Annual medical and sanitary report / Uganda Protectorate.

UGANDA PROTECTORATE.

ANNUAL

MEDICAL AND SANITARY REPORT

FOR THE

YEAR ENDED 31ST DECEMBER, 1919.

Published by Command of His Excellency the Governor.

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PRINCIPAL MEDICAL OFFICER'S OFFICE,

ENTEBBE, UGANDA,

21st June, 1920.

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 1919, together with the Returns, etc., appended thereto.

I have the honour to be,

Sir,

Your obedient servant,

C. A. WIGGINS,

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, 1919.

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.	4 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.	22 Sub-Assistant Surgeons.
2 Senior Sub-Assistant Surgeons.	8 Compounders.

NATIVE:

A varying number of Native Attendants including:—

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

(2) Shortages on Establishment:—

(*a*) *European.* (Taking the whole qualified staff together, *i.e.*, 31 appointments).

7 Medical Officers were absent for whole year (6 vacancies, and Dr. Webb who was at first seconded for military duty and then on leave).
16 went on leave for part of the year, while only
8 were on duty for the whole year.

Taking the number of days on duty it is seen that only just over half the staff were available for duty in Uganda:—

	Days on duty.	Days off duty.
8 Medical Officers on duty whole year ...	2,920	—
7 Medical Officers absent whole year	—	2,555
16 Medical Officers who were on leave part of year	3,030	2,810
TOTAL	5,950	5,365

This does not take into account the months that several Medical Officers had to waste at Mombasa waiting for a boat.

We were two Nursing Sisters short for the whole year.

(*b*) *Asiatic*:—

1 Assistant Surgeon for 8 months.
9 Sub-Assistant Surgeons for whole year.
1 do for 8 months
1 do for 2 months
1 do for 5 months
3 Compounders for whole year.

(3) CLERICAL STAFF AT HEADQUARTERS:—

European:—Office Superintendent, Assistant Clerk, Medical Storekeeper.
Asiatic:—2 3rd Grade Clerks, 3 4th Grade Clerks.
African:—1 Native Clerk.

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

Appointments—Major R. J. A. Macmillan, D.S.O., rejoined the Protectorate Service with seniority as from 18-6-13. *
Dr. S. M. Vassallo, Medical Officer .... 24-9-19. *
Dr. J. A. Quin do .... 15-10-19. *
Dr. F. O. Simpson, Temporary Medical Officer.... 15-10-19. *
Mr. W. F. Fiske, Entomologist .... 6-2-19.
Mr. H. T. Bott, European Clerk, P.M.O's Office 1-5-19.
Mr. D. J. Gunawardene, 4th Grade Asiatic Clerk, P.M.O's Office .... 13-8-19.
Miss A. Mason, Nursing Sister .... 26-9-19.
Miss N. M. Adams, do .... 15-10-19.
Mr. C. Chorley, Dispenser, on Temporary Local Agreement .... 9-3-19.

Secondments—Captain J. Currie, S.M.O., W.A.M.S., on secondment from Nigeria did service in Conquered Territory (Mwanza) from 1-1-19 to 16-1-19. Proceeded on leave 19-6-19. Leave for Uganda service expired 23-12-19 when he rejoined W.A.M.S.

Promotions—Major C. A. Wiggins to be Principal Medical Officer, 2-2-19.
Dr. J. H. Reford to be Deputy Principal Medical Officer, 2-2-19.
Mr. P. J. L. Waters, European Clerk, P.M.O's Office, to be Medical Storekeeper, 6-2-19.

Resignations—Nursing Sister A. B. Hudson, 24-3-19.
do J. Brigham, 31-8-19.

Retirements—Dr. A. D. P. Hodges, Principal Medical Officer, on pension, 1-2-19.
Dr. Lionel Sells, on pension 22-2-19.
Mr. J. D. Buckland, Dispenser, on pension 10-2-19.

Invalidings—Dr. J. H. Goodliffe, Medical Officer.
Mr. B. T. Thadani, Assistant Surgeon.

Deaths—Nil.

* Did not arrive in Uganda before the end of the year.

(5) LEAVE :—

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.	1-1-19	...	1-2-19. Retired on pension.
Major C. A. Wiggins, P.M.O. ...	1-1-19	...	12-10-19
Dr. C. J. Baker, M.S.O. ...	26-4-19	...	End of year
Dr. R. A. L. van Someren, S.M.O.	26-6-19	...	End of year
Dr. H. L. Duke, O.B.E., Bacteriologist	1-1-19	...	24- 6-19
Dr. H. B. Owen, D.S.O. ...	26-8-19	...	End of year
Major G. Lane	1-1-19	...	5-7-19
Dr. L. Sells	1-1-19	...	22-2-19 Retired on pension.
Dr. J. A. Taylor	26-6-19	...	End of year. On transfer to Federated Malay Straits.
Dr. G. D. H. Carpenter, M.B.E. ...	19-6-19	...	End of year.
Major G. J. Keane, D.S.O. ...	19-6-19	...	End of year.
Dr. W. L. Peacock	19-6-19	...	End of year.
Dr. J. Currie	19-6-19	...	23-12-19. Seconded back to W.A.M.S.
Dr. G. C. Strathairn	21-11-19	...	End of year. On transfer to Fiji as C.M.O.
Dr. J. H. Goodliffe	8-11-19	...	End of year. Invalided
Capt. A. H. Owen	1-1-19	...	2-11-19
Dr. W. L Webb	1-1-19	...	End of year
Mr. G. Bateman, Dental Surgeon	19-6-19	...	End of year
Mr. J. D. Buckland, Dispenser ...	1-1-19	...	10-2-19. Retired on pension
Mr. P. J. L. Waters, Medical Storekeeper	1-1-19	...	6-2-19
Miss B. Petherbridge, Matron ...	25-9-19	...	End of year
Miss E. M. Pratt	1-1-19	...	2-3-19. On leave in India
Senior S.A.S. K. R. Kanade ...	23-8-19	...	End of year
S.A.S. Gokal Chand ...	23-8-19	...	do
S.A.S. Diwan Chand ...	1-1-19	...	23-6-19
S.A.S. J. J. Bhatt, I.M.D. ...	13-3-19	...	1-8-19. Rejoined I.M.D.
S.A.S. Basant Singh, I.M.D. ...	13-3-19	...	6-11-19
Compounder Karam Dad ...	1-1-19	...	23-6-19
Compounder Ghulam Haider ...	27-9-19	...	End of year
Mr. Sohan Singh Sandhu, 4th Grade Clerk	6-11-19	...	End of year
Mr. D. M. D'Souza, 3rd Grade Clerk (Store)	27-9-19	...	do

(6) MEDICAL OFFICERS ON MILITARY DUTY DURING THE YEAR :—

Major H. B. Owen, D.S.O. ...	1-1-19	...	15-5-19	in the Tanganyika Territory (late G. E. A.)
Major G. J. Keane, D.S.O. ...	1-1-19	...	17-6-19	do do
Captain W. L. Webb ...	1-1-19	...	3-3-19	in Salonika

The shortage of staff throughout the year has been serious, not only among the Medical Officers but also among the Indian Assistants. A full report of what is really required in the way of staff, buildings and equipment was sent home towards the end of the year.

The list of those who went on leave is long but many were so very much overdue that this was unavoidable. The Department will be much better off in this respect during 1920.

Four of the vacancies for Medical Officers were filled towards the end of the year but none of the new men arrived in Uganda before December 31st. There is still considerable difficulty in obtaining suitable men on the present conditions of service.

The difficulty of obtaining suitable Indian Assistants is apparently even greater. The fact that it was not known in Uganda that the rates of pay for Sub-Assistant Surgeons had been considerably raised in British East Africa on September 1st prevented the engagement of new men before the end of the year, but it is now hoped that the vacancies will be filled.

The much-needed improvement in the Native Staff has not yet been effected. Most of the members of the African Native Medical Corps went off to their homes after demobilization for a prolonged rest and they will not accept work in our Civil Hospitals and Dispensaries at the prevailing rates of pay.

Proposals for the much-needed Medical School have been submitted and it is sincerely hoped that this will be sanctioned and a start made in the erection of buildings during the coming year.

The Clerical Staff at Headquarters is insufficient. The Medical Sanitary Officer needs a European Clerk, and one additional European Clerk is necessary to allow for replacements while on leave of the Office Superintendent, the P. M. O's European Clerk and the Medical Storekeeper. In addition a 2nd Grade Goan Clerk is also necessary.

A good Native Clerk is needed at each Dispensary, as at present far too much of the Sub-Assistant Surgeon's time is taken up in filling in forms, etc., which could be done by a Native Clerk; at Kampala and Jinja a 3rd or 4th Grade Goan Clerk is necessary.

(B) Financial.

Estimated Expenditure 1919-1920.

Medical Division.

Personal Emoluments.—	£
Principal Medical Officer and Deputy Principal Medical Officer	1,455
Clerical Staff, Medical Storekeeper, Packers, Messengers, etc.	1,259
Permanent Medical Officers	8,338
Temporary Medical Officers and Subordinate Staff for the suppression of Sleeping Sickness	1,051
Temporary Medical Officers and Subordinate Staff for the suppression of Venereal Diseases	770
Temporary Medical Officers and Subordinate Staff for the suppression of Epidemic Diseases	2,476
Dental Surgeon	473
Sanitation.	
Medical Sanitary Officer and Medical Officer of Health	1,230
Laboratory Division.	
Bacteriologist and Subordinate Staff	834
Unallocated	1,475
Total Personal Emoluments	£19,361

Other Charges.—	£
For Anti-Malarial Measures (petty)	450
For the suppression of Sleeping Sickness	1,800
For dealing with Venereal Diseases	95
For dealing with Epidemic Diseases	2,575
For Laboratory	380
Miscellaneous	2,623
Total Other Charges	£ 7,923

Medical Division.

Special Expenditure.—	£
Furniture, Equipment, Fittings for Venereal Diseases Treatment Centres	350
Furniture and Equipment of Native Hospitals	300
Furniture and Equipment of European Hospitals	500
Travelling Equipment for District Medical Officers, 12 @ £50 each	600
Buildings for Venereal Disease Centres	2,400
Uni-Lectric Light Plant	220
Water Supply Plant	200
	£ 4,570

Hospitals and Dispensaries.

Personal Emoluments.	£
Nursing Staff	890
Dispensers	460
Indian Medical Assistants	3,491
Native Attendants	1,040
Miscellaneous Allowances	10
Total Personal Emoluments ...	£ 5,891

Other Charges.	£
Medical and Surgical Stores	3,500
Upkeep and Equipment of Hospitals	1,060
Miscellaneous Charges	1,291
	£ 5,851

Total Charges.—	£
Personal Emoluments	25,252
Other Charges	13,774
Special Expenditure	4,570
Total	£43,596

The Estimated Revenue for 1919-1920 was £405.

Note:—Salaries of all Medical Officers increased from the 1st of April, 1919.

Section II.

PUBLIC HEALTH.

(A) Vital Statistics.

The Births and Deaths for the five Kingdoms,—Buganda, Busoga, Bunyoro, Ankole and Toro are given in the following tables IIIa, b, c and d.

As in former years the diagnoses in Table IIIa may not be correct, but the District Commissioners inform me that in their opinion the total figures in all the tables may be accepted as fairly accurate.

The increase in the number of Deaths over that of the Births is unfortunately far greater in 1919 than in former years and is a very serious matter for the welfare of this Protectorate. The figures for 1919 in Table IIId. are truly appalling and show that the number of deaths in these five districts exceeded the number of births by 12,953. Further the number of still-births during the year was 4,483.

Table IIIa.—The large increase in the number of deaths is due entirely to Influenza. This disease is shown separately in this table, except for Busoga, for the first time. It was included under "Other Causes" in 1917. The large increase in the total under "Other Causes" for Busoga, from 2,238 in 1918 to 4,184 in 1919, is accounted for by this disease. The number of deaths from Influenza for these five districts is roughly 12,000. But for this the number of births would have been about equal to that of the deaths.

There was a welcome reduction in the deaths from our four great enemies, Cerebro-Spinal Meningitis, Sleeping Sickness, Plague and Smallpox; these will be mentioned later on in the report.

Table IIIb. shows a decrease in the birth rate in each district except in Toro and an increase in the death rate in each district except in Bunyoro. The death rate in Toro has increased from 15·98 per 1,000 to 30·98, and the percentage of still-births for Toro has also risen from 28·81% to 32·12.

Table IIId. too is sad reading. Up to 1918 the number of births exceeded the deaths in Busoga, Ankole and Toro but now the deaths in all five Kingdoms exceed the births. The figures for Busoga are far the worst: an increase of 1,553 of births over deaths in 1918 becoming a decrease of 3,135 in 1919, a difference of 4,688.

If this state of affairs is to be remedied action must be taken at once. It has already been decided to re-open the special Anti-Venereal Campaign under Major Keane (who has now been appointed to the Permanent and Pensionable Staff, Uganda Medical Service) but only on a small scale; it should be on a large scale. Special Treatment Rooms are needed at many centres, and the scheme (which I hope to see realised in the near future) of a small dispensary for each Gombolola with its three attendants, one Medical, one Sanitary and one Midwife, will be of great assistance in anti-venereal work as these dispensaries can be visited by the Medical Officer weekly, or as arranged, for the treatment of syphilis and other diseases.

It is hoped to arrange for similar returns of Births and Deaths from Bukedi, Teso, Lango, Gulu and Chua during 1920 so that by January, 1921, the chiefs will be accustomed to the forms and the figures may be more or less correct.

Table IIIa.—Table of Deaths for the Five Districts of Buganda, Busoga, Bunyoro, Ankole and Toro for the Year 1919.

CAUSE OF DEATH.

	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	27
COUNTY.	Influenza.	C. S. M.	Fever.	Sleeping Sickness.	Plague.	Small-pox.	Measles.	Syphilis.	Gonorrhœa.	Dysentery.	Diarrhœa.	Leprosy.	Cancer.	Tuberculosis.	Muhinyo or Bihimbo. (Malta Fever)	Dropsy.	Chest Complaints.	Fits.	Paralysis.	Abscess.	Wounds and Injuries.	Snake-bite.	Child-birth.	Other Causes.	Total Deaths.	Total Births.	Still-Births.
Buganda ...	3,784	6	2,958	—†	75	62	7	786	973	142	220	110	305	335	309	144	1220	92	823	59	18	37	170	2,586	15,221	9,512	1,009
Busoga	—*	—	472	12	447	232	58	408	227	366	1,003	139	94	14	110	128	942	46	926	58	6	36	145	4,184*	10,053	6,918	319
Bunyoro ...	1,358	1	44	5	1	51	2	40	80	57	149	20	36	78	90	43	389	20	128	32	10	4	17	690	3,345	1,284	638
Ankole	3,480	192	1,187	35	17	3	26	447	41	117	97	20	134	204	336	29	77	37	120	29	13	18	154	572	7,388	5,518	750
Toro	1,616	388	96	48	4	22	2	133	55	61	13	14	72	82	203	113	103	15	14	18	13	26	112	684	3,907	3,731	1,767
Total ...	10,238	587	4,757	100	544	370	95	1,814	1,379	743	1,482	303	641	713	1,018	457	2,731	210	2,011	196	60	121	598	8,716	39,914	26,963	4,483

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.

1919.	BUGANDA.		BUSOGA.		BUNYORO.		ANKOLE.		TORO.		TOTAL.	
Population	791,218		247,645		92,660		266,606		126,125		1,524,254	
	Births (living)	Deaths	Births (living)	Deaths	Births (living)	Deaths	Births (living)	Deaths	Births (living)	Deaths	Births (living)	Deaths
	9,512	15,221	6,918	10,053	1,284	3,345	5,518	7,388	3,731	3,907	26,963	39,914
Rates per 1,000	12·02	19·22	27·93	40·59	13·85	36·09	20·69	27·71	29·58	30·98	17·69	26·19
Still-Births per cent of Total Births and Still-Births	1,009 = 9·59 per cent		319 = 4·40 per cent		638 = 33·19 per cent		750 = 11·96 per cent		1,767 = 32·12 per cent		4,483 = 14·25 per cent	

† Sleeping Sickness patient died in Kyetume Camp, tribe unknown, not included in above totals.

* Influenza not shewn separately in Busoga returns. This accounts for the large increase under "other causes."

TABLE IIIc.

SHEWING THE NUMBER OF BIRTHS, DEATHS AND STILL-BIRTHS IN THE SAME FIVE DISTRICTS FOR THE LAST SEVEN YEARS.

BIRTHS (LIVING.)

	BUGANDA.	BUSOGA.	BUNYORO.	ANKOLE.	TORO.
1913	8,971	10,992	5,527	5,638	5,156
1914	9,061	9,470	4,737	5,863	3,933
1915	8,319	9,634	3,081	5,577	3,739
1916	9,737	12,093	1,763	5,877	3,509
1917	8,818	11,132	1,680	6,214	3,029
1918	10,287	10,782	1,649	6,615	3,729
1919	9,512	6,918	1,284	5,518	3,731
TOTALS	64,705	71,021	19,721	41,302	26,826

DEATHS.

1913	11,989	7,870	6,019	4,241	2,397
1914	10,949	7,770	4,852	4,290	1,729
1915	12,231	7,228	3,043	5,434	1,474
1916	12,802	7,771	2,280	5,079	1,645
1917	13,203	8,892	3,126	5,357	1,446
1918	14,160	9,229	4,500	5,839	2,072
1919	15,221	10,053	3,345	7,388	3,907
TOTALS	90,555	58,813	27,165	37,628	14,670

STILL-BIRTHS.

1913	925	611	2,032	681	2,056
1914	976	360	1,566	622	1,659
1915	978	480	1,217	711	1,391
1916	968	548	841	787	1,473
1917	971	726	806	763	1,211
1918	1,082	669	893	820	1,510
1919	1,009	319	638	750	1,767
TOTALS	6,909	3,713	7,993	5,134	11,067

TABLE IIId.

SHEWING INCREASE OR DECREASE OF BIRTHS OVER DEATHS DURING LAST SEVEN YEARS.

Year.	Buganda.	Busoga.	Bunyoro.	Ankole.	Toro.	Total Increase.	Total Decrease.
1913 ..	—3018	+3122	— 492	+1397	+2759	8768	..
1914 ..	—1888	+1700	— 115	+1573	+2204	5474	..
1915 ..	—3912	+2406	+ 38	+ 143	+2265	940	..
1916 ..	—3065	+4322	— 517	+ 798	+1864	3402	..
1917 ..	—4385	+2240	—1466	+ 857	+1583	..	1171
1918 ..	—3873	+1553	—2851	+ 776	+1657	..	2738
1919 ..	—5709	—3135	—2061	—1870	— 176	..	12951
Total Increase ..	..	12208	..	3674	12156		5276
Decrease ..	25850	..	7464	..	..		

(B) General Remarks.

The total number of cases treated at Government Hospitals and Dispensaries numbered 58,137 with 834 deaths, as against 60,281 cases with 824 deaths in 1918.

Influenza (Yegu, Kiyegu or Muyegu), which visited the Protectorate towards the end of 1918, spread over the whole country and caused thousands of deaths It is difficult to estimate accurately what the number was, but, judging from reports received, it must have reached 25,000.

Apart from this the Protectorate was fairly free from severe epidemics. Of the three main Townships, Kampala, Jinja and Entebbe were free from Plague, as in 1918, until the last quarter, when a few cases occurred at Jinja and then at Kampala. The epidemic of Smallpox which was general throughout the Protectorate in 1918 died down in the first quarter.

The following table shows the number of cases of Plague, Cerebro-Spinal Fever and Smallpox in the three Townships for the last six years:—

TABLE A.

		PLAGUE.						CEREBRO-SPINAL MENINGITIS.						SMALLPOX.					
		1914	1915	1916	1917	1918	1919	1914	1915	1916	1917	1918	1919	1914	1915	1916	1917	1918	1919
ENTEBBE	Cases ...	...	...	2	36	...	...	...	1	18	14	...	...	...	41	8	16	151	37
	Deaths ..	...	...	1	33	...	...	...	1	7	7	...	...	...	4	4	3	38	9
KAMPALA	Cases ...	...	...	238	122	...	8	...	...	21	141	3	...	...	46	40	331	414	27
	Deaths...	...	...	216	110	...	3	...	...	13	106	1	...	...	9	9	67	128	...
JINJA	Cases ...	23	1	62	8	...	15	5	1	18	4	3	8	47	41	24	113	140	1
	Deaths...	14	1	54	7	...	15	4	1	15	4	3	8	...	14	7	30	47	...
TOTALS	Cases ...	23	1	302	166	...	23	5	2	57	159	6	8	47	128	72	460	705	65
	Deaths...	14	1	271	150	...	18	4	2	35	117	4	8	...	27	20	100	213	9

COMMUNICABLE DISEASES.

(I) MOSQUITO OR INSECT BORNE.

1. *Malaria.*—The returns shew that 4,352 cases were treated with 10 deaths, Kampala alone accounting for 1,195 of these.

The returns for this disease are far more accurate than last year for at many stations, including Kampala, no case is entered in the Hospital Register unless parasites are found in the blood.

The natives who have been trained in this work are proving to be a great help in saving the time of the Medical Officer and Sub-Assistant Surgeon in this respect. The thick film method is used for routine blood film examinations.

The seasonal incidence of malaria is shewn in short form in Appendix I, para. 4, together with the Blackwater Fever cases and the Rainfall.

2. *Blackwater Fever.*—68 cases were reported with 12 deaths, in addition the Church Missionary Society returns shew 15 cases with 6 deaths. This is a very large increase over last year's figures which show 29 cases with 4 deaths, plus 11 cases with 3 deaths in the Church Missionary Society Hospitals.

For full report see Appendix I.

3. *Pyrexia of uncertain origin.*—The numbers under this heading are still far too high, 3,558 with 6 deaths being reported, as against 3,333 with 10 deaths in 1918. With the engagement of more boys trained in microscope work it is hoped that this total will decrease very considerably in the near future.

4. *Relapsing Fever* shows an increase this year, from 65 cases with 3 deaths to 143 cases with 4 deaths. Of these over 100 can be attributed to the Masaka-Mbarara Road Camps, most of which are now destroyed. 16 cases occurred in a Labour Camp at Butiaba, but by burning the Camp and moving the men to a fresh site the infection was stopped.

5. *Trypanosomiasis.*—51 cases with 8 deaths were treated in our Hospitals and Dispensaries, including 42 at Mbale, from the Mpologoma infected area. These were brought in to Hospital by Dr. Marshall who was trying the effect of Salvarsanised Serum. *Vide* Appendix V.

It has been known for years that people have been living in the Mpologoma prohibited area in close contact with infected fly and that numbers of cases of Sleeping Sickness existed there but the administration have not been able to carry out the repeated recommendations of this Department in this respect owing to shortage of staff.

At the end of the year Dr. Marshall was awaiting the arrival of a new Medical Officer at Mbale before taking over the work of Medical Officer in Charge Sleeping Sickness Measures. Very little is known of the actual position as regards Sleeping Sickness in the outlying districts and it is proposed to detail Dr. Marshall for the special purpose of reporting on the prevailing conditions, prohibited areas, etc., during 1920.

G. Palpalis.—Mr. Fiske returned to the Protectorate in August, 1919, to carry out further entomological work in connection with *G. Palpalis* in the Lake Victoria Sleeping Sickness area and to supervise the return of the Basesse to certain of their Islands. A short interim report on his work will be found in Appendix IV.

G. Palpalis.—An experiment begun by Dr. Carpenter in March, before he went on leave, in connection with his scheme for the extermination of *G. Palpalis* by artificial breeding grounds has been continued throughout the year, and the figures sent home to Dr. Carpenter.

The following table shows the number of cases reported during the last 15 years, but the figures given during the last few years probably do not represent the full number of cases.

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

Year.	PROVINCES OR DISTRICTS.								
	Buganda.	Busoga.	Bunyoro.	Ankole.	Toro.	Nile Province.	Bukedi.	County Unknown.	Totals.
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
1919 ...	...	12	5	35	48	1	7†	1*	109
TOTAL ...	20,310	7,493	1,875	439	252	29	7	12	30,417

* In Kyetume Camp.

† Hospital Return (7 at Mbale 1 at Gulu).

2. INFECTIOUS OR EPIDEMIC DISEASES.

6. *Beri-Beri.*—43 cases with 3 deaths were reported during the year, 42 of them from Soroti, 38 of them occurring among the prisoners in the gaol there. The cause was ascribed to a rice diet, and serious overcrowding of the gaol. There was a severe famine in the district at the time. When beans and sweet potatoes became available, no further cases occurred.

7. *Cerebro-Spinal-Meningitis.*—19 cases were returned during the year with 15 deaths, as compared with 68 cases in 1918 with 43 deaths. The Native returns for the five Kingdoms shew 587 deaths (Ankole 192, Toro 388) but many of these may have been Influenza.

8. *Dysentery.*—There was a serious increase in the numbers of this disease, 1484 with 372 deaths being returned as against 527 with 40 deaths. The largest number occurred in the Eastern Province concurrent with or rather following on a wide-spread famine.

The Hospital returns shew Jinja 354 cases with 54 deaths.

Mbale	560	do	do	250	do
Soroti	102	do	do	15	do
Lira	94	do	do	33	do

In Bukedi the number of deaths from this cause reported in the district during June, July, and August amounted to 3,555. A severe outbreak also occurred in Mbale Gaol due to the admission of several prisoners who were suffering from Dysentery at the time of admission. The gaol was as usual very over-crowded; there was no hospital accommodation for prisoners and segregation of dysenteric patients and adequate treatment was extremely difficult. Steps were taken to provide additional accommodation for prisoners and also improve the sanitary conditions, but far more extensive accommodation is still necessary.

9. *Enteric Fever.*—26 cases with 6 deaths occurred compared with 8 cases with 1 death in 1918.

For full Report *see* Appendix II.

10. *Erysipelas.*—6 cases were recorded.

11. *Gonorrhoea.*—The number is roughly the same as for last year, 1,147 in 1919, 1,105 in 1918.

12. *Influenza.*—Although only 1,958 cases with 57 deaths are recorded in the Hospital returns, as compared with 4,663 cases with 184 deaths in 1918, this gives little idea of the severity of the epidemic during the first half of 1919. As seen in Table IIIa, the number of deaths returned for five districts only amounted to abont 12,000, and in my opinion 25,000 is a low estimate of the mortality fom this disease. Towards the end of the epidemic the natives did begin to follow some of the simpler instructions issued to them.

13. *Leprosy.*—Though not uncommon throughout the Protectorate and common in some areas, especially to the North East, very few cases appear at our hospitals for treatment. The figures are only 3 Nodular and 9 Anæsthetic for 1918 and 3 Nodular and 12 Anæsthetic for 1919.

There is only one camp for the County of Busiro at Vugamira with 23 patients.

303 deaths are attributed to this disease in the returns for the five Kingdoms.

14. *Anthrax.*—Two cases were reported from Mbarara in 1919, compared with 7 in the same district in 1918.

15. *Measles.*—Only 33 cases were recorded.

16. *Plague.*—As seen below in Table C the death rate from Plague has been less for 1919 than for any year since returns were attempted. In Bukedi especially there was a large diminution in the number of deaths but unfortunately Influenza took its place.

Cases occurred in both Jinja and Kampala towards the end of the year. A report of this outbreak is given in Section III.

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

DISTRICT.	1919	1918	1917	1916	1915	1914	1913
Buganda	75	177	238	220	227	340	568
Busoga	447	485	518	462	273	88	468
Bukedi	208	1,052	1,661	2,562	1,912	1,963	1,671
Teso	69	698	594	458	615	651	261
Lango	201	*no returns*	753	627	951	624	222
Bunyoro	1	*nil*	18	17	4	4	40
Toro	4	*nil*	48	4	2	21	—
Ankole	17	81	201	34	44	34	62
Nile				*no returns*			
TOTALS ...	1,022	2,493	4,031	4,384	4,028	3,725	3,292

17. *Pneumonia*—The figures for the last three years are as follows:—

Year	*Cases*	*Deaths*
1917 ...	165 ...	40
1918 ...	139 ...	27
1919 ...	169 ...	66

18. *Smallpox.*—The severe and wide-spread epidemic of 1918, though dying down towards the close of that year, persisted for some months of 1919 in the Eastern Province, 1,840 deaths being returned by the Chiefs, of which 1,702 occurred in Busoga, Bukedi and Teso. The epidemic died a natural death. We had no satisfactory lymph to check it and now that our own lymph laboratory is supplying lymph (the first batch was issued early in October) it is hoped that Uganda will not again suffer from such a severe epidemic.

Only 151 cases were treated at the Government Isolation Camps with 40 deaths, compared with 1,374 cases with 392 deaths in 1918.

Smallpox.—Admissions to Government Isolation Hospitals.

Year	*Cases*	*Deaths*
1916 ...	104 ...	25
1917 ...	992 ...	230
1918 ...	1,374 ...	392
1919 ...	151 ...	40

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

DISTRICT.	1919	1918	1917	1916	1915	1914	1913
Buganda	62	1,155	569	111	537	20	10
Busoga	232	1,598	1,199	334	210	870	317
Bukedi	885	1,483	1,527	1,537	815	353	—
Teso	585	1,688	674	54	370	142	—
Bunyoro	51	1,110	191	—	1	—	7
Toro	22	266	2	5	4	4	—
Ankole	3	62	16	77	4	1	3
Lango	—	908		*no returns*			
Nile Districts . .				*no returns*			
TOTALS ...	1,840	8,270	4,178	2,118	1,941	1,390	337

19. *Syphilis.*—The figures both in the Hospitals and in the Native Returns shew a decrease.

The Hospital Registers shew 2,497 cases with 8 deaths for 1919
compared with 2,991 do do 6 do do 1918
and 4,383 do do 16 do do 1917

Table E below shews the deaths in the five Kingdoms for the last seven years.

This must not be taken as evidence that Syphilis is decreasing in the Protectorate, on the other hand, it is undoubtedly spreading rapidly in the Eastern Province.

Arrangements are being made to re-open the special Venereal Diseases Treatment Rooms in 1920 and it is hoped that sufficient staff and funds will be granted to make the movement a success.

Syphilis.—Admissions to Government Hospitals:—

Year	*Cases*	*Deaths*
1917 ...	4,383 ...	16
1918 ...	2,991 ...	6
1919 ...	2,497 ...	8

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

DISTRICT.	1919	1918	1917	1916	1915	1914	1913
Buganda	786	766	760	603	413	427	561
Busoga	408	571	557	539	465	426	435
Bunyoro	40	119	84	148	230	595	591
Ankole	447	617	534	631	725	593	498
Toro	133	182	151	128	135	161	202
TOTALS ...	1,814	2,255	2,086	2,049	1,968	2,202	2,287

20. *Tuberculosis.*—This is not common among those who present themselves for treatment, only 16 cases with 2 deaths being attributed to this cause. It may be found to be more common than is supposed at present, now that examinations for T. B. are being made as a routine measure in cases of "kifube" (chest trouble).

21. *Yaws.*—The figures for the last three years are as follows:—

Year	*Cases*	*Deaths*
1917 ...	659 ...	0
1918 ...	303 ...	0
1919 ...	190 ...	1

3. Helminthic Diseases.

The figures for the last three years are as follows:—

Year	*Cestoda*	*Nematoda*
1917 ...	85 ...	148
1918 ...	25 ..	48
1919 ...	49 ..	170

Routine microscopical examinations are now being made of the stools of all in-patients at Entebbe, Kampala and Jinja, and once the proposed medical school is in being, and we can teach the more intelligent natives in these subjects, our knowledge of the prevalence of the various helminths will be very materially increased.

(C) European Officials.

The number of cases of sickness amongst European Officials was 516 with 2 deaths, one from Blackwater fever and one from Post Influenzal Broncho-Pneumonia.

The corresponding figures for the last three years were as follows:—

1916 480 cases with 1 death, 430 being put off duty.
1917 383 cases with 2 deaths, 359 being put off duty.
1918 380 cases with 1 death, 319 being put off duty.

Table Showing the Sick, Invaliding and Death Rates of European Officials during 1919.

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.	% 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.	% of Invaliddings to total residents.	Total Deaths.	% of Deaths to total resident.	% of Deaths to average number resident.	Number of cases of sickness contracted away from station.
Arua ...	12	4·25	21	30	·08	1·88	1·43	7·05	...	...	...	...	...	14
Bombo ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Butiaba ...	4	2·00	16	75	·20	1·00	4·68	37·50	...	...	...	...	...	3
Entebbe ...	64	56·33	103	775	2·12	3·76	7·52	13·75	4	6·25	...	...	...	...
Gulu ...	17	1·57	6	29	·07	4·45	4·83	18·47	1	5·88	...	...	...	3
Hoima ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jinja ...	40	10·00	43	257	·70	7·00	5·97	25·70	1	2·50	...	...	...	15
Kampala ...	85	26·60	184	537	1·5	5·63	2·9	20·00	4	...	1	1·18	3·76	7
Kitgum ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lira ...	11	1·80	16	62	·16	8·88	3·87	34·44	...	...	...	...	...	5
Masaka ...	24	1·12	18	20	·05	4·46	1·11	17·85	1	4·16	...	...	...	...
Masindi ...	118	3·34	21	49	·13	3·89	2·33	14·67	...	...	...	...	...	6
Mbale ...	20	5·16	22	130	·35	6·78	5·90	25·19	...	...	...	...	...	2
Mbarara ...	18	3·90	14	69	·16	4·10	4·92	17·69	...	...	...	...	...	9
Namasagali ...	4	4·00	7	31	·08	2·00	4·43	7·75	...	...	1	25·00	25·00	2
Soroti ...	27	4·18	8	47	·12	2·87	5·87	11·24	...	...	...	...	...	3
Totals	444	124·25	479	2,111	5·78	4·60	4·41	16·99	11*	2·48	2	·45	1·61	69

* In addition one official seconded to Mwanza who contracted Cerebral Malaria, was boarded at Entebbe and invalided.

The health of the general European population was fair. There were 12 deaths due to the following causes:—

Blackwater Fever ...	... 4	Pneumonia ...	... 1
Cerebral Malaria ...	... 1	Gastric Ulcer (Naematemesis)	... 1
Heart Disease ..	... 1	Accident (killed by lion)	... 1
Diarrhoea ...	... 1	Unknown ...	... 1
Convulsions ...	... 1		

The principal causes of sickness were :—

Malaria...	... 203	Respiratory	... 24
Blackwater	... 5 (1 death)	Influenza	... 28 (1 death)
Digestive	... 93		

12 European Officials were invalided :—

(*a*) As being unfit for further service in Uganda :—

Anæmia and Chronic Bronchitis ...	1	Debility ...	.. 1
Cardiac Debility	1	Debility after Influenza	... 1
Debility after Cerebral Malaria ...	1	Blackwater Fever ...	... 1
Attempted suicide	1	Malaria ...	... 1

(*b*) Recommended leave to England :—

Amœbic Dysentry	1	General Debility ...	.. 1
Cerebral Malaria	1	Eczema ...	... 1

TABLE SHEWING THE CAUSE OF INVALIDING AMONGST EUROPEAN OFFICIALS DURING THE PAST SIX YEARS.

DISEASES.	1919	1918	1917	1916	1915	1914	TOTALS.
Blackwater Fever	1	1	1	1	—	1	5
Circulatory Affections	—	1	—	1	1	—	3
General Debility	4	1	1	1	—	—	7
Nervous and Mental Diseases ...	1	1	1	—	—	—	3
Neurasthenia	—	2	1	1	—	1	5
Tuberculosis	—	1	1	—	—	1	3
Leukæmia	—	—	—	—	—	1	1
Digestive Disorders	—	1	—	—	2	—	3
Carcinoma	—	2	1	—	—	—	3
Alcoholic Neuritis	—	—	1	—	—	—	1
Neuritis	—	—	1	—	—	—	1
Amœbic Dysentery	1	2	—	—	—	—	3
Adenitis	—	1	—	—	—	—	1
Anæmia and Chronic Bronchitis ...	1	—	—	—	—	—	1
Cardiac Debility	1	—	—	—	—	—	1
Eczema	1	—	—	—	—	—	1
Malaria	2	—	—	—	—	—	2
	12	13	8	4	3	4	44

(D) Native Officials, including Asiatics.

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES OF ASIATIC AND NATIVE OFFICIALS DURING 1919.

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.	% 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.	% of Invalidings to total residents.	Total Deaths.	% of Deaths to total residents.	% of Deaths to average number resident.	Number of cases of sickness contracted away from station.
Arua ...	3	1·90	1	8	·02	1·05	8·00	4·21	...	...	...	...	...	...
Bombo ...	...	...	...	...	...	...	..	...	...	...	...	...	...	...
Butiaba ...	8	7·00	67	246	·67	9·57	3·67	35·14	...	..	...	...	...	...
Entebbe ...	95	72·00	237	1,040	2·84	3·94	4·38	14·44	2	2·10	...	...	...	...
Gulu ...	11	2·86	6	97	·26	9·09	16·16	33·91	...	...	...	...	...	...
Hoima ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jinja ...	102	45·00	95	459	1·25	2·77	4·83	10·20	1	·98	1	·98	2·22	10
Kampala ...	110	55·20	265	1,089	2·90	5·25	4·11	19·8	2	...	3	2·7	5·62	16
Kitgum ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lira ...	6	2·39	32	35	·09	3·76	1·09	14·64	...	...	...	...	...	...
Masaka ...	48	5·30	34	11	·03	·56	·32	2·07	1	2·29	...	...	...	...
Masindi ...	115	6·50	43	189	·51	7·84	4·39	29·07	...	...	...	...	...	...
Mbale ...	16	7·08	33	111	·30	4·23	3·36	15·67	...	...	...	...	...	...
Mbarara ...	10	4·57	12	75	·20	4·37	6·25	16·41	1	10·00	...	...	...	2
Namasagali ...	45	45·00	170	658	1·80	4·00	3·87	14·62	...	...	1	2·22	2·22	...
Soroti ...	9	3·54	11	55	·15	4·23	5·00	15·53	...	...	1	11·11	28·24	2
TOTALS ...	578	258·34	1006	4,073	11·02	4·27	4·05	15·77	7	1·21	6	1·04	2·32	30

There were 968 cases treated during the year with six deaths. Of these 927 were placed off duty.

The principal causes of sickness were :—

Dysentery	...	15
Influenza	...	33 with 1 death
Malaria	...	513 do
Blackwater Fever	...	11 with 3 deaths
Respiratory	...	47
Pneumonia	...	3 with 1 death
Digestive	...	99

Invalidings :—

(*a*) Out of the service.

Syphilis (contracted in the performance of his duties)	1
Mental breakdown	1
Pleurisy	1
Valvular disease of the heart	1
Debility	1

(*b*) Recommended leave to B. E. A.

