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UGANDA PROTECTORATE.

ANNUAL

MEDICAL AND SANITARY REPORT

FOR THE

YEAR ENDED 31ST DECEMBER, 1922.

Published by Command of His Excellency the Governor.



ENTEBBE :

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UGANDA PROTECTORATE

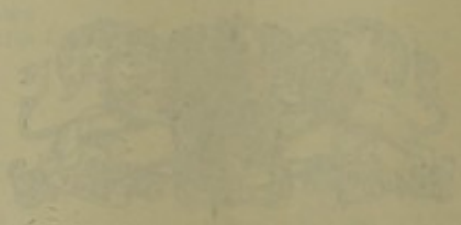
ANNUAL

MEDICAL AND SANITARY REPORT



Year ended 31st December 1922

Printed by Messrs. J. & W. Mackenzie Ltd. Kampala



PRINTED

Printed at the Government Central Press, Kampala

1923

PRINCIPAL MEDICAL OFFICER'S OFFICE,

ENTEBBE, UGANDA,

21st April, 1923.

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 1922, together with the Returns, etc., appended thereto.

I have the honour to be,

Sir,

Your obedient servant,

J. HOPE REFORD,

*Acting Principal Medical Officer,
Uganda Protectorate.*

THE HONOURABLE

THE CHIEF SECRETARY TO THE GOVERNMENT,

ENTEBBE.

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UGANDA PROTECTORATE.

ANNUAL MEDICAL REPORT

FOR THE

YEAR ENDED 31ST DECEMBER, 1922.

SECTION I.

ADMINISTRATIVE.

(A) Staff.

(1) THE ESTABLISHMENT FOR 1922 AS SANCTIONED IN THE ESTIMATES WAS AS FOLLOWS :—

EUROPEAN.

Principal Medical Officer.	1 Office Superintendent.
Deputy Principal Medical Officer.	1 Clerk.
4 Senior Medical Officers.	1 Storekeeper.
19 Medical Officers.	
Chief Sanitation Officer.	1 Clerk.
1 Sanitation Officer.	
3 Medical Officers of Health.	
1 Specialist Officer, Venereal Diseases.	1 European Superintendent.
1 Pathologist, Venereal Diseases.	
3 Medical Officers, Venereal Diseases.	
1 Bacteriologist.	2 Laboratory Assistants.
1 Assistant Bacteriologist.	
1 Senior Medical Officer i/c Sleeping Sickness Measures.	1 Sleeping Sickness Inspector.
1 Entomologist	
1 Dental Surgeon.	
1 Matron.	
7 Nursing Sisters.	
1 Nursing Sister, Venereal Diseases.	

ASIATIC.

1 Assistant Surