cases, the people do not eat the meat, but bury the carcase deeply and put thorns over the site to prevent hyenas digging up the body and carrying about the meat and with it the infection. Internal anthrax, in a person, appears to have no special name, and if a person dies after suffering from a malignant pustule they do not say he has died of "Kirasi" but "of eating 'Obuzimba' meat."

12. The Bahima round Mbarara report that many cattle are dying of anthrax in Ruanda at present. It is also reported that several persons were taken ill, and that some died, after eating meat of a cow which died in Ruampara two or three months ago. A cow that ate a banana leaf in which some of the meat had been wrapped also died. This may also have been anthrax, but no name was given to the disease and the District Commissioner is making further enquiries.

MBARARA,

10TH DECEMBER, 1918.

J. A. TAYLOR,

District Medical Officer, Mbarara.

1. A cow of another herd of twenty, belonging to an Indian, has also died of anthrax within the five mile radius.

2. Further enquiries have now been made with regard to the deaths in Ruampara (Ruanda) reported in my previous report, para. 12. It appears that one cow died in August after three days' illness. A second died a few days later. The owners then removed to another kraal where eight more of their herd died. Some of these had "Kirasi" (malignant pustule). When the first kraal was vacated another native took his cattle there and three of his herd also died of "Buzimba" (Internal Anthrax).

3. The first cow that died had no external lesion and the meat was eaten by natives, two of whom died, both with malignant pustule. Several others also had malignant pustule but recovered. Two of these brought to see me had marks on the shoulder and chest where the pustule had been. Meat of the first cow only was eaten. The carcasses of all the others were carried immediately after death to some distance and covered with thorns but not buried.

4. The natives from Ruampara state that many cattle in their neighbourhood die of "Buzimba," some with and some without "Kirasi."

5. There does not appear to be any doubt that the disease is common in Ankole.

MBARARA,

31ST DECEMBER, 1918.

J. A. TAYLOR,

District Medical Officer, Mbarara.

NOTE.—Slides from infected cattle reported above were submitted to the Chief Veterinary Officer who considered the outbreaks reported were anthrax. He draws attention to Mr. Kennedy's report where the latter in describing diseases of cattle in Ankole includes Virasi (Luganda Eviite) a cattle disease that was prevalent years ago. The cattle died suddenly and they were sick a few hours only before death. It may have been anthrax. Anyone eating the flesh of deceased animals died.

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