Malaria	1

(*c*) Recommended leave to India.

Atonic Dyspepsia	1

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 :—

	Highest.	*Lowest.*
January	10·61	10·53
February	10·54	10·51
March	10·62	10·54
April	10·93	10·62
May	10·92	10·90
June	10·89	10·80
July	10·78	10·62
August	10·62	10·52
September	10·52	10·51
October	10·51	10·48
November	10·48	10·47
December	10·48	10·47

Note.—The zero of the gauge is ~~3606·59~~ 3720·15 feet above the mean sea level.

Section V.

HOSPITALS AND DISPENSARIES.

Accommodation.

The Hospital accommodation is as shewn in the Annual Report for 1917. Nothing has been added in 1918 or 1919, except a temporary building to be used as a Hospital in the Mbale Gaol.

The foundation of the new European Hospital at Kampala was begun in December (1919) and a start has been made in renovating the temporary buildings of the Venereal Diseases Treatment Centres at Mulago.

The needs of the Protectorate in this respect were given fully in a report sent home in December, and though it is recognised that all asked for therein cannot be granted at once, it is hoped that a start will be made in the coming year.

Table III shows the Hospital Accommodation in each district.

TABLE A.

The following table shows, by stations, the total number of cases treated, with deaths, at Government Hospitals and Dispensaries during the years 1919, 1918, 1917 :—

	1919		1918		1917	
	Total Cases.	Total Deaths.	Total Cases.	Total Deaths.	Total Cases.	Total Deaths.
Arua	1,240	12	...	...	...	...
Bombo	845	2	...	...	4,627	27
Butiaba	1,850	3	1,556	29	1,418	29
Entebbe— European Hospital ...	182	1	151	1	252	2
Civil Hospital	5,082	24	5,448	83	5,820	50
Gulu	3,422	13	2,398	61	4,608	67
Hoima	...	...	2,636	55	5,657	221
Jinja— European Hospital ...	156	...	124	...	162	1
Civil Hospital ...	5,901	135	5,130	152	3,310	62
Kampala—Civil Hospital ...	11,801	59	13,621	165	12,312	324
Gaol	...	...	1,542	52	983	18
Kitgum	1,930	34	1,058	16	...	...
Lira	1,918	64	2,433	3	1,859	44
Masaka	3,782	26	3,117	7	4,651	10
Masindi	5,560	17	8,536	101	8,734	27
Mbale	3,865	342	1,844	21	3,573	26
Mbarara	6,259	32	5,948	18	5,820	29
Namasagali	1,540	14	1,534	23	2,789	11
Soroti	2,804	56	3,205	37	3,661	19
TOTALS ...	58,137	834	60,281	824	70,236	967

In addition to above 1,291 cases (with 9 deaths) were treated in Kampala Gaol and 896 cases (with three deaths) at the Military Hospital, Bombo (*see* note at foot of Table VII).

Lunatic Asylum.

The erection of a Lunatic Asylum has again been postponed. The lunatics are still confined in part of Hoima Gaol, which is a most unsatisfactory arrangement, and the supervision is inadequate. The number of lunatics on December 31st, was 13.

BUILDINGS.

STATEMENT OF WORK CARRIED OUT DURING 1919.

	Rs.	Cts.
Entebbe.—		
Additional Room to P.M.O's Office (under construction)	1,456	76
Extension of Bacteriologist's Office (under construction)	705	40
Civil Hospital—Whitewash throughout, shelves over beds, etc., repair roof and fire place. New locks and glass put to doors, etc. Old G. I. tanks removed ...	95	11
European Hospital—Repair key of store, whitewash ward and repair door. Whitewash kitchen, repair cook's room. Fix glass and hinges to doors, etc. ...	54	13
Kampala.—		
European Hospital, part erection of (under construction)	3,246	03
(Mulago) Buildings for Venereal Disease Centres (under construction)	7,287	77
Jinja.—		
Repairs to Medical buildings	15	34
Tanks for Native Hospital	357	82
Mbale.—		
Repairs to Medical buildings	355	59
Temporary Hospital for prison	449	28
Nine Huts for Dressers and Plague Inspectors	499	00
Soroti.—		
Quarters for Native Staff at Hospital (under construction)	39	06
Lango.—		
Repairs to Medical buildings	299	24
Kitgum.—		
Temporary buildings (Dispensary under construction)	65	36
Aruz.—		
Temporary buildings (Dispensary and Hospital under construction)	897	73
Rs.	15,823	62

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, 1919.	REMARKS.
Major C. A. Wiggins, M.R.C.S., L.R.C.P., F.E.S.	Principal Medical Officer	Entebbe	
J. H. Reford, B.A., M.D., B.Ch., B.A.O., L.M. (Dub.), D.T.M. (Liverp.)	Deputy P. M. O. ...	Jinja	
G. C. Strathairn, M.B., ch.B., D.P.H. (Edin.)	S. M. O. ...	On leave	On transfer to Fiji.
R. A. L. van Someren, M.D., ch.B., D.P.H. (Edin.) ...	Do ...	Do	
Major G. Lane, R.A.M.C. (S), L.R.C.S. & P. (Edin.), L.F.P.S. (Glas.)	Medical Officer ...	Bombo	
J. H. Goodliffe, M.D., C.M. (Aberdeen)	Do ...	On leave	
C. H. Marshall, M.R.C.S., L.R.C.P., M.B. (London) ...	Do ...	Mbale	
Major H. B. Owen, D.S.O., M.B., B.C., D.T.M. & H. (Camb.) ...	Do ...	On leave	
J. A. Taylor, M.B., ch.B., (Edin.), L.M. (Dub.), D.T.M. (Liverp.)	Do ...	Do	On transfer to Federated Malay States.
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 ...	On leave	
R. E. McConnell, B.A., M.D., C.M. (Montreal), D.T.M. (Liverp.)	Do ...	Arua	
B. Spearman, M.A., M.B., B.C. (Camb.), D.T.M. & H. ...	Do ...	Entebbe	
Capt. A. H. Owen, M.R.C.S., L.R.C.P., D.T.M. & H. (Camb.)...	Do ...	Kampala	
H. R. Neilson, M.B., ch.B. (Aberdeen)	Do ...	Mbarara	
Major R. J. A. Macmillan, D.S.O., M.B., ch.B. (Edin.) D.T.M. (Liverp.)	Do ...	En route Uganda	On re-appointment.
W. L. Webb, M.R.C.S., L.R.C.P., M.B., B.S. (London), D.P.H.	Do ...	On leave	
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 ...	On leave	
S. M. Vassallo, M.D. (Malta)	Do ...	En route Mbale	
J. A. Quin, M.D., B.Ch., B.A.O.	Medical Officer ...	En route Arua	
F. O. Simpson, M.R.C.S., L.R.C.P., D.P.H (Ireland) ...	Temporary Medical Officer	En route Mbarara	
Major G. J. Keane, D.S.O., R.A.M.C., M.D., Ch.B., D.P.H., D.T.M. (Liverp.)	Do ...	On leave	Special Service Venereal Diseases.
W. F. Fiske	Entomologist ...	Sesse	Sleeping Sickness Investigations.
C. J. Baker, M.R.C.S., L.R.C.P.	Medical Sanitary Officer	On leave	
J. M. Collyns, M.B., D.P.H. (London), M.R.C.S., L.R.C.P. ...	Medical Officer of Health	Kampala	
H. L. Duke, O.B.E., B.A., M.D., B.C., D.T.M. & H. (Camb.) ...	Bacteriologist ...	Entebbe	
J. Stewart	Laboratory Assistant	Entebbe	
G. S. Bateman, L.D.S.,R.C.S. (Eng.)	Dental Surgeon ...	On leave	
Miss B. Petherbridge	Matron ...	On leave	Retiring on pension.
Miss E. M. Pratt, A.R.R.C.	Nursing Sister ...	Entebbe	
Miss D. M. Ivers	Do ...	Jinja	
Miss A. Mason	Do ...	Entebbe	
Miss N. M. Adams	Do ...	Entebbe	
Mr. H. Flint	Office Superintendent	Entebbe	
Mr. H. T. Bott	Assistant Clerk ...	Entebbe	
Mr. P. J. L. Waters	Medical Storekeeper	Entebbe	
Mr. C. Chorley	Dispenser ...	Kampala	Temp. Local Agr'nt.
Mr. C. W. V. Gittins	Sleeping Sickness Inspector	—	—

Table I. (*a*)—Return Showing the Asiatic Medical Staff.

Name.	Rank.	Where stationed on 31st December, 1919.	REMARKS.
Gokal Chand	Sub-Assist. Surgeon	On leave	
Kanade, K. R.	Do	On leave	
Karkhanis, A. D.... ...	Do	Jinja	
Achru Ram	Do	Kampala	Seconded from I. M. D.
Hukam Singh	Do	Entebbe	Do
Diwan Chand	Do	Butiaba	Do
Basant Singh	Do	Masaka	Do
Ram Chand	Do	Mbarara	
Nayar, H. C.	Do	Gulu	Seconded from I. M. D.
Mangal Sain	Do	Namasagali	
Maqbull Haqq	Do	Soroti	
Andrews, C. P.	Do	Lira	
Ahmed Din	Do	Mbale	
Ghulam Haider	Compounder	On leave	
Faqir Chand	Do	Masindi	
Karam Dad	Do	Masindi	
Fernandes, E. F. X. ...	Do	Bombo	
Mela Ram	Do	Kitgum	

Table III.

Showing Present Staff and Hospital Accommodation for each District, 1919 (Medical and Sanitary Branches combined).

BUGANDA KINGDOM.

	Entebbe District.	Masaka District.	Mengo District.	Mubendi District.
Area in Square Miles ...	5,486	4,602	6,659	5,623
Population ...	100,800	110,000	404,500	146,000
European Staff ...	1 M. O.	—	1 M.O. 1 M.O.H.*	—
Asiatic Staff ...	1 S. A. S.	1 S.A.S.	1 S.A.S.	—
Native Staff—Dressers, etc.	9	3	18	—
Plague Inspectors and Vaccinators	2	2	25	2
S. S. Inspectors	5	2	—	2
Clerk	1	—	1	—
Menial	21	1	9	—
Number of Beds, Medical and Surgical ...	31	9	76	—
Isolation ...	12	—	—	—

Entebbe Column includes European, Goán and Native Hospitals.
Mengo Column includes S. S. Camp, Kyetume, and Military Hospital, Bombo.
*Also acting M. S. O. and S. M. O.
N.B.—Owing to shortage of staff the Masaka District is put under the Medical Officer, Entebbe, and the Mubendi District under the Medical Officer, Kampala.

EASTERN PROVINCE.

	Busoga.	Bukedi.	Teso.	Lango.
Area in Square Miles ...	10,771	3,354	4,738	5,099
Population ...	247,600	433,900	287,200	362,100
European Staff ...	1 M. O.*	1 M.O.	1 M.O.	—
Asiatic Staff ...	2 S. A. S's.	1 S.A.S.	1 S.A.S.	1 S.A.S.
Native Staff—Dressers, etc.	8	7	7	3
Plague Inspectors and Vaccinators	6	9	7	3
S. S. Inspectors	—	2	—	—
Clerk	1	—	—	—
Menial	11	3	1	1
Number of Beds, Medical and Surgical ...	32	8	13	—
Isolation ...	—	—	—	—

* Also acts as S. M. O. and M. O. H.
N.B.—Owing to shortage of staff the Lango District is put under the Medical Officer, Teso.

WESTERN PROVINCE.

	Ankole.	Toro.	Kigezi.
Area in Square Miles ...	6,131	5,579	2,056
Population ...	266,500	126,100	150,000
European Staff ...	1 M. O.	—	—
Asiatic Staff ...	1 S. A. S.	—	—
Native Staff—Dressers	3	—	2
Plague Inspector and Vaccinator	1	—	—
S. S. Inspectors	4	—	—
Menial	2	—	—
Number of Beds, Medical and Surgical ..	7	—	—
Isolation ...	—	—	—

N.B.—Owing to shortage of staff Toro and Kigezi Districts, are put under the Medical Officer, Ankole.

NORTHERN PROVINCE.

	Bunyoro *	Gulu	Chua.	West Nile.
Area in Square Miles ...	5,619	6,995	7,007	4,113
Population ...	92,600	98,000	85,200	227,500
European Staff ...	1 M. O.	—	—	1 M. O.
Asiatic Staff ...	1 S. A. S.	1 Compounder	1 Compounder	—
Native Staff—Dressers	†13	6	2	4
Plague Inspectors and Vaccinators	2	2	—	1
S. S. Inspectors	4	2	2	—
Clerk	1	—	—	—
Menial	5	1	1	—
Number of Beds, Medical and Surgical	19	6	—	—
Isolation ...	—	—	—	—

* Includes 3 Stations, *viz.*:—Masindi, Hoima and Butiaba.
† Includes attendants at asylum.
N.B.—Owing to shortage of staff Gulu and Chua Districts are put under the Medical Officer, West Nile.

Registration of Medical Practitioners and Dentists.

The Ordinance governing registration came into force on July 1st, 1913, since when and up to December 31st, 1919, the following have been placed on the Register:—

Registered Medical Practitioners	46
Dentists	1
Licensed Medical Practitioners	29

Many of these have been erased owing to their having left the Protectorate over two years and the numbers actually on the register on December 31st, 1919, were as follows:—

Registered Medical Practitioners	31
Dentists	1
Licensed Medical Practitioners	18

Of these 31 Registered Medical Practitioners, 6 belong to the Church Missionary Society, all the rest are in Government Service.

Table VI.

Return of Diseases and Deaths (In-Patients) for the Year 1919.

Diseases.	Remaining in Hospital at end of 1918.	Yearly Total.		Total Cases Treated	Remaining in Hospital at end of 1919.
		Admissions.	Deaths.		
Infective Diseases:—					
Beri-Beri	—	22	3	22	2
Cerebro-Spinal Fever	—	14	11	14	1
Chicken-Pox	2	110	—	112	—
Diphtheria	—	1	—	1	—
Dysentery	5	813	341	818	9
Enteric	—	4	3	4	—
Erysipelas	—	1	1	1	—
Gonorrhœa	2	60	3	62	19
Influenza	40	193	33	233	11
Leprosy (*a*) Nodular	—	1	—	1	—
(*b*) Anæsthetic	1	1	—	2	1
Malaria (*a*) Tertian	—	73	1	73	9
(*b*) Aestivo-autumnal ...	—	124	—	124	—
(*c*) Chronic Malaria ...	—	8	—	8	—
(*d*) Black-water	1	15	3	16	—
Measles	—	11	—	11	—
Plague	—	13	11	13	—
Pneumonia	2	76	44	78	1
Mumps	—	1	—	1	—
Relapsing Fever	1	16	1	17	—
Rheumatic Fever	1	23	2	24	—
Trypanosomiasis (Sleeping Sickness) ...	—	50	11	50	17
Small-Pox	4	116	38	120	4
Syphilis (*a*) Primary	1	32	—	33	6
(*b*) Secondary	21	175	8	196	45
(*c*) Tertiary	5	30	—	35	12
(*d*) Inherited	—	11	—	11	5
Tuberculosis	—	4	3	4	—
Yaws	1	6	1	7	—
Tetanus	—	1	—	1	1
P. U. O.	4	223	6	227	2
Others	—	3	—	3	—
General Diseases:—					
Anæmia	—	23	11	23	—
Debility	—	34	11	34	3
Others	—	3	1	3	—
Local Diseases.—					
Diseases of the Nervous System.—					
Sub-section 1.					
Neuritis	—	4	—	4	—
Myelitis	—	1	—	1	—
Congestion of Brain ...	—	2	—	2	—
Others	—	1	—	1	—
Sub-section 2.					
Apoplexy	—	2	1	2	—
Paralysis	—	5	1	5	1
Epilepsy	—	9	4	9	—
Neuralgia	—	8	—	8	—
Others	1	2	—	3	—
Mental Diseases.—					
Sub-section 3.					
Mania	—	2	—	2	—
Dementia	—	1	1	1	—
Delusional Insanity	—	2	—	2	—
Carried forward ...	92	2,330	554	2,422	149

Table VI—*continued.*

Return of Diseases and Deaths (In-Patients) for the Year 1919.—*continued.*

Diseases.	Remaining in Hospital at end of 1918.	Yearly Total.		Total Cases Treated.	Remaining in Hospital at end of 1919.
		Admissions.	Deaths.		
Brought forward ...	92	2,330	554	2,422	149
Local Diseases.					
Diseases of the Eye—					
Conjunctivitis	—	11	—	11	2
Keratitis	—	2	—	2	1
Ulceration of Cornea	—	3	—	3	—
Iritis	—	2	—	2	—
Others	—	1	—	1	—
Diseases of the Ear—					
Inflammation	—	1	—	1	—
Other Diseases	—	2	—	2	—
Diseases of the Nose—					
Coryza	—	1	—	1	—
Others	—	4	—	4	—
Diseases of the Circulatory System—					
Pericarditis	—	2	2	2	—
Valvular Mitral	—	2	2	2	—
Aortic	—	1	1	1	—
Others	—	2	2	2	—
Diseases of the Respiratory System—					
Laryngitis	—	2	—	2	—
Bronchitis	1	61	4	62	13
Broncho-pneumonia	—	7	4	7	—
Pleurisy	—	5	1	5	—
Empyema	—	1	1	1	—
Phthisis	—	3	2	3	—
Others	—	4	—	4	—
Diseases of the Digestive System—					
Stomatitis	—	4	1	4	—
Sore Throat	—	3	—	3	—
Inflammation of Tonsils	—	2	—	2	—
Gastritis	—	1	—	1	—
Ulceration of Stomach	—	1	—	1	—
Hæmatemesis	—	1	—	1	—
Dyspepsia	—	10	—	10	—
Enteritis	—	2	—	2	—
Appendicitis	—	2	—	2	—
Colitis	1	13	—	14	—
Hernia	—	17	6	17	—
Diarrhœa	1	63	14	64	—
Constipation	—	3	—	3	1
Colic	—	13	2	13	—
Hæmorrhoids	—	3	—	3	—
Abscess	—	2	1	2	—
Cirrhosis	—	3	1	3	—
Jaundice	—	4	—	4	—
Peritonitis	—	2	2	2	—
Ascites	—	4	1	4	—
Others	—	6	3	6	—
Diseases of the Lymphatic System—					
Splenitis	—	5	—	5	—
Inflammation of Lymphatic Gland ...	—	16	—	16	2
Suppuration of Lymphatic Gland ...	—	11	—	11	3
Elephantiasis	—	2	—	2	—
Others	—	1	—	1	—
Diseases of the Urinary System—					
Acute Nephritis	—	6	3	6	—
Bright's Disease	—	6	3	6	—
Renal Colic	—	1	—	1	—
Cystitis	—	2	—	2	—
Diseases of the Generative System—					
Male Organs—					
Stricture	—	7	—	7	1
Soft chancre	3	25	—	28	—
Condyloma	—	3	—	3	—
Inflammation of Scrotum ...	—	1	—	1	—
Hydrocele	—	2	—	2	—
Orchitis	1	5	—	6	—
Abscess of Testicle	—	1	1	1	—
Others	1	16	—	17	3
Female Organs—					
Vaginitis	—	1	—	1	—
Menorrhagia	—	2	—	2	—
Abortion	—	4	—	4	—
Delayed Labour	—	6	3	6	1
Puerperal Septicæmia	—	1	1	1	—
Parturition	—	9	—	9	—
Carried forward ...	100	2,739	615	2,839	176

Table VI.—*continued.*

Return of Diseases and Deaths (In-Patients) for the Year 1919.

Diseases.	Remaining in Hospital at end of 1918	Yearly Total.		Total Cases Treated.	Remaining in Hospital at end of 1919.
		Admissions.	Deaths.		
Brought forward ...	100	2,739	615	2,839	176
Local Diseases.—*continued.*					
Diseases of Organs of Locomotion—					
Ostoitis	—	4	—	4	—
Arthritis	1	1	—	2	—
Bursitis	—	3	—	3	1
Myalgia	2	60	1	62	5
Others	1	12	—	13	2
Diseases of Connective Tissue—					
Cellulitis	1	35	—	36	1
Abscess	2	50	4	52	6
Elephantiasis	—	1	—	1	—
Others	1	1	1	2	—
Diseases of the Skin—					
Urticaria	—	2	—	2	—
Eczema	—	1	—	1	—
Boil	—	3	—	3	2
Herpes	—	2	—	2	—
Psoriasis	—	1	—	1	—
Oriental Sore	—	16	—	16	7
Tinea	—	1	—	1	—
Scabies	1	13	—	14	—
Ulcers	3	154	—	157	24
Others	—	1	1	1	—
Injuries—General	1	17	9	18	—
Local	10	329	27	339	30
Tumours	—	5	—	5	1
Poisons	—	3	1	3	—
Snake Bite	—	4	—	4	—
Parasites—Animal—					
Nematoda—					
Filariasis	—	6	—	6	—
Ankylostomiasis	—	65	22	65	—
Insecta—					
Myiasis	—	1	1	1	—
Chiggers	..	10	—	10	1
Total ...	123	3,540	682	*3,663	256

Surgical Operations 83

* In addition to above there were 1,291 In-patients (with 9 deaths) of which 15 (with 4 deaths) were Enteric treated in Kampala Gaol, and 320 cases (with 2 deaths) in the Military Hospital, Bombo.

Table VII.

Return of Diseases (Out-Patients) for the Year 1919.

	European Officials.	Native Officials (including Asiatics.)	General European Population, Officials and Non-Officials.	General Population, Europeans, Asiatics and Natives.		
				Males.	Females.	Deaths.
Infective Diseases—						
Beri-Beri	—	—	—	43	—	3
Cerebro-Spinal Fever	—	—	—	18	1	15
Chicken-Pox	—	—	—	200	3	—
Dengue	1	—	1	1	—	—
Diphtheria	—	—	—	—	1	—
Dysentery	13	15	21	1,362	122	372
Enteric	—	—	—	7	2	2
Para T.	—	—	2	1	1	—
Erysipelas	—	—	2	3	3	—
Gonorrhœa	1	1	9	1,097	50	3
Influenza	1 28	1 83	1 44	1,679	279	57
Leprosy						
(*a*) Nodular	—	—	—	3	—	—
(*b*) Anæsthetic	—	—	—	11	1	—
Carried forward ...	43	49	79	4,425	463	452
Deaths ...	*1*	*1*	*1*	—	—	—

Table VII.

Return of Diseases (Out-Patients) for the year 1919—*continued*.

	European Officials.	Native Officials (including Asiatics.)	General European Population, Officials and Non-Officials.	General Population,—European, Asiatic and Native.		
				Males.	Females.	Deaths.
Brought forward ...	*1* 43	*1* 49	*1* 97	4,425	463	452
Infective Diseases.—*continued.*						
Malaria						
(*a*) Tertian	47	141	100	957	263	1
(*b*) Quartan	—	1	—	—	—	—
(*c*) Aestivo-autumnal ...	155	348	*1* 271	2,581	377	5
(*d*) Chronic Malaria	1	*1* 23	*1* 2	159	15	4
(*e*) Blackwater	*1* 5	*3* 11	*1* 14	65	3	12
Measles	1	—	6	29	4	—
Malta Fever	—	—	—	—	1	—
Plague	—	—	—	22	1	20
Pneumonia	—	*1* 3	—	154	15	66
Anthrax	—	—	—	1	1	—
Relapsing Fever	2	—	11	127	16	4
Rheumatic Fever	—	—	1	16	1	—
Septicæmia	—	—	—	2	1	—
Trypanosomiasis (Sleeping Sickness) ...	—	—	—	36	15	8
Small-Pox	—	—	1	95	56	40
Syphilis						
(*a*) Primary	—	—	—	411	99	—
(*b*) Secondary	—	2	1	646	274	7
(*c*) Tertiary	—	—	—	577	225	—
(*d*) Inherited	—	—	—	171	94	1
Tuberculosis	—	—	1	14	2	2
Whooping Cough	—	—	—	20	1	—
Yaws	—	—	—	167	23	1
Mumps	—	—	—	5	3	—
Tetanus	—	1	—	1	—	—
P. U. O.	5	50	*1* 14	3,153	405	6
Others	—	7	—	60	28	1
Intoxications.—						
Alcoholism	—	—	*1* 3	4	—	—
General Diseases.						
Anæmia	4	3	10	85	17	9
Anæmia—Pernicious	—	—	—	1	1	—
Diabetes	—	1	—	6	1	—
Gout	—	—	1	2	2	—
Purpura	—	—	1	1	—	—
Scurvy	—	—	—	4	1	—
Debility	8	6	25	259	54	14
Others	3	1	3	43	12	—
LOCAL DISEASES.						
Diseases of the Nervous System.						
Sub-Section 1.						
Neuritis	3	2	5	42	4	—
Meningitis	—	—	—	1	—	1
Myelitis	—	—	—	1	—	—
Congestion of Brain	—	—	—	2	—	—
Others	—	—	1	9	3	—
Sub-Section 2.						
Apoplexy	—	—	—	1	—	—
Paralysis	—	—	—	12	—	2
Chorea	—	—	—	2	—	1
Epilepsy	—	—	—	15	3	1
Neuralgia	—	9	2	571	99	—
Hysteria	—	—	—	4	2	—
Others	6	8	9	664	193	—
Sub-Section 3.						
Mental Diseases						
Idiocy	—	—	—	2	—	—
Mania	—	—	—	8	1	2
Melancholia	—	—	—	2	1	—
Dementia	—	—	—	1	1	1
Delusional Insanity	—	—	—	4	—	—
Diseases of the Eye.—						
Conjunctivitis	1	8	3	1,938	787	—
Keratitis	—	—	—	21	3	—
Ulceration of Cornea	—	1	—	68	16	—
Iritis	1	—	2	74	16	—
Optic Neuritis	—	—	—	2	—	—
Cataract	—	—	—	1	—	—
Others	1	...	1	41	11	—
Carried forward ...	286	675	567	17,785	3,614	661
Deaths ...	*2*	*6*	*6*	—	—	—

TABLE VII.

Return of Diseases (Out-patients) for the year 1919—*continued.*

	European Officials.	Native Officials (including Asiatics.)	General European Population, Officials and Non-Officials.	General Population,—European, Asiatic and Native.		
				Males.	Females.	Deaths.
Brought forward ...	2 286	6 675	6 567	17,785	3,614	661
Local Diseases.—*continued.*						
Diseases of the Ear						
Inflammation	—	1	4	387	187	—
Other Diseases	2	—	2	259	93	—
Diseases of the Nose						
Coryza	4	61	6	160	71	—
Rhinitis	3	—	3	37	10	—
Others	—	—	—	61	23	—
Diseases of the Circulatory System						
Pericarditis	—	—	—	5	—	2
Endocarditis	—	—	—	1	—	—
Valvular Mitral	—	—	2	27	7	5
Aortic	—	—	1 1	8	—	2
Aneurism	—	—	—	1	—	—
Others	1	2	2	44	9	4
Diseases of the Respiratory System						
Laryngitis	—	—	2	57	12	1
Bronchitis	17	28	28	4,555	1,352	5
Broncho-pneumonia	—	—	—	52	3	8
Empysema	—	—	—	1	—	—
Pleurisy	1	—	1	84	11	2
Empyema	—	—	—	2	1	—
Phthisis	1	1	1	4	1	3
Others	5	18	12	74	11	2
Diseases of the Digestive System						
Stomatitis	—	—	1	242	77	1
Caries of Teeth	12	9	16	416	310	—
Glossitis	—	1	—	16	1	—
Sore Throat	7	2	3	323	78	—
Inflammation of Tonsils	10	6	20	242	55	—
Gastritis	7	3	16	44	13	1
Hæmatemesis	—	—	—	2	—	—
Stricture of Stomach	—	—	1	—	—	—
Dyspepsia	18	21	42	782	348	1
Enteritis	6	—	11	8	—	—
Appendicitis	—	1	2	6	4	—
Colitis	2	1	7	52	16	—
Hernia	—	—	—	63	2	5
Diarrhœa	11	22	1 30	1,623	232	33
Constipation	6	19	10	1,491	449	—
Colic	2	8	3	460	103	1
Hæmorrhoids	1	2	2	22	27	—
Hepatitis-Acute	5	1	9	15	—	—
Abscess	1	—	1	7	—	1
Cirrhosis	—	—	—	2	—	2
Jaundice	—	—	—	29	4	1
Peritonitis	—	—	—	2	2	3
Ascites	—	—	—	13	3	—
Others	5	3	15	179	45	4
Diseases of the Lymphatic System						
Splenitis	—	—	—	28	5	—
Inflammation of Lymhatic Gland... ...	—	—	—	232	35	—
Suppuration of Lymphatic Gland	—	—	—	140	19	—
Lymphangitis	—	—	—	2	—	—
Others	—	—	—	9	—	—
Diseases of the Urinary System						
Acute Nephritis	—	—	—	5	—	3
Bright's Disease	—	—	—	12	—	3
Renal Colic	—	—	—	2	—	—
Cystitis	—	—	1	19	3	—
Suppression	—	—	—	2	—	1
Hæmaturia	—	—	—	1	1	—
Others	1	—	2	5	2	—
Diseases of the Generative System						
Male Organs						
Urethritis	2	1	6	22	—	—
Gleet	—	1	—	35	—	—
Stricture	—	—	—	25	—	—
Prostatitis	—	—	1	—	—	—
Soft chancre	—	2	1	383	—	—
Condyloma	—	—	—	25	—	—
Inflammation of Scrotum	—	—	—	2	—	—
Carried forward ...	416	889	831	30,595	7,239	755
Deaths ...	2	6	8	—	—	—

TABLE VII.

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1919—*continued.*

	European Officials.	Native Officials (including Asiatics.)	General European Population Officials and Non-Officials.	General Population—European Asiatic and Native.		
				Males.	Females.	Deaths.
Brought forward.	2 416	6 889	8 831	30,595	7,239	755
Local Diseases.—*continued.*						
Diseases of the Generative System—*continued.*						
Male Organs						
Hydrocele	—	—	—	30	—	—
Orchitis	1	—	1	114	—	—
Epididymitis	—	—	1	2	—	—
Abscess of Testicle	—	—	—	5	—	2
Others	—	1	1	53	—	—
Female Organs						
Ovaritis	—	—	—	—	2	—
Ovarian Cyst	—	—	—	—	1	—
Displacement of Uterus	—	—	1	—	1	—
Vaginitis	—	—	—	—	5	—
Amenorrhœa	—	—	1	—	20	—
Dysmenorrhœa	—	—	—	—	25	—
Menorrhagia	—	—	1	—	33	—
Leucorrhœa	—	—	—	—	39	—
Abortion	—	—	3	—	25	—
Delayed Labour	—	—	—	—	6	3
Premature Birth	—	—	—	—	1	—
Puerperal Septicæmia	—	—	1	—	4	2
Mastitis	—	—	—	—	7	—
Abscess of Breast	—	—	—	—	11	—
Parturition	—	—	3	—	18	—
Others	—	—	6	—	42	1
Diseases of the Organs of Locomotion						
Osteitis	1	—	—	40	4	—
Arthritis	1	—	2	55	7	—
Bursitis	—	—	—	15	3	—
Myalgia	27	30	41	3,432	554	3
Others	3	—	5	174	30	—
Diseases of the Connective Tissue						
Cellulitis	—	2	5	617	62	1
Abscess	5	3	11	650	136	3
Elephantiasis	—	—	—	11	1	—
Others	—	—	—	17	5	1
Diseases of the Skin						
Urticaria	2	2	5	65	7	—
Eczema	3	1	5	196	38	—
Boil	5	4	11	329	69	—
Carbuncle	2	—	2	9	1	—
Herpes	2	1	2	40	3	—
Psoriasis	—	—	—	73	29	—
Oriental Sore	—	—	—	90	24	—
Tinea	—	2	1	150	83	—
Scabies	—	7	2	2,354	536	—
Acne	—	—	1	1	2	—
Prickly Heat	1	—	1	—	3	—
Ulcers	3	1	10	3,255	669	—
Others	5	—	7	57	6	—
Injuries—General	1	1	1	48	8	9
Local	32	17	47	4,635	784	29
Tumours	—	—	—	22	8	1
Malformations	—	—	—	3	—	—
Poisons	1	—	2	7	—	1
Snake Bites	—	—	—	22	2	—
Parasites—Animal	—	—	—	1	—	—
Cestoda						
Taenia Solium	3	1	5	23	9	—
Taenia Saginata	—	—	—	12	5	—
Nematoda						
Ascaris	1	—	1	18	7	—
Dracunculus	—	—	—	59	2	—
Filariasis	—	—	—	11	—	—
Ankylostomiasis	—	—	—	49	18	22
Oxyuris	—	—	—	1	—	—
Others	—	—	—	4	1	—
Insecta						
Myiasis	1	—	1	2	—	1
Chiggers	1	5	3	154	35	—
Others	—	1	—	7	—	—
TOTAL	516	968	1,021	*47,507	10,630	834
Deaths	*2*	*6*	*8*	...	...	...
Surgical Operations	2	2	9	1,151	137	...

* In addition 1,291 cases (with 9 deaths) of which 15 with 4 deaths were Enteric treated in Kampala Gaol, and 896 cases with 3 deaths at the Military Hospital, Bombo.

Section III.

SANITATION.

General view of work done.

1. ADMINISTRATIVE.

The Medical Sanitary Officer was absent on leave from April to the end of the year and Dr. Strathairn acted for him in addition to his work as Acting Principal Medical Officer until he went on leave in November. Dr. J. M. Collyns was then appointed Acting Medical Sanitary Officer in addition to his duties as Medical Officer of Health, Kampala, and Acting Senior Medical Officer, Kampala. Dr. Strathairn toured the Northern and Eastern Provinces with His Excellency the Governor.

The Sanitary Staff is inadequate, consisting as it does at present of one Medical Sanitary Officer and one Medical Officer of Health who is tied to the Township of Kampala. The appointment of three European Sanitary Inspectors was again postponed owing to lack of funds. The actual staff, and its distribution, is as follows:—

	M. O. H.	European Sanitary Inspector.	Indian Sanitary Inspector.
Entebbe	—†	—	1
Kampala	1	—*	1
Jinja	—	—	1
Mbale	—	—	1
Soroti	—	—	1
Masaka	—	—	1

† Medical Sanitary Officer is at Entebbe.
* The Superintendent of Conservancy is at present supposed to be also Sanitary Inspector but has no time for this work.

The Townships of Lira, Masindi, Gulu, Kitgum, Arua, Hoima, Mbarara, Kabale, Fort Portal, Mubendi and Namasagali have no Sanitary Staff; only native menial staff for conservancy, etc.

Legislation, Etc.

The revised Sleeping Sickness Rules were published in the *Gazette* of February 28th, but Mr. Fiske's work has shewn that these will need revising again in the near future.

Sanction has been given for the return of the Basesse to certain of their Islands under certain restrictions, but little was done in this direction before December 31st. *See* Mr. Fiske's report, Appendix IV.

The notices declaring the following places infected were cancelled:—Arua, Soroti, Lira, Bugondo, Lale Port, Namasagali, Hoima, Iganga, Bombo District, West Nile District, and Kumi.

The following places were declared infected areas under the Infectious Diseases Ordinance and remained so until the end of the year:—Kisumu, Mumias, Gulu, S. E. Bugishu, Bukedi, Masaka, Kigezi District, Kampala, Port Bell and Jinja.

The Factories Board.

This Board (of which the Director of Public Works is Chairman and the Medical Sanitary Officer is Executive Officer) held four meetings during the year. In future the Board will meet monthly. The Factories Ordinance was published in the *Gazette* of the 15th October, 1919. Much consideration was given to the preparation of new Rules which were duly published in the *Gazette* of the 15th December, 1919, the old Factories Rules having previously been repealed.

Plans for 25 Ginneries (with Godowns) were considered, of which 21 were actually passed during the year.

The Board have pointed out the great increase in the work latterly and of its certain expansion in the near future and the consequent urgent need of the appointment of an European Factories Inspector if the Rules are to be efficiently carried out; the appointment of one European Clerk and one Goan Clerk for the Medical Sanitary

Officer's Office is also urgently needed as the work of the Factories Board throws a large amount of extra work on the staff of the Principal Medical Officer's Office who can only cope with it by working long hours of overtime.

The Central Town Planning Board.

This Board, formed in December, 1918, held six meetings during the year. The Principal Medical Officer is Chairman and the Medical Sanitary Officer Secretary to the Board.

The main subject under consideration during the early part of the year was the new Town Planning Scheme for Kampala, which involved the principle of racial segregation, with a protecting "zone" between the European and Asiatic communities.

The Board devoted much time to this very important question—the retention, or otherwise, of the Indian Bazaar in the Township being a feature—visiting and inspecting the whole Township, and meeting the Township Authorities and representatives of the various Associations interested. His Excellency the Governor attended three meetings of the Board, when finally three alternative schemes A, B and C, were drawn up for submission to the Secretary of State for the Colonies.

At subsequent meetings, the laying out of various Townships, including the reservation of sites for future public buildings, etc., was considered and recommendations made.

The number of important questions referred to the Board for recommendations is ample proof that the appointment of such a Board was absolutely necessary.

2. PREVENTIVE MEASURES.

(A.) Malaria.

1. *Anti-Malarial Measures.*—

(*a*) *Major.*—

The Kampala Swamp.—The contour pipe and rubble drains have been extended by an additional 2,696 feet and new outlet drains leading from the contour drains to main channel have been cut to the length of 1,851 feet of which 1,428 have been piped, rubbled and filled.

In addition to the above the clearings of the main channel, which amount to 26,821 feet, and of the subsidiary surface drains to the length of 23,160 feet have been maintained.

To facilitate the record of the routine maintenance of these open channels these have been numbered and marked with stones on which the linear measurement of each section and branch is shown.

That portion of the swamp land which lies between the more crowded part of the town on Nakasero Hill and the main Nakivubo channel is now almost entirely cut off from seepage water by means of the contour drain.

There remains, however, a far larger area on the further side of the main channel which is untreated in this respect and there are also several tributary valleys which need similar treatment.

(*b*) *Minor.*—

2. Antimalarial gangs of from four to twelve men have been employed at most stations under the direction of the District Commissioners but this method has not proved satisfactory and it is proposed, in the coming year, to engage only two or three more intelligent men able to read and write as Inspectors and put them directly under the Medical Officer of Health or Medical Officer.

No station has been so well kept as formerly owing to the increased cost of labour at some stations and the difficulty of obtaining spare parts for mowing machines.

3. (*c*) *Quinine Prophylaxis.*—

258 pounds of quinine powder, 57,300 tablets and 1,660 vaporoles for injection were issued from the Headquarter Medical Store during the year, a very large increase over that issued during 1918.

Epidemic Diseases.

(A) Trypanosomiasis.

It has been impossible to detail any Medical Officer for duty in connection with Sleeping Sickness and no work has been done except by Mr. Fiske (*see* Appendix No. IV), and some experiments in treatment by Dr. Marshall at Mbale (*see* Appendix V, No. V).

The need for the detailing of a Medical Officer to inspect and report on the various prohibited areas is becoming more and more apparent, and there is little doubt that large areas now prohibited could be safely re-opened for habitation.

The usual clearings in Townships, landing places, road-crossings and ferries have been maintained.

Plague.

Our main Townships and Ports were free from Plague until October when rat plague was discovered at Port Bell on the 28th of that month, infected rats having been brought ashore in a cargo of hides from the S. S. "Kavirondo." It was reported that the Captain had seen a dying rat on board just before coming alongside the Pier. On November the 9th a fatal case of human plague occurred in a ginnery compound at Jinja. The infection was almost certainly conveyed there in a cargo of loose cotton by the same steamer and in the same trip.

The carriage of seed cotton on the lake steamers has already been prohibited and now it appears necessary to prohibit also the carriage of unpressed ginned cotton. This means that cotton must be pressed where ginned but this will not in any way hinder the industry as the saving in the cost of transport of loose cotton to a distant press will soon pay for the erection of suitable presses either at the ginneries or at a suitable site for a collection of neighbouring ginneries.

The Native returns again shewed most cases in January, from which month there was a gradual decline.

Cerebro-Spinal Meningitis.

Cerebro-Spinal Meningitis, which was most prevalent in the Eastern Province in 1918, has not been so much in evidence during 1919. The five Kingdoms from which we get returns of Births and Deaths shew only 587 deaths, of which 192 are from Ankole and 388 from Toro.

Influenza.

The epidemic of Influenza which reached Uganda in the last quarter of 1918 spread rapidly throughout the Protectorate and it is impossible to estimate the total number of deaths. By July the severity of the disease was declining and by the end of the year, only sporadic cases, or slight relapses were encountered. Judging from reports it appears that this Protectorate suffered as much as any other part of Africa as regards Natives and Asiatics but in the matter of Europeans, the Protectorate generally was very fortunate, as a rule only mild cases occurred, while many escaped altogether. There was only one death among Europeans from this cause.

Small-Pox and Vaccination.

Small-Pox.—The actual number of cases is not known but 375 deaths are recorded for 1919 as compared with 392 deaths for 1918. The lack of reliable vaccine lymph during the greater part of the year was again a great handicap on the measures taken to reduce this incidence and mortality.

There were no serious outbreaks during the year at any of the stations, but epidemics occurred in the Eastern Province, chiefly in Eastern Busoga and Bukedi which accounted for most of the district cases, 232 deaths being recorded from this province.

Dr. Collyns, Acting Medical Sanitary Officer, made a prolonged tour in September through the affected districts, and as a result of his investigations and recommendations the following measures were undertaken in order to control these epidemics.

(*a*) A system of guards was instituted at the crossings of the Mpologoma river which forms one of the boundaries between Busoga and Bukedi, and at their Nile crossings between Busoga and Buganda, with a view to preventing infected cases passing to Bukedi from the Eastern districts of Busoga where the epidemic was most prevalent, and secondly to prevent the spread of the epidemic to Buganda, which was relatively free.

(*b*) An improved system of quarantine and isolation by the native Chiefs, and increased supervision and control of the native Small Pox Inspectors in their work of carrying out preventive measures.

(*c*) Increased systematic vaccination with the Entebbe lymph which was shortly afterwards available. Up till the date of his tour vaccination was practically in abeyance owing to the want of reliable vaccine lymph.

These measures were put into operation during October and it is hoped that good results will follow in 1920.

Vaccination.—During the greater part of the year we were handicapped by the lack of a reliable vaccine lymph. The Dar-es-Salaam lymph which had produced useful results in 1918 proved ineffective and had to be abandoned. A supply was obtained from the Nairobi laboratory which gave successful results in about one half of the vaccinations performed. With the high percentage of failures and the costliness of this supply this source proved unsatisfactory; and the urgent necessity for a good locally prepared lymph became increasingly apparent. This was ultimately achieved in October when Dr. Duke, the Bacteriologist, opened the temporary laboratory at Entebbe.

In the preparation of the lymph, strains from the Lister Institute and from the Belgian Congo were employed in the manner detailed in the Laboratory Report. The Tables appended will indicate how very successful the results have been. As only the last three months of the year remained for its distribution and use only a relatively small number of vaccinations were done, but a system of fortnightly distributions to outstations has now been organised and it is hoped during 1920 to complete the vaccination of large numbers of the susceptible native population which undoubtedly exists at present throughout the different Kingdoms of the Protectorate.

In order to ensure universal vaccination a system of registration based on census returns is necessary. The administrative and clerical work involved will be considerable and its application will have to be gradual. Such a system has already been inaugurated in Kiadondo, one of the Sazas of Buganda, and it is hoped soon to extend this to apply to the whole of the Buganda Kingdom.

In estimating vaccination results from available statistics it has to be borne in mind that results are modified and figures affected by local factors other than the inherent efficiency of the lymph used. Among these factors I would mention:—

(*a*) The impossibility of European supervision of a large proportion of the vaccinations done by Native Inspectors, especially in the out-lying districts.

(*b*) The difficulty of control of natives after vaccination. They often interfere with the insertions, either through ignorance or with the intention of nullifying an operation of which they disapprove.

(*c*) The improbability of seeing many cases subsequently for reports on results.

Vaccination by Stations, 1919.

Table I.

Station.	Nairobi Lymph.					Dar-es-Salaam Lymph.					Entebbe Lymph.					Lister.	
	Total.	Successful.	Modified	Failed.	Unknown.	Total.	Successful.	Modified.	Failed.	Unknown.	Total.	Successful.	Modified.	Failed.	Unknown	Total.	Successful.
Entebbe ...	787	15	10	183	579	—	—	—	—	—	902	505	54	35	308	3	3
Gulu ...	706	229	110	96	271	—	—	—	—	—	—	—	—	—	—	—	—
Jinja ...	698	237	180	133	148	—	—	—	—	—	3,616	3,360	63	116	77	—	—
Kampala ...	—	—	—	—	—	—	—	—	—	—	666	531	57	25	53	—	—
Kitgum ...	217	10	—	110	97	—	—	—	—	—	—	—	—	—	—	—	—
Lira ...	851	367	74	386	24	—	—	—	—	—	—	—	—	—	—	—	—
Masaka ...	2,415	1,195	468	344	408	103	44	19	20	20	—	—	—	—	—	—	—
Masindi ...	101	—	—	—	101	—	—	—	—	—	—	—	—	—	—	—	—
Mbale ...	2,943	—	—	—	2,943	—	—	—	—	—	2,151	1,606	17	249	279	—	—
Mbarara ...	2	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—
Namasagali ...	290	22	28	15	225	—	—	—	—	—	—	—	—	—	—	—	—
Teso ...	5,091	1,238	914	2,872	67	172	—	—	172	—	—	—	—	—	—	—	—
Totals ...	14,101	3,313	1,784	4,141	4,863	275	44	19	192	20	7,335	6,002	191	425	717	3	3

TOTAL VACCINATION RESULTS, 1919.

TABLE II.

	Total.	Successful.	Modified.	Failed.	Unknown.	Percentage Successful.	Remarks.
Nairobi Lymph ...	14,101	3,313	1,784	4,141	4,863	55%	Percentage on known results only.
Dar-es-Salaam „ ...	275	44	19	192	20	25%	do
Entebbe „ ...	7,335	6,002	191	425	717	94%	do
Lister „ ...	3	3	—	—	—	100%	do
TOTALS ...	21,714	9,362	1,994	4,758	5,600	70%	do

Enteric Fever.

See Special Report Appendix No. II.

Dysentery.

There was a severe epidemic of Dysentery in Bukedi following on a period of famine. Thousands of deaths were reported and a serious epidemic occurred in the gaol at Mbale where several cases, convicted for stealing food, were admitted to an overcrowded gaol. An inquest on 13 deaths among the prisoners was followed by a full enquiry and steps were taken to improve matters as far as was then possible but overcrowding still persists.

Measures to spread the knowledge of Hygiene, etc.

The Missions still teach Hygiene in their schools and the boys have a very fair knowledge of the subject. I have on more than one occasion set and corrected the examination papers.

Dr. Ernest Cook continued his Mengo Medical School throughout the year but only on a small scale. A large Government Medical School is required for the training of Sanitary Inspectors, Plague Inspectors, Vaccinators, in addition to Hospital Dressers, Ward Boys, etc.

Housing.

The housing of Government Officials in outstations has hitherto been much neglected owing to lack of funds but it is hoped to make a real start in improving this during the coming year.

Hospital Accommodation.

No additional Isolation Hospitals have been built, as even those sanctioned for 1919 could not be built owing to lack of staff.

Recommendations for future work.

1. The establishment of a Sanitary branch of the Medical Department to include control of Sanitary Inspectors.

2. The appointment of three qualified European Sanitary Inspectors.

3. The establishment of a training school for Native Sanitary Inspectors and Vaccinators, etc.

4. The employment of prison labour for sanitary work (other than that of night soil disposal) in all townships.

5. Extension of the system of contour drainage in the Kampala Swamp, etc.

6. The erection of Infectious Diseases Hospitals on an extended scale.

7. The regular use of all Police station labour, etc., at frequent intervals for systematic rat drives in all townships.

TABLE IV.

Summary of Routine Sanitary Work done during the Year.

1. NAME OF TOWN.—ENTEBBE.

—	Approximate Area.	Number of Proclaimed Open Spaces.
1917 ...	12 square miles ...	13
1918 ...	12 square miles ...	13
1919 ...	12 square miles ...	13

2. POPULATION.

—	Number of Natives.		Number of Europeans.		Number of Asiatics.		Total.
	Males.	Females.	Males.	Females.	Males.	Females.	
1917 ...	2,341	1,835	68	40	213	84	4,581
1918 ...	3,360	1,678	127	48	240	78	6,531
1919 ...	2,653	1,968	106	60	237	97	5,121

3. HOUSING.

—	Number occupied by Europeans.	Number occupied by Natives and Asiatics, including boys' quarters.
Number of Houses:—		
1917	89	453
1918	89	448
1919	89	446

Number of Huts:—	
1917	1,160
1918	1,179
1919	1,269

4. MOSQUITO PROTECTION OF HOUSES.

	1917	1918	1919
Number of European houses wholly mosquito-protected	89	89	89
Number of European houses with mosquito room	21	21	21
Number rendered during the year wholly mosquito-protected	1	2	—
Number rendered during the year partially mosquito-protected ...	1	—	3

5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1917	1918	1919
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.
1917 ...	—	—	—	—
1918 ...	—	—	—	5
1919 ...	—	—	—	—

6. Markets.

—	Total Number.	Number Paved and Drained.	Number Unpaved.
1917	3	1	2
1918	3	1	2
1919	3	1	2

7. Slaughter-houses.

—	Total Number.	Number Paved and Drained.	Number Unpaved.
1917	1	1	—
1918	1	1	—
1919	1	1	—

8. Latrines.

—	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1917	14	42	—	—
1918	14	42	—	—
1919	13	39	—	—
Number of new Public Latrines erected during the year :—				
1917	—	—	—	—
1918	—	—	—	—
1919	—	—	—	—
Number of Public Latrines repaired during the year :—				
1917	—	—	—	—
1918	2	—	—	—
1919	—	—	—	—
Number of Public Latrines demolished during the year :—				
1917	—	9	—	—
1918	—	—	—	—
1919	1	3	—	—

	1917	1918	1919
Number of Private Latrines	350	325	324
Average number of pails of nightsoil removed daily ...	392	432	430
Average number of soiled pails removed and clean pails substituted	22	66	50
Number of nightsoil men employed to clean latrines and remove excreta	24	24	24
Number of cesspools	840	830	1,383
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	428	250	987
Number of old cesspools abolished	412	260	434
Number of cesspools oiled regularly by Department	—	—	—

9. Removal of Refuse.

	1917	1918	1919
Number of dustbins	48	30	10
Number of carts at work daily to remove refuse from streets ...	10	9	10
Amount of refuse removed daily	40	27	30 cart loads
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	10	9	10

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.		
	1917	1918	1919	1917	1918	1919	1917	1918	1919
Buried or trenched ...	200	432	430	32	27	30	1	1	1
Burnt	192	—	—	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.

1917	1918	1919
1	½	½

12. Water Supply.

Nature of Water Supply.	1917	1918	1919
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	16
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	2	2	3
Number mosquito-protected	2	2	3
Number above ground	180	192	194
Number mosquito-protected	1	1	1
Number of 400 gallons capacity or less	2	2	2
Number above 400 gallons	180	190	192
Nature of tank :—			
Wood	—	..	
Iron	142	144	159
Concrete	40	50	33
Barrels :—			
Number	30	27	25
Number mosquito-protected	12	—	10

13. Drainage.

Nature of Drainage.	Public.	Private.
Masonry drains :—		
Lineal yards of masonry drains :—		
1917	2,131	582
1918	2,161	612
1919	2,161	612
Lineal yards reconstructed during the year :—		
1917	—	—
1918	—	—
1919	—	—
Lineal yards repaired during the year :—		
1917	70	—
1918	10	—
1919	—	—

13. DRAINAGE—*continued.*

Nature of Drainage.	Public.	Private.
Lineal yards of new drains constructed during the year:—		
1917	50	169
1918	30	30
1919	—	—
Earth drains or ditches:—		
Number of lineal yards of ditches cleaned:—		
1917	No record	No record
1918	,,	,,
1919	,,	,,
Number of lineal yards of ditches dug and graded:—		
1917	—	—
1918	—	—
1919	—	—
Average frequency of clearing ditches of grass:—		
1917	1 monthly	1 monthly
1918	,,	,,
1919	,,	,,

14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1917	1918	1919
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 ...	Twice monthly		

15 EXCAVATIONS AND LOW-LYING LAND.

	1917	1918	1919
Number of pools and excavations	10	6	4
Number of excavations filled up	4	4	2
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	No record	No record	No record
Number of persons fined for making new excavations ...	—	—	—
Average number of men daily employed in filling up pools, &c. ...	10	9	10

16. OILING.

	1917	1918	1919
Number of drains oiled	—	—	—
Number of pools and excavations oiled	3	—	—
Number of tanks and barrels oiled	—	2	2
Average number of men daily employed for oiling drains, pools, and watertanks or barrels	1	—	—

17. INSPECTIONS AND PROSECUTIONS.

	1917	1918	1919
Number of inspectors employed	1	1	1
Number of houses inspected	447	445	443
Number of houses where larvæ were found	7	15	52
Number of notices served to remove conditions causing the breeding of larvæ	4	6	34
Number of persons fined for having mosquito larvæ on premises ...	—	—	—
Number of notices served to remove insanitary conditions on premises	12	33	23
Number of persons fined for not removing insanitary conditions after notice	—	—	—
Number of soda and ærated water factories inspected ...	1	1	1

P. T. HANNINGTON,
District Commissioner.

TABLE IV.

Summary of Routine Sanitary Work done during the Year.

1. NAME OF TOWN.—JINJA.

——	Approximate Area.	Number of Proclaimed Open Spaces.
1917 ...	2560 acres ...	5 Tennis Courts—Europeans, Goans and Indians.
1918 ...	2560 acres ...	
1919 ...	2560 acres ...	

2. POPULATION.

——	Number of Natives, Including Asiatics.		Number of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1917	1,870	1,467	29	13	3,379
1918	1,950	1,509	31	12	3,467
1919	1,025	945	29	9	2,008

3. HOUSING.

——	Number occupied by Europeans.	Number occupied by Natives and Asiatics, including boys' quarters.
Number of Houses:—		
1917	48	256
1918	48	306
1919	50	310

Number of Huts:—		
1917	1,216	approx.
1918	1,027	,,
1919	549	,,

4. MOSQUITO PROTECTION OF HOUSES.

	1917	1918	1919
Number of European houses wholly mosquito-protected	29	30	31
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.

	1917	1918	1919
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	—	3
Number of huts erected with sanction as to site, construction, and relation to other buildings	—	20	40
Number of houses built without sanction	—	—	—
Number of huts built without sanction	—	3	—

ACTION TAKEN.

—	Number of Prosecutions.		Number Demolished.	
	Huts.	Houses.	Huts.	Houses.
1917 ...	—	—	39	1
1918 ...	—	—	189	—
1919 ...	—	—	438	—

6. Markets.

—	Total Number.	Number Paved and Drained.	Number Unpaved.
1917	1	—	1
1918	1	—	1
1919	1	—	1

7. Slaughter-houses.

—	Total Number.	Number Paved and Drained.	Number Unpaved.
1917	1	1	—
1918	1	1	—
1919	1	1	—

8. Latrines.

—	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines:—				
1917	18	—	—	—
1918	25	—	—	—
1919	43	—	—	—
Number of new Public Latrines erected during the year:—				
1917	—	—	—	—
1918	12	—	—	—
1919	18	—	—	—
Number of Public Latrines repaired during the year:—				
1917	6	7	—	—
1918	—	—	—	—
1919	—	—	—	—
Number of Public Latrines demolished during the year:—				
1917	2	4	—	—
1918	5	—	—	—
1919	—	—	—	—

	1917	1918	1919
Number of Private Latrines	227	227	235
Average number of pails of nightsoil removed daily ...	411	450	483
Average number of soiled pails removed and clean pails substituted	—	—	—
Number of nightsoil men employed to clean latrines and remove excreta	22	22	22
Number of cesspools	2	2	—
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	—	—	—
Number of old cesspools abolished	11	—	2
Number of cesspools oiled regularly by Department	—	—	—

9. Removal of Refuse.

	1917	1918	1919
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	30
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.		
	1917	1918	1919	1917	1918	1919	1917	1918	1919
Buried or trenched ...	—	—	—	—	—	—	—	—	—
Burnt	411	420	450	22	22	24	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.

1917	1918	1919
1	2	2

12. Water Supply.

Nature of Water Supply.	1917	1918	1919
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	44
Number mosquito-protected	40	40	44
Number of 400 gallons capacity or less	38	38	42
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 :—		
1917	—	—
1918	—	—
1919	300	500
Lineal yards reconstructed during the year :—		
1917	—	—
1918	—	—
1919	24	—
Lineal yards repaired during the year :—		
1917	—	—
1918	—	—
1919	—	—

13. DRAINAGE—*continued.*

Nature of Drainage.	Public.	Private.
Lineal yards of new drains constructed during the year :—		
1917	—	—
1918	—	—
1919	—	100
Earth drains or ditches :—		
Number of lineal yards of ditches cleaned :—		
1917	1,600 yards including the new Township.	
1918		
1919		
Number of lineal yards of ditches dug and graded :—		
1917		
1918		
1919		
Average frequency of clearing ditches of grass :—		
1917	Every month	
1918		
1919		

14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1917	1918	1919
Number of square yards of weeds, grass, and vegetation cut and removed	—	—	160,000
Average frequency of clearance of rank vegetation on same area ...	—	—	—

15 EXCAVATIONS AND LOW-LYING LAND.

	1917	1918	1919
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.

	1917	1918	1919
Number of drains oiled	10	10	18
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	7	7	7

17. INSPECTIONS AND PROSECUTIONS.

	1917	1918	1919
Number of inspectors employed	1	1	1
Number of houses inspected	245	260	284
Number of houses where larvæ were found	10	4	16
Number of notices served to remove conditions causing the breeding of larvæ	6	15	25
Number of persons fined for having mosquito larvæ on premises ...	—	—	—
Number of notices served to remove insanitary conditions on premises	53	75	90
Number of persons fined for not removing insanitary conditions after notice	—	—	—
Number of soda and ærated water factories inspected ...	—	—	—

J. R. P. POSTLETHWAITE,
President Township Authority, Jinja.

TABLE IV.

Summary of Routine Sanitary Work done during the Year.

1. NAME OF TOWN.—KAMPALA.

——	Approximate Area.	Number of Proclaimed Open Spaces.
1917 ...	322,000 acres ...	8
1918 ...	322,000 acres ...	8
1919 ...	322,000 acres ...	8

2. POPULATION.

——	Number of Natives.		Number of Europeans.		Number of Asiatics.		Total.
	Males.	Females.	Males.	Females.	Males.	Females.	
1917 ...	2,439	1,063	106	49	No	record	3,657
1918 ...	1,503	372	115	47	560	238	2,835
1919 ...	1,435	471	117	32	756	391	3,502

3. HOUSING.

——	Number occupied by Europeans.	Number occupied by Natives.	Number occupied by Asiatics.
Number of Houses:—			
1917	117	378	No record
1918	121	435	367
1919	125	456	388
Number of Huts:—			
1917			928
1918			1,197
1919			1,341

4. MOSQUITO PROTECTION OF HOUSES.

	1917	1918	1919
Number of European houses wholly mosquito-protected	83	87	88
Number of European houses with mosquito room	10	12	14
Number rendered during the year wholly mosquito-protected	3	2	1
Number rendered during the year partially mosquito-protected ...	—	1	2

5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1917	1918	1919
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	6	4	3
Number of houses erected with sanction as to site, construction, and relation to other buildings	20	17	29
Number of huts erected with sanction as to site, construction, and relation to other buildings	525	487	165
Number of houses built without sanction	—	—	—
Number of huts built without sanction	43	52	35

ACTION TAKEN.

—	Number of Prosecutions.		Number Demolished.	
	Huts.	Houses.	Huts.	Houses.
1917 ...	—	2	380	9
1918 ...	—	2	270	7
1919 ...	—	—	56	4

6. Markets.

—	Total Number.	Number Paved and Drained.	Number Unpaved.
1917	3	—	3
1918	3	—	3
1919	3	—	3

7. Slaughter-houses.

—	Total Number.	Number Paved and Drained.	Number Unpaved.
1917	1	1	—
1918	1	1	—
1919	1	1	—

8. Latrines.

—	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines:—				
1917	13	56	2	14
1918	13	56	2	14
1919	13	56	2	14
Number of new Public Latrines erected during the year:—				
1917	—	—	—	—
1918	—	—	—	—
1919	—	—	—	—
Number of Public Latrines repaired during the year:—				
1917	1	6	—	—
1918	1	6	—	—
1919	1	6	1	6
Number of Public Latrines demolished during the year:—				
1917	—	—	—	—
1918	—	—	—	—
1919	—	—	—	—

	1917	1918	1919
Number of Private Latrines	635	675	725
Average number of pails of nightsoil removed daily ...	709	749	850
Average number of soiled pails removed and clean pails substituted	29	32	34
Number of nightsoil men employed to clean latrines and remove excreta	67	42	43
Number of cesspools	—	—	—
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.

	1917	1918	1919
Number of dustbins	No record	No record	
Number of carts at work daily to remove refuse from streets ...	10	10	15
Amount of refuse removed daily ... (*cart loads*)	55	41	65
Number of carts at work daily to remove refuse from yards and premises	10	10	15
Amount of refuse removed daily from yards and premises (*cart loads*)	22	21	30
Number of men employed for removing refuse	65	65	55

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.		
	1917	1918	1919	1917	1918	1919	1917	1918	1919
Buried or trenched ...	793	825	935	—	—	35	—	—	—
Burnt ...	—	—	—	53	39	—	2	2	2
Thrown into sea ...	—	—	—	—	—	—	—	—	—
*Otherwise dealt with ...	—	—	—	—	—	30	—	—	—

*Mode of disposal :—Filling up old excavations in swamp area.

11. Average Daily Number of Cartloads of Tin Cans, Bottles, Broken Crockery and other Incombustible Material Removed from Houses, Huts, and Compounds.

1917	1918	1919
2	2	2

12. Water Supply.

Nature of Water Supply.	1917	1918	1919
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	6	6	6
Number with pumps protected against surface water and mosquito-protected	5	5	6
Private :—			
Number	4	4	2
Number protected against surface water and mosquito-protected	1	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	10	10
Number mosquito-protected	9	10	10
Number above ground	209	234	239
Number mosquito-protected	193	228	233
Number of 400 gallons capacity or less	106	131	136
Number above 400 gallons	103	113	113
Nature of tank :—			
Wood	—	—	—
Iron	194	206	211
Concrete	15	38	38
Barrels :—			
Number	19	17	14
Number mosquito-protected	8	12	4

13. Drainage.

Nature of Drainage.	Public.	Private.
Masonry drains :—		
Lineal yards of masonry drains :—		
1917	3,558	2,978
1918	4,773	3,524
1919	5,609	—
Lineal yards reconstructed during the year :—		
1917	—	—
1918	400	no record
1919	710	—
Lineal yards repaired during the year :—		
1917	—	31
1918	320	75
1919	No record	No record

13. DRAINAGE—*continued.*

Nature of Drainage.	Public.	Private.
Lineal yards of new drains constructed during the year :—		
1917	146	226
1918	1,215	546
1919	836	450
Earth drains or ditches :—		
Number of lineal yards of ditches cleaned :—		
1917	3,329	No record
1918	4,225	,,
1919	6,524	,,
Number of lineal yards of ditches dug and graded :—		
1917	877	No record
1918	525	,,
1919	3,951	,,
Average frequency of clearing ditches of grass :—		
1917	8	No record
1918	8	,,
1919	6	,,

14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1917	1918	1919
Number of square yards of weeds, grass, and vegetation cut and removed	904,000	715,326	863,542
Average frequency of clearance of rank vegetation on same area ...	8	7	7

15. EXCAVATIONS AND LOW-LYING LAND.

	1917	1918	1919
Number of pools and excavations	No record	No record	No record
Number of excavations filled up	,,	,,	,,
Amount of low-lying and marsh land raised and drained (*Sq. Ft.*)	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 .... (*C. Ft.*)	18,000	—	No record
Number of persons fined for making new excavations ...	—	—	—
Average number of men daily employed in filling up pools, &c. ...	—	—	No record

16. OILING.

	1917	1918	1919
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.

	1917	1918	1919
Number of inspectors employed	2	2	7
Number of houses inspected	721	762	1,164
Number of houses where larvæ were found	1,674	1,608	738
Number of notices served to remove conditions causing the breeding of larvæ	8	28	32
Number of persons fined for having mosquito larvæ on premises ...	3	2	3
Number of notices served to remove insanitary conditions on premises	92	74	65
Number of persons fined for not removing insanitary conditions after notice	8	2	17
Number of soda and ærated water factories inspected ...	2	2	2
Number of persons fined for adulterating milk	—	14	6

1 Asiatic Inspector and 6 Native Inspectors have been engaged since June, 1919.

G. McKENZIE,

Supdt. of Conservancy, for District Commissioner.

TABLE IV.

Summary of Routine Sanitary Work done during the Year.

1. NAME OF TOWN.—MASINDI.

—	Approximate Area.	Number of Proclaimed Open Spaces.
1917 ...	—	—
1918 ...	—	—
1919 ...	4½ Sq. miles ...	—

2. POPULATION.

—	Number of Natives.		Number of Europeans.		Number of Asiatics.		Total.
	Males.	Females.	Males.	Females.	Males.	Females.	
1917 ...	1,477	1,804	14	9	—	—	—
1918 ...	1,161	1,588	12	3	44	20	2,828
1919 ...	1,243	1,573	9	3	36	26	2,890

3. HOUSING.

—	Number occupied by Europeans.	Number occupied by Natives.	Number occupied by Asiatics.
Number of Houses:—			
1917	11	57	—
1918	9	18	93
1919	9	18	97
Number of Huts:—			
1917			617
1918			897
1919			703

4. MOSQUITO PROTECTION OF HOUSES.

	1917	1918	1919
Number of European houses wholly mosquito-protected	9	9	10
Number of European houses with mosquito room	—	—	—
Number rendered during the year wholly mosquito-protected	2	—	1
Number rendered during the year partially mosquito-protected ...	—	—	—

5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1917	1918	1919
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	1	—	—
Number of houses erected with sanction as to site, construction, and relation to other buildings	1	2	1
Number of huts erected with sanction as to site, construction, and relation to other buildings	—	8	15
Number of houses built without sanction	—	—	—
Number of huts built without sanction	—	—	—

ACTION TAKEN.

—	Number of Prosecutions.		Number Demolished.	
	Huts.	Houses.	Huts.	Houses.
1917 ...	—	—	—	—
1918 ...	—	—	—	—
1919 ...	—	—	—	—

6. Markets.

—	Total Number.	Number Paved and Drained.	Number Unpaved.
1917	1	—	1
1918	1	—	1
1919	1	—	1

7. Slaughter-houses.

—	Total Number.	Number Paved and Drained.	Number Unpaved.
1917	—	—	—
1918	—	—	—
1919	—	—	—

8. Latrines.

—	For Males and Females.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1917	2	2	—	—
1918	2	2	—	—
1919	2	2	—	—
Number of new Public Latrines erected during the year :—				
1917	—	—	—	—
1918	—	—	—	—
1919	—	—	—	—
Number of Public Latrines repaired during the year :—				
1917	—	—	—	—
1918	—	—	—	—
1919	—	—	—	—
Number of Public Latrines demolished during the year :—				
1917	—	—	—	—
1918	—	—	—	—
1919	—	—	—	—

	1917	1918	1919
Number of Private Latrines	37	47	55
Average number of pails of nightsoil removed daily ...	52	52	57
Average number of soiled pails removed and clean pails substituted	52	52	57
Number of nightsoil men employed to clean latrines and remove excreta	9	10	10
Number of cesspools	662	422	495
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	—	13	495
Number of old cesspools abolished	—	253	435
Number of cesspools oiled regularly by Department	—	—	—

9. Removal of Refuse.

	1917	1918	1919
Number of dustbins	27	—	—
Number of carts at work daily to remove refuse from streets ...	1	1	1
Amount of refuse removed daily ... (*cart loads*)	—	8	7
Number of carts at work daily to remove refuse from yards and premises	1	1	1
Amount of refuse removed daily from yards and premises (*cart loads*)	8	8	9
Number of men employed for removing refuse	7	9	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.		
	1917	1918	1919	1917	1918	1919	1917	1918	1919
Buried or trenched ...	52	52	57	8	8	7	—	8	1/8
Burnt	—	—	—	—	—	2	—	—	—
Thrown into sea ...	—	—	—	—	—	—	—	—	—
Otherwise dealt with ...	—	—	—	—	—	7	—	—	—

11. Average Daily Number of Cartloads of Tin Cans, Bottles, Broken Crockery and other Incombustible Material Removed from Houses, Huts, and Compounds.

1917	1918	1919
1 per month	1 per month	1 per month

12. Water Supply.

Nature of Water Supply.	1917	1918	1919
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	5	81
Number with pumps protected against surface water and mosquito-protected	1	1	1
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	—	1	1
Number mosquito-protected	8	8	8
Number above ground	8	8	8
Number mosquito-protected	8	8	8
Number of 400 gallons capacity or less	—	1	1
Number above 400 gallons	8	8	8
Nature of tank :—			
Wood	—	—	—
Iron	7	7	7
Concrete	2	2	2
Barrels :—			
Number	4	11	22
Number mosquito-protected	—	—	—

13. Drainage.

Nature of Drainage.	Public.	Private.
Masonry drains :—		
Lineal yards of masonry drains :—		
1917	5,326 Large Culverts	—
1918	8 Masonry Culverts	—
1919	8 „ „	—
Lineal yards reconstructed during the year :—		
1917	—	—
1918	—	4 yards
1919	—	—
Lineal yards repaired during the year :—		
1917	—	—
1918	—	—
1919	—	—

13. DRAINAGE—*continued.*

Nature of Drainage.	Public.	Private.
Lineal yards of new drains constructed during the year:—		
1917	—	—
1918	—	—
1919	—	—
Earth drains or ditches:—		
Number of lineal yards of ditches cleaned:—		
1917	3,953	—
1918	6,740	—
1919	7,500	—
Number of lineal yards of ditches dug and graded:—		
1917	518	—
1918	3,520	—
1919	840	—
Average frequency of clearing ditches of grass:—		
1917	Once a month	
1918	2,000 yards once a month 740 yards once in 3 months	
1919	2,000 yards once a month 5,500 yards once in 3 months	

14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1917	1918	1919
Number of square yards of weeds, grass, and vegetation cut and removed	1,114,160	1,114,160	1,114,160
Average frequency of clearance of rank vegetation on same area ...	once monthly on whole area		

15. EXCAVATIONS AND LOW-LYING LAND.

	1917	1918	1919
Number of pools and excavations	No figures	2	2
Number of excavations filled up	„	2	1
Amount of low-lying and marsh land raised and drained ...	—	—	—
Number of pools, marshes, streams, &c., fish-stocked ...	miles 2	2¾	2½
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. ...	—	40	40

16. OILING.

	1917	1918	1919
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.

	1917	1918	1919
Number of inspectors employed	—	—	1
Number of houses inspected	—	120	120
Number of houses where larvæ were found	—	—	1
Number of notices served to remove conditions causing the breeding of larvæ	—	—	—
Number of persons fined for having mosquito larvæ on premises ...	—	1	10
Number of notices served to remove insanitary conditions on premises	—	—	—
Number of persons fined for not removing insanitary conditions after notice	—	—	—
Number of soda and ærated water factories inspected ...	—	—	—

H. A. MacKENZIE,
District Commissioner.

Appendices.

1. A Report on Blackwater Fever in Uganda during 1919.

   By C. A. Wiggins, m.r.c.s., l.r.c.p., f.e.s.,
   Principal Medical Officer.

2. A Report on Enteric Fever in Uganda during 1919.

   By C. A. Wiggins, m.r.c.s., l.r.c.p., f.e.s.,
   Principal Medical Officer.

3. The Report of the Dental Surgeon for 1919.

   By G. S. Bateman, l.d.s.r.c.s. (Eng.),
   Dental Surgeon.

4. A Report by the Entomologist in the Medical Department.

   By W. F. Fiske,
   Entomologist.

5. The Treatment of Sleeping Sickness by Salvarsanised Serum.

   By C. H. Marshall, m.r.c.s., l.r.c.p., m.b. (London),
   District Medical Officer, Mbale.

6. A case of Maternal Malaria with non-infection of child.

   By B. Spearman, m.a., m.b., b.c. (Camb.), d.t.m. & h.,
   Medical Officer, Entebbe.

7. Notice *re* Influenza which was circulated generally.

   By J. H. Reford, b.a., m.d., b.ch., b.a.o., l.m. (Dub.),
   Medical Officer of Health, Jinja.

APPENDIX I.

Report on Blackwater Fever in Uganda for 1919.

1. There was a very large increase in the number of cases this year, the figures being 83 with 18 deaths:—

Government Hospitals	...	68 with 12 deaths.
C. M. S. Hospitals	....	15 with 6 deaths.

In addition to those the wife of an official developed it on the way home *via* the Nile.

2. The following table shows the number of cases and deaths for the last 16 years with the percentage of deaths:—

Year.	Cases.	Deaths.	Death rate.
			%
1904	10	2	20
1905	14	3	21·4
1906	41	4	9·8
1907	10	2	20
1908	13	2	15·4
1909	21	6	28·6
1910	26	6	23·1
1911	18	3	16·6
1912	45	9	20
1913	58	12	20·7
1914	82	21	25·6
1915	65	18	27·7
1916	46	10	21·7
1917	49	8	16·5
1918	40	7	17·5
1919	83	18	21·7

3. The following tables show the incidence among officials and non-officials, and also the race and sex :—

(*a*) *Government Officials.*

Europeans.		Asiatics		Natives.	
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
5	1	11	3	—	—

(*b*) *Non-Officials.*

	19	3	47	11	1	—
Totals	24	4	58	14	1	—

The native patient was a Teso, who developed the disease in Soroti gaol, *i.e.*, in his native district, a most unusual occurrence. I have never come across a similar case; though I have seen cases among Baganda at the Coast and among Swahilis in Uganda.

According to Sex :—

	Males.	Females.
Government Cases	65	3
C. M. S.	13	2
	78	5

4. *Locality.*—Table (A) shows where the cases and the deaths occurred, and also the seasonal variation; Chart (B) attached shows the number of cases of Malaria and Blackwater Fever in the Protectorate together with rainfall (Entebbe).

A.—Blackwater Fever Cases, 1919.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total.	Deaths.
Butiaba ...	...	...	1	...	...	...	...	...	...	...	...	...	1	
Entebbe ...	...	...	...	...	1	...	...	...	...	...	...	...	1	
Jinja ...	2	...	2	...	...	7 *2*	1 *1*	5	1	...	5 *2*	...	23	*5*
Kampala }	2	...	...	3	8 *3*	3	...	...	...	2	...	...	18	*3*
do C.M.S. }				3 *1*	1 *1*	2	3	1	2 *2*	1 *1*	...	...	13	*5*
Iganga C.M.S. ...	...	...	...	1	...	...	...	...	...	...	...	...	1	
Kitgum ...	...	...	...	...	1	...	...	...	...	...	...	...	1	
Masaka ...	...	...	...	...	...	...	...	...	...	...	1	...	1	
Masindi ...	...	...	...	...	1	...	2	...	...	...	...	...	3	
Mbale ...	...	1	3	...	...	...	...	1	...	1	...	...	6	
Mbarara ...	1	...	...	...	...	...	..	..	...	...	...	...	1	
Namasagali ...	1	...	...	1	1	1	1 *1*	1 *1*	...	1	1	...	8	*2*
Soroti ...	...	...	...	1	1	...	2 *1*	...	...	...	1 *1*	...	*5*	*2*
Mityana (C.M S.)...	...	...	...	...	...	...	...	...	...	...	...	1 *1*	1	*1*
Totals ...	6	1	6	9	14	13	9	8	3	5	8	1	83	
Deaths ...	...	...	...	*1*	*4*	*2*	*3*	*1*	*2*	*1*	*3*	*1*		*18*

5. Previous attacks :—

Of the cases on which reports were received :—

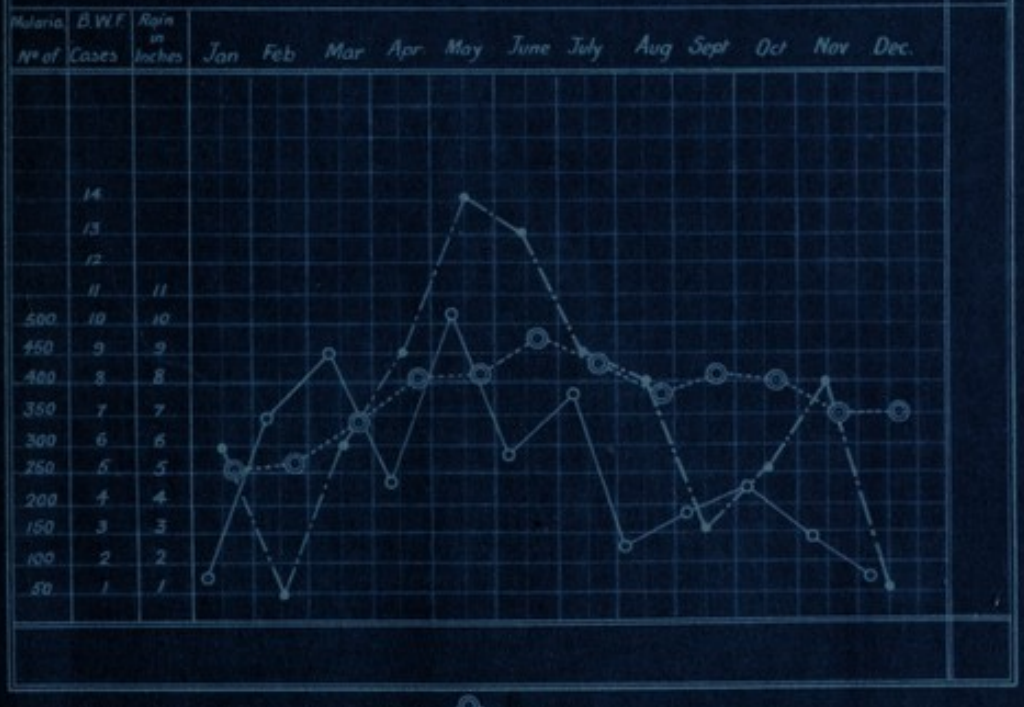
Of the Europeans—

2 had 4 previous attacks (one of them all in the previous 12 months).
5 had 1 previous attack.

Of the Asiatics—

1 had 5 previous attacks
1 „ 3 „ „
5 „ 2 „ „ (4 of these died)
7 „ 1 „ „

B. Chart shewing the number of Cases of Malaria & B.W.F. together with the Rainfall (of Entebbe) for 1919.



Malaria cases shewn thus
B.W.F " " "
Rainfall " "

6. An exciting cause was given in 36 cases, namely:—

Over exertion	9
Over exertion followed by malaria	4
Chill and exposure	8
Exposure and irregular quinine	1
Quinine	2
Over exertion during malaria	6
Over exertion and quinine	1
Fever	5

7. The presence of malarial parasites was reported in only 8 cases as follows though examinations were made in 46 of the cases:—

During attack	4
Before and beginning of attack	3
Before and after attack	1

8. The number of cases of Malaria at those stations where cases of Blackwater Fever occurred is shown in the following table:—

Station.	Blackwater Fever Cases.	Malaria Cases.
Butiaba	1	440
Entebbe	1	575
Jinja	24*	366
Kampala	32†	1,195‡
Kitgum	1	33
Masaka	1	48
Masindi	3	374
Mbale	6	450
Mbarara	1	84
Namasagali	8	129
Soroti	5	291
TOTALS ...	83	3,985

* Includes 1 at Iganga (C.M.S.)
† Includes 1 at Mityana (C.M.S.)
‡ In addition there were 122 cases of malaria treated in Kampala gaol—these not included in any totals.

9. The age of the patients was given in 50 of the cases, as shown below:—

	Europeans.	Asiatics.
Under 10 ...	— ...	5
10—20 ...	1 ...	2
20—40 ...	5 ...	31
40—60 ...	2 ...	3
Over 60 ...	1 ...	—

10. Habits with regard to Quinine were given in 58 cases, as follows:—

Regular ...	7	When ordered ...	1
Irregular ...	46	None at all ...	2
When feeling seedy	2		

11. The length of residence in Uganda is given in 43 cases:—

Under 1 year ...	2 cases	10—15 years ...	4
1—5 years ...	17	15—20 years ...	1
5—10 years ...	19		

12. The occurrence or otherwise of Jaundice, Suppression, Relapse, or of persistence of Albuminuria, after the attack, was reported in 51 cases, as follows:—

Jaundice in 23 cases.

Suppression in 6 cases (1 case (a child) recovered after an average of only 1 oz. of urine for 7 days and total suppression for 8th; another after 45 hours total suppression).

Jaundice and Suppression in 6 cases.

Persistence of Albuminuria after the attack in 5 cases.

Relapse occurred in 1 case; in this the hæmoglobinuria lasted 24 hours in the original attack but for 36 hours in the relapse.

13. The duration of the Hæmoglobinuria was given in 42 cases :—

Under 24 hours	...	11 cases	
24—48 hours	...	13 „	
48—72 „	...	9 „	
4 days	...	7 „	
8 „	...	2 „	(both fatal from suppression)

14. The treatment has varied considerably. The Jinja cases were treated by purgatives and saline injections, quinine only being given (intramuscularly) when malarial parasites were found in the blood.

The Kampala cases (official) were treated with purgatives and intramuscular injections of quinine, with saline injections as well when necessary. The C.M.S. cases were treated with Hearsey's mixture as a routine, also 3 of the Namasagali ones.

C. A. WIGGINS,
Principal Medical Officer, U. P.

APPENDIX II.

Enteric Fever—Annual Report for 1919.

The total number of cases reported for 1919 was 26 with 6 deaths including 2 cases of Paratyphoid, as compared with 9 cases in 1918 and 11 cases in 1917.

2. The following table shows the incidence at various stations, together with nationalities and deaths :—

Station.	European.	Asiatic.	Native.	Total.	Deaths.	Remarks.
Entebbe ...	—	—	1	1	—	—
Kampala ...	1	—	2	3	—	Para 1
Kampala Gaol ...	—	—	15	15	4	—
Jinja ...	—	2	—	2	—	Para 1
Mbale ...	1	1	2	4	2	—
Lira ...	—	—	1	1	—	—
	2	3	21	26	6	—

3. Fifteen of these cases occurred during an outbreak in November and December at the Kampala gaol, and a special Report by Capt. A. H. Owen is appended.

4. Two cases of Paratyphoid are recorded, one in a European lady at Mbale and the other in a European at Kampala. In the majority of the native cases at Kampala gaol and in the case of two Indian children at Jinja the Bacteriological Report showed a positive reaction equally marked both to Typhoid and to the Paratyphoids (A and B). This led to an investigation into the stock cultures employed in the tests with the result that the so-called Paratyphoid A proved identical in its sugar reaction with B Typhosis.

5. Five Antityphoid inoculations were carried out at Mbale, two on Europeans and three on natives.

C. A. WIGGINS,
Principal Medical Officer, U. P.

Typhoid and Paratyphoid at Kampala during 1919.

Europeans—Officials, nil; Non-Officials, one diagnosed as Paratyphoid B.

Asiatics.—Nil.

Natives.—One case was admitted at the Civil Hospital on 1/7/19, and recovered.

Kampala Gaol.—An epidemic of Typhoid and the Paratyphoid fevers occurred at Kampala gaol during the latter end of 1919.

The first case was diagnosed in a patient who had already been in hospital for fifty days; he had been admitted originally for fever, cough and local injuries. A Widal report from the Bacteriologist was received on 31/10/19 showing a positive reaction to Typhoid and Paratyphoid in a dilution of 1/320.

Between 3/10/19 and 7/11/19, 13 cases were admitted to hospital at the gaol, eleven of these gave positive Widal reactions, one of the remainder gave a very weak positive reaction in a dilution 1/40 on the 6th day after admission. He died on the 10th day and a post mortem showed definite Typhoid lesions.

In the remaining case the blood repeatedly hæmolised in transit to the Laboratory at Entebbe. Death occurred on the 29th day and again the post mortem showed definite Typhoid lesions; three deaths occurred amongst these 13 cases.

The differential diagnosis between Typhoid and the Paratyphoids was unreliable as the Bacteriologist reported that his Typhoid and Paratyphoid A strains were apparently identical.

The outbreak was considered to be due to contaminated water in the prison underground tank which was consequently emptied and disinfected; samples taken of the water were sent to Entebbe and were found to contain an organism, whose affinities are being investigated at the Laboratory. Two further cases occurred in the prison during November and December but the epidemic character of the outbreak ceased when the water supply was changed.

One warder was admitted to the Civil Hospital in December and died there. A post mortem showed definite Typhoid lesions.

A. H. OWEN,
Medical Officer, Kampala.

APPENDIX III.

Government Dentist's Annual Report.

SIR,

I have the honour to submit to you my Annual Dental Report for the year 1919. During eight months of this period I was on leave.

The following tables will show the treatment of Officials:—

(i)	Appointments	231
	Officials treated	123
(ii)	The following conditions were treated:—	
	Caries Simplex	167
	(Extractions 28)	
	Pulpitis	18
	Abscess	4
	Periostitis	9
	Odontalgia	2
	Erosion	16
	Stomatitis	6

(iii) Conservative work: fillings, etc.:—

Ag. Amalgam	101
Cu. Amalgam	3
Synthetic porcelain and cement	32
P. Gutta Percha	5
T. Gutta Percha with dressings	41
Scaling	57
Ag. No. 3 applications	11

(iv) Prosthetic work:—

Dentures	9
Repairs to Dentures	14
Crowns	7

(v) The only Out-Stations visited were:—

Station.	*No. of visits.*
Kampala	4
Jinja	1

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

G. STANLEY BATEMAN,
Government Dental Surgeon.

THE PRINCIPAL MEDICAL OFFICER,
UGANDA.

APPENDIX IV.

Report of Entomologist.

Mr. W. F. Fiske, Entomologist, arrived in Uganda on the 25th of August, 1919, from prolonged leave of absence, and has since been employed continually upon the reclamation and sanitation of the "Victoria Nyanza infected area." This is the extensive belt bordering the Lake and including all the Islands, which is infected by the Tsetse Fly, *Glossina palpalis*, and which was swept by the recent great epidemic of Sleeping Sickness. It has now been depopulated and proscribed to occupation for any purpose, for from eleven to fourteen years. The disease is "practically" if not completely extirpated from this area, but persists in other parts of the Nile basin from which occasional cases are introduced into the territory from which it appears to be otherwise absent. On this account it is believed dangerous to permit reoccupation of the proscribed zone under the same conditions that prevailed before and during the epidemic.

1. Therefore it is proposed to perpetuate the present "Sleeping Sickness Ordinance" indefinitely. But the "Rules" framed under this Ordinance were expressly designed to bring about complete extirpation of the disease, and were never designed to be permanently applied. Therefore the original programme of Sir H. Hesketh-Bell for suppression of Sleeping Sickness in Uganda should be modified in two ways:—The Ordinance which was, equally with the Rules, designed to be temporary, should be perpetuated, and the Rules should be relaxed and amended to meet the situation thus created.

2. It is, in fact, necessary that these Rules should be amended because in the absence of the disease and (much more important) of all fear of the disease, it is "practically" impossible to enforce them. Because of this the Rules have been more or less irregularly relaxed in very many cases, especially during the war. These irregular relaxations have resulted in far broader contact between fly and population than the Rules were intended to permit. Being irregular, the privileges thus regained by certain persons or in certain localities have not been generally regained by the population at large. Moreover in some cases these irregularities have resulted in the return of a population to

fly infested territory under conditions exactly comparable with those generally prevalent previous to and during the epidemic, and undoubtedly responsible for it. Whenever the privileges regained, locally, are unaccompanied by undue risk of infection spreading, it is obvious that they should be generally granted. This is only fair to the people, and it is also necessary on economic grounds because these privileges are often-times very valuable both to their holders and to the population at large. When they are accompanied by undue risk it is as obvious that they should be newly curtailed, and that steps should be taken at once to prevent further extension of such privileges.

3. Therefore the following programme has been adopted and is being consistently carried out:—

First:—Thorough general inspection of the proscribed zone to ascertain the actual conditions at present, and the extent to which the Sleeping Sickness Rules are irregularly relaxed.

Second:—To regularise by amendment of Rules existing relaxations whenever they are of long standing and no harm can be shewn to have resulted.

Third:—To grant extensive privileges in all parts of the infected area in accordance with Rules as thus amended.

Fourth:—To enforce the amended Rules strictly.

4. This programme has been seriously handicapped by lack of assistance and transportation facilities. The "Infected area" includes much more than 1,000 miles of lake shore; hundreds of islands, and numerous deep bays and long peninsulas. One man cannot adequately inspect a so extended territory without better facilities for transportation by water than is provided by native canoes, and it is hopeless to attempt it. This has been patent from the beginning, and if the Government seriously purposes either to reclaim the lands and water rights involved under sanitary conditions, or to maintain the lake shore in a sanitary condition, it is absolutely necessary to provide adequate transportation for the European Officials or else to multiply the number of officials by two or three.

5. It has been equally handicapped by shortage of medical staff. In order to ascertain if harm has resulted from irregular relaxation of Rules it is necessary to examine large numbers of persons who have thus been living for considerable periods in contact with fly. This has been done as circumstances permitted by the Bacteriologist, but he has been unable to devote nearly enough time to the work, and no other medical officer has been available.

6. Finally the work is handicapped by lack of administrative assistance. At present the enforcement of the Rules is largely left to a corps of native "Sleeping Sickness Inspectors." These men occupy an extremely anomalous position. In some districts they report to the medical and in others to the administrative authorities, while some of them appear rarely to report at all except to draw their pay. Inspectors working in one district may report to District Commissioners or Medical Officers in another district. There is lack of uniformity in pay and in functions: some well-paid inspectors have little and others less well-paid have much territory to cover. Some devote all their time to their work, and others very little. The whole service should be reorganised. It must be placed under an administrative officer, and steps must be taken to eliminate dual authority in the enforcement of the Ordinance and Rules.

7. These difficulties were grievous and in the Memorandum presented to the Colonial Office in April, 1919, and approved by the Tropical Diseases Committee in May, the three items of transport, medical assistance and administrative assistance were cited as essential to the success of the whole programme. They are absolutely essential, and if it is intended to take the situation seriously they must be provided. If they are not provided in the relatively near future the one reasonable alternative would appear to be for Uganda to follow the precedents set in British East Africa and the Tanganyika Territory; to repeal the Sleeping Sickness Ordinance and Rules and to avoid further expense and trouble until such time as recurring epidemic brings reaction.

8. These requirements have been inadequately met by the services of the Bacteriologist (as already noted) by the employment of the steamship "Sir William Mackinnon" for three weeks in November and December on a tour of inspection into part of the infected area inaccessible by canoe, and by the appointment of the Entomologist to be Supernumerary Assistant District Commissioner, in the Entebbe District.

All these, however, are temporary expedients, and entirely unsatisfactory. Until the situation can be remedied it is absolutely necessary for the Entomologist to confine his activities to a part of territory within two days journey by canoe from Entebbe, and this is being done. One extended tour is now under consideration to ascertain the present status of Sleeping Sickness in the Tanganyika Territory and the condition under which the people are returning to live in contact with fly, but aside from this the Entomologist will be forced to restrict his work to a part of the relatively small sector of the infected area above defined.

9. On all counts the next important part of the territory thus delimited is the "Saza" or the County of Sesse, the larger part of which may be reached in two days journey from Entebbe. It is entirely insular and entirely depopulated. It includes fine forests, the products of which are urgently needed on the mainland, grazing lands at present unutilized, which are free of cattle diseases and naturally quarantined against spread of cattle diseases from the mainland, splendid agricultural land which was formerly the source of much of the food consumed in Entebbe and other European settlements near the lake shore, and very extensive and productive fishing grounds, also important sources of food. This being the next important part of the territory within the sphere of activities the most important phase of these activities is the reclamation and sanitation of this small but very valuable Saza.

10. The conditions under which the peninsular of Nkumba (near Entebbe) has actually been reclaimed in larger part during the period 1915 to 1919 are being accepted as precedent for the reclamation of Sesse. Nkumba is surrounded on three sides by the lake: it is densely infected by the Tsetse Fly along much of its shore; and it is closely comparable to any one of the islands in Sesse of equal or larger size in every important respect but one:—it may be reached by road, overland, whereas no part of Sesse can be reached otherwise than by water.

11. Reclamation of Nkumba began early in 1915 and was rapidly progressing by June of that year. It was entirely irregular, but was permitted through need of fuel and food in connection with Military operations. At present its reclamation is virtually complete in so far as the following conditions permit. No habitations or cultivation is permitted within 300 to 400 yards of infected shore: water is only drawn from springs or watering places on the lake shore partially protected by clearings; cattle are grazed anywhere; fuel is being or has been (extensively) cut in the forest along shore; a ferry between a cleared landing place and Entebbe is authorised, and fishing will also be permitted from this landing.

12. At present the plantations and villages nearest to the lake are measurably, though only slightly, infected by fly; the landing and watering places are infected to a degree that is doubtfully safe (in consequence of which the local chiefs have been ordered to extend the clearings), and the population, hunts and forages for wild fruit, fibre, wood, edible insects, etc., about as freely as it desires in the riparian belt. Contact between fly and population is, on the whole broader than it is proposed to permit elsewhere for the present but according to the report of the Bacteriologist no harm has resulted from the more than four years' continuance of these conditions. Neither as far as it is possible to ascertain has any harm resulted elsewhere through a population living in comparably moderate contact with fly. Therefore active steps to reclaim Sesse under comparable conditions were strongly recommended in October last, and the recommendations were accepted by the P.M.O. and Governor.

13. Under this plan for reclamation it was proposed that the Government would meet the one important point of difference between insular and peninsular conditions by protecting (through clearings) the absolutely necessary avenues of approach to the insular Saza, and this being accomplished, that the former inhabitants should be permitted to return to occupy land, etc., as on Nkumba Peninsula.

14. Detailed report in progress of this bit of reclamation and sanitation work cannot well be presented now, for as yet everything that is being done is tentative and experimental. The work involves operations on the mainland in reopening the various landing places necessary to permit of reasonably free access to the insular saza, and these are already actually under way. But it is not possible as yet to realise or to visualize all that it involves on the islands. These have reverted to absolute wilderness: there is no food for the returning population; there are no means, at

present, for transporting these colonists nor the food they will require pending the reopening of their villages and plantations, nor the enormous quantities of plants and cuttings necessary for these plantations.

15. Taking the population from island to mainland was an almost absurdly simple undertaking in comparison. The islands were then covered by a net work of hundreds of miles of more or less well kept roads and foot-paths; these are now for the most part impassable, and must be reopened preliminary to recolonization. The people had hundreds of canoes: these have been all destroyed and must be rebuilt. The chiefs and land-owners were then rich in cattle; of the herds removed scarcely ten head per thousand have survived exposure to mainland diseases. The people were removed to a populated country where their immediate food requirements could be met; they must return to a country when it will be years before the plantations can be reclaimed and rendered as productive as the population require. The people moving to the mainland could secure plants for their new plantations, by the asking from their new neighbours; they must now carry the immense quantities of plants required for many miles, by water and without either the canoes or the men to man the canoes required for such transport.* The people going to the mainland were forced to go against their will, and to undergo the manifold hardships whether they would or no; the returning colonists cannot be found to undertake the far greater labour of repatriation, but must be given the choice of going or remaining with the result that the available man power is very greatly reduced. There was no sanitary clearings required for expatriation; much work of this character is demanded of the returning colonists.

16. These are but a few of the difficulties to be met and somehow overcome. They have increased by at least three-fold since it was first definitely proposed to reclaim the Saza in 1915. At that time it was not believed that reclamation by the original population and owners of the land would be possible if active steps were long delayed. It is doubtfully practicable now except very slowly and painfully by the people unaided, or more rapidly in accordance with the amount of aid given by the Lukiko and European Government.

17. At present the activities of the Entomologist are mainly directed to the planning and execution of preliminary experiments in reclamation work, which are necessary before practical details can be elaborated or any exact estimate of the cost to the Government presented. The result of these experiments and tentative efforts will be presented in an *ad interim* report some time during the spring or summer together with supplementary estimates of the sums necessary to carry the work on through the remainder of the fiscal year.

W. F. FISKE,

31st January, 1920. *Entomologist, Medical Department.*

*A single family will require from 500 to 1,000 banana plants and the equivalent of an acre or more of sweet potatoes and cassava, to provide itself with food. Four good banana sets make one porter's load, and a ten paddle canoe will carry, perhaps, 20 such loads. One acre of sweet potatoes requires about 100 bundles of cuttings, of which a ten paddle canoe will carry about 25 bundles. The requirements of an average family are therefore at a minimum, 6 canoe loads of bananas and 4 canoe loads of sweet potatoes and cassava plants, or ten canoe loads in all. If a ten paddle canoe is manned by one man from each of 10 families, it must make 100 trips to carry plants for all the families. It requires at least four days to make a return trip between the mainland and any except the nearest islands. Therefore 400 days would be required to transport plants alone to say nothing of the many trips to carry the food required during the period before the plants can be set and the plantations rendered productive. The canoe must make not less than 25 return trips for each returning family, when only a single return trip was necessary for transport of this family from island to mainland. Then there were more canoes than the population really needed, and at least five times more than can be constructed by the people during the first year; probably ten times more than it will be practicable to construct. These figures are but illustrative of the proportionate magnitude of the difficulties of recolonization as compared with expatriation.

APPENDIX V.

Treatment of Sleeping Sickness by Salvarsanised Serum.

The history of the treatment of sleeping sickness in the past has been one of optimistic hopes resulting in failure, as each new method tried has been found to be nearly the cure, yet to have just fallen short of success.

This applies more especially to African patients, for while certain Europeans and Asiatics have been undoubtedly cured of the disease, no such success has followed the treatment of natives.

The reason may be that the African native is seldom seen in the very early stages, and also being more susceptible to the poisonous effects of the arsenic preparations used, is unable to stand the large doses employed to kill the trypanosome in the cases of non-natives.

For nearly a year after its introduction, atoxyl was hailed as a definite remedy, only to prove not quite successful, while more recently Drs. Rodhain and Broden in the Congo have shown that salvarsan produces great improvement in early cases, although they do not claim it to be a cure, and definitely state that it is of little value if the trypanosome can be found in the cerebro-spinal fluid (Manson).

Quite early in the disease the trypanosome appears to gain an impregnable position in the central nervous system, and when attacked by drugs which drive it from the blood stream, remains undefeated in the spinal cord, in the same way that syphilis while in the early stages is easily cured, once the disease has established itself in the central nervous system, the complete cure is more problematical.

It would appear therefore that if sleeping sickness is to be cured, except in the earliest stages, the trypanosome must be attacked in the spinal cord, as well as in the blood stream.

With this idea I commenced treating cases of sleeping sickness by intra-spinal injections of Neokharsivan, but unfortunately the first case so treated died as a result of the injection.

Case 1.—*Weri*, man, aged about 40 years.

Examined 26-9-18. Glands small but typical. Gland juice. Trypanosomes present.

27- 9-18. Intra-venous injection of 0·6 gms. Neokharsivan.

1-10-18. Intra-spinal injection of 0·025 gms. Neokharsivan, after 10 cc. C.S.F. had been drawn off.

2-10-18. Patient died.

Though doubtless this method need not necessarily have fatal results, I decided to employ salvarsanised (Neokharsivanised) serum for future injections into the spinal cord instead of the drug itself.

The patients treated were divided roughly into five classes according to the stage of the disease, as follows:—

Class A.—Early cases with distinct glands, the juice of which contained scanty trypanosomes, but with no other signs. The patients consider themselves quite well, and are only discovered by systematic examination of a large number of natives.

Class A.B.—Glands well marked and contain numerous trypanosomes. The patients do not feel well, and complain of pains and sleeplessness.

Class B.—In addition to above signs, there are finger and tongue tremors, increased knee jerks, headache and pains in the limbs. Impotent.

Class B.B.—Advanced cases, unintelligent, spastic and uncertain gait.

Class C.—Almost comatose. Unable to walk, or reply to questions.

With this classification it is suggested that the central nervous system has been invaded in the A.B. class, though it is possible that this may occur even earlier.

The technique employed is as follows:—

(1) An intra-venous injection of Neokharsivan is given and after one to two hours, 10 cc. to 40 cc. of blood are drawn off from a vein into a sterile vessel.

(2) The vessel containing the blood is to keep cool by being placed in a beaker of cold water for from twelve to sixteen hours, by which time the clear serum has separated from the blood clot.

(3) A lumbar puncture is performed and 15 cc. to 20 cc. of cerebral-spinal fluid drawn off, and a corresponding quantity of the serum, obtained as above, is slowly injected into the spinal cord through the lumbar puncture needle, by means of a large, all glass syringe.

This method has been used in a series of 12 selected cases with the results tabulated below.

Several patients have only been a short time since the treatment, while the longest period of observation has been 16 months.

While no absolutely definite results can be looked for till several years have elapsed after the patient has been treated, it must be borne in mind that these cases have only had one injection of the serum and then been sent back to their homes without further treatment of any kind, except in one case No. 9 where two injections of serum were given.

Two cases are recorded in detail, and the others shown by a table.

Case 2.—Namaja, a woman, aged about 30 years.

Class of Case, A.B.

30- 9-18. Examined. Glands. A large typical chain in the neck. Gland juice. Trypanosomes present.

1-10-18. Intra-venous injection 0·6 gms. Neokharsivan. 2 oz. blood drawn off after three hours.

2-10-18. Injection 20 minims serum into the spinal cord.

14-12-18. Re-examined. Glands few and pea-like 1 cc. blood injected into Monkey A.

24-12-18. Monkey A. escaped and not recaptured.

30-12-18. Examined. Glands as before. Ice blood into Monkey B.

11- 1-19. Quite well. Monkey B. well.

2- 2-19. Monkey B. well.

8- 2-19. Monkey B. well (as I left the station on tour the monkey was not seen again but I understand it remained perfectly well until it escaped some time later).

29- 5-19. Examined; well, and glands very small.

2- 9-19. Examined; quite well, glands as before. 2 cc. blood injected into Monkey No. 6404.

31-10-19. Monkey 6404 perfectly well.

29-11-19. Examined; quite well, two. pea-like glands. Gland juice. No trypanosomes. Monkey 6404 well.

7- 1-20. Reported quite well. Monkey 6404 well and set free.

Case 4.—Bulagi, a woman aged about 27 years.

Class A.B.

9- 1-19. Examined. Glands. One large, soft, gland in neck. Gland juice. Trypanosomes present.

10- 1-19. Intra-venous injection of 0·6 gms. Neokharsivan. 40 cc. blood drawn off.

11- 1-19. Injection of 20 cc. serum into the spinal cord.

2- 9-19. Examined; no glands palpable. Perfectly well. 2 cc. blood injected into Sheep No. 6403.

30-10-19. Sheep 6403 well.

12-11-19. No glands palpable. Quite well. Sheep remains well.

7- 1-20. Examined. Quite well. Sheep well.

NOTE.—This woman disappeared during the severe famine in the early part of 1919 and was not seen for nearly nine months.

These two cases had only one injection and no other treatment. After 16 and 12 months respectively they show no signs of relapse, maintain themselves that they are perfectly well, and are certainly in better health than when they first came under treatment.

TABLE SHOWING TWELVE CASES TREATED.

No. of Case.	Name.	Sex.	A.	AB.	B.	BB.	C.	Dose of Serum.	Time since Treatment, Months.	Result.
2	Namaja ...	F.	—	1	—	—	—	20 min.	16	Well.
3	Kidaburi ...	M.	1	—	—	—	—	3 cc.	1	Disappeared.
4	Bulagi ...	F.	—	1	—	—	—	20 cc.	12	Well.
5	Sabano ...	F.	—	1	—	—	—	8 cc.	1	Died (cause unknown)
7	Mubandusa ...	M.	—	—	1	—	—	15 cc.	6	Well.
8	Namwabira ...	F.	—	—	1	—	—	15 cc.	4	Well.
9	Unknown ...	M.	—	—	—	—	1	20 cc.	1½	Died.
10	Takuta ...	M.	—	—	—	1	—	15 cc.	2½	Improved.
11	Basalaine ...	M.	—	—	1	—	—	21 cc.	1½	Well.
12	Mulima ...	F.	—	1	—	—	—	7 cc.	1½	Well.
13	Kitaka ...	F.	—	—	1	—	—	20 cc.	1½	Well.
15	Tatoko ...	F.	—	1	—	—	—	24 cc.	1½	Well.

Of the cases quoted above *Case 3* showed no signs of relapse when last seen, but he was lost trace of during the famine, and is said to have died of hunger and dysentery, in April or May. *Case 5* was treated on 11-7-19 and showed considerable improvement. She died suddenly on 18-8-19 from some unknown cause. I did not see her as I was away on tour, but I understand that she was well and working on the cultivation in the morning, but was found dead in her hut next morning. There appears to be no reason to suppose that her death was due either to sleeping sickness or to the serum injection.

Case 9 was a very advanced case; on admission he could not give his name, and was unable to walk, and could only stand with difficulty. He received two injections of serum, and died after the second, either as its result, or from the original disease. The details of this case are as follows:—

Name unknown, a man aged about 22 years.

Class C.

25- 9-19. Examined. Glands. An enormous chain of typical glands both sides of the neck.

Gland juice. Numerous trypanosomes present in each field.

Blood. Trypanosomes present.

Lumbar puncture and C.S.F. examined, but no trypanosomes found.

26- 9-19. Intra-venous injection of 0·6 gms. of Neokharsivan.

27- 9-19. Intra-spinal injection of 20 cc. serum.

29- 9-19. Appears better.

12-10-19. Much improved, more intelligent, gland smaller and harder.

14-10-19. Gland juice examined, no trypanosomes could be found.

16-10-19. Injection of 0·6 gms. Neokharsivan intra-venously.

1-11-19. Intra-venous injection of 0·9 gms. of Neokharsivan.

Gland juice. No trypanosomes found.

Blood. No trypanosomes found.

2-11-19. Intra-spinal injection of 22 cc. serum.

C. S. F. Fresh specimen. No trypanosomes found.
Stained specimen. No trypanosomes found.

C. S. F. 3 cc. injected into Dog No. 6407.

3-11-19. Patient died.

7- 1-20. Dog No. 6407 remains well.

NOTE.—It appears quite possible that this man died from the effects of treatment, but at the same time the disease was so far advanced that even supposing the actual trypanosomes in his system had been killed, it is quite possible that their effect prior to treatment would still have caused death. It is interesting to note that there was no rise in temperature above the normal after the first injection.

In order to confirm the experiments of Drs. Rodhain and and Broden, as well as the one or two similar cases which have occurred in Uganda, I would wish to quote the following cases to prove that the improvement noted in the patients tabulated above is not due to the injections of Neokharsivan alone.

Case 6.—A large dog was brought to me suffering from Keritatis, and on examination its blood was found to be swarming with trypanosome of the Gambiense-Brucei type (Duke).

11- 7-19. Intra-venous injection of 0·3 gms. of Neokharsivan.

13- 7-19. Dog much improved, eye symptoms better, eats well, and is in good spirits.

22- 7-19. Trypanosomes returned to the blood.

1- 8-19. Very ill, refuses all food.

Intra-venous injection of 0·4 gms. of Arsenophenylglycin.

4- 8-19. No trypanosomes could be found in the blood.

14- 8-19. Blood. Trypanosomes returned.

26- 8-19. Blind, and refused food. Shot.

Case 7.—*Mubandusa*, a man aged about 30 years.

Class B.

1- 6-19. Examined. Glands. Few and small.

Gland juice. Trypanosomes present.

1- 7-19. Had disappeared for a month. Re-examined.

Trypanosomes again found in the gland juice.

10- 7-19. Intra-venous injection of 0·6 gms. of Neokharsivan.

No serum given.

27- 8-19. Examined. Glands small and hard, no trypanosomes could be found in the gland juice.

29- 9-19. Lumbar puncture, 20 minims of C.S.F. drawn off and injected into Monkey No. 6402.

C.S.F. examined. No trypanosomes could be found.

25-10-19. Examined; all glands disappeared except one, very small and hard. Health much improved, states he can now work which he could not do before.

Monkey quite well.

28-10-19. Lumbar puncture: C.S.F. centrifuged for 15 minutes and examined. Trypanosomes present (after prolonged search). 3 cc. C.S.F. injected into Sheep No. 6406.

29-10-19. Intra-venous injection of 0·6 gms. of Neokharsivan, followed by intra-spinal injection of 15 cc. serum.

7- 1-20. Examined. Quite well. Monkey and sheep remain well.

In these cases the patients made undoubted progress under Neokharsivan alone, but in neither case was the disease cured.

The fact that the C.S.F. in *Case 7* showed no trypanosomes on first examination, and that both the sub-inoculated animals remain well I am unable to explain except that it was owing to faulty technique.

In conclusion I would suggest that these experiments tend to show:—

(1) That intra-spinal medication causes improvement in the patient, and may prove to be a complete cure.

(2) That it has a greater beneficial effect than intra-venous injections alone.

(3) That in advanced cases even if the actual disease is arrested, the damage already done to the central nervous system is probably beyond repair.

I wish to express my thanks to Dr. C. A. Wiggins, Principal Medical Officer, Uganda Protectorate, for permission to publish these notes.

C. H. MARSHALL.

APPENDIX VI.

A case of Maternal Malaria with non-infection of Child.

In view of the uncertainty which exists as to the passage of the malaria parasite from the mother to the fœtus through the placental circulation the following case may be of interest.

On 23rd September, 1919, I was asked by the Sub-Assistant Surgeon to see a Goan woman aged 22. The previous evening her temperature had risen to 105° (according to her husband), and as she was within a day or two of her confinement he was afraid to give quinine; when seen at midday she had a normal temperature, but a thick blood film shewed numerous subtertian parasites. Labour started before any quinine had been administered and she was admitted to the Goan Hospital and delivered of a healthy male child at 6 a.m. next morning.

Her temperature at 6 p.m. on the day of admission was 99·4° F. Normal next morning after delivery—rose to 103·8° F. that evening, to 100·8° F. next morning —24 hours after delivery and it did not again rise during a normal lying-in period and she was discharged on the tenth day. Immediately after delivery she was placed on quinine gr. xx in liquid form daily.

Blood slides, all thick films, were taken from the finger of mother and child twice daily with the following results:—

Immediately after confinement.
Numerous S. T. parasites in mother.
None in child.

Same evening (T. 103·8° F. after gr. xx liquid quinine).
As above.

Next morning (T. 100·8° F).
As above.

24 hours later T. normal.
Parasites less numerous in mother, none in child.

After this, examination failed to shew parasites.

The child never had any fever, and up to date—two months—has kept quite well.

Dr. Duke kindly examined slides independently at the Bacteriological Laboratory and in each case the findings agreed.

Clearly in this case there was no infection of the child in utero—I understand that a case was reported by Dr. Moffat, late P. M. O. to this Protectorate, where a child born in England was proved to have malaria parasites in its blood, the mother having frequently had attacks of malaria in Uganda. The literature on the subject is scanty. Thayer states in Vol. VII. of Clifford Allbutts System, that maternal infection of the fœtus does not occur but in Castellani a case is reported in which parasites were found both in mother and new-born child.

B. SPEARMAN, M.A., M.B., B.C. (Camb.), D.T.M. & H.

Since writing the above I have recently had a similar case. A Goan woman was admitted on the evening of 15-11-19 and the child born at 1 a.m. the following morning. The patient said she had been having frequent attacks of fever recently and had had an attack a few days prior to admission. On the same day she had a rigor, temperature rising 103·8° F. S.T. parasites numerous in blood. The baby kept quite well and blood examination showed no parasites.

APPENDIX VII.

INFLUENZA.

MEDICAL CIRCULAR NOTICE.

In view of the prevalence and dangers of influenza the following general advice is offered:—

General Precautions.

2. In order to check unnecessary dissemination of the disease persons should avoid travelling about as far as possible, and should not attend meetings or congregate in close rooms or confined spaces.

3. Everyone should keep himself as fit as possible by leading a healthy life with a reasonable amount of open air recreation and a moderate allowance of wholesome simple food. Depressing influences of any kind should be avoided, such as physical strain, overwork, worry, late hours, and excesses of all kinds. Overcrowding is always dangerous, but particularly so at present, and the freest possible ventilation of dwellings should be insisted on both by day and night. Scrupulous cleanliness of the person, clothes, and surroundings is essential. Frequent visiting of an influenza patient by friends should be prohibited as it is dangerous, not only to the visitor, but to the patient and also to the community.

Prophylaxis.

4. Anyone feeling run-down should be especially careful in the above respects and should take a tonic. If subject to malaria a daily prophylactic dose of quinine should be taken.

5. Anyone who is exceptionally exposed to infection, *e.g.*, through living in the same house with the sick, may with advantage use preventives such as sniffing, inhaling of eucalyptus, camphor, ammoniated quinine, etc., and the frequent use of antiseptic gargles, *e.g.*, Condy's fluid. These measures, however, though doubtless beneficial, are useless alone, and are less efficacious than the general rational habits of a healthy life as indicated above.

Symptoms and Ætiology.

6. The symptoms of the so-called Spanish Influenza are too well known to-day to require enumeration. Its ultimate cause, and how it is conveyed, are at present unknown. It has been suggested that it may be insect-borne; but in view of the shortness of the incubation period, the very widespread prevalence

and rapid dissemination of the disease, and its usual local invasion of the throat and respiratory passages, it would appear more rational to suspect that it is conveyed through the air by dust and inhalation. It is well at all events to bear this probability in mind and to observe scrupulous cleanliness, to provide plenty of light and ventilation in the sick room and the house, and to avoid unnecessary proximity when attending to patients. Spitting about is most dangerous and patients should always be made to expectorate into a spitoon or jar, containing some antiseptic, *e.g.*, Jeye's fluid or carbolic, the contents of which should frequently be burned.

TREATMENT.

7. Treatment is conducted on general and symptomatic lines. The patient, as soon as he feels definite symptoms, *e.g.*, fever, pains in the head, limbs or back, shivering, sore throat, cough, or cold in the head (but not in the feet) should at once go to bed and remain there until quite convalescent. Many severe complications and relapses have been caused by fighting against the onset too long, or getting about again too soon. For the sick room one should always select as far as possible a bright, well-ventilated, well-lighted room; remove superfluous furniture, curtains, hangings and carpets; keep the windows open day and night, always avoiding draughts, and keep the patient isolated as far as practicable. Medical advice should be obtained if possible. A good purgative should be taken at once. In malarious countries it is advisable to give quinine as a routine. Cough, bronchitis, pneumonia and other complications require special medical treatment. Headache, pains and restlessness may be allayed by aspirin, Dover's powders, etc., in correct doses. Sponging with tepid water will always be found beneficial for fever and restlessness and should be practised daily until the full bath can be given. A liquid diet should at first be given, chiefly of milk, supplemented gradually by soft or solid food as the fever and symptoms subside. Soda water, barley water, lemonade, etc., are useful, and plain cold water should always be allowed in small quantities frequently. Moderate doses of good whiskey or brandy will be found beneficial especially to those accustomed to alcohol.

8. When convalescent the patient should get out into the open air for drives and light exercise, but should not resume arduous work until quite strong. To regain strength a liberal diet, plenty of fresh air, and tonics should be taken.

9. With these measures and a cheerful mind the best results may be hoped for.

JINJA,
17TH NOVEMBER, 1918.

J. HOPE REFORD,
Medical Officer of Health.

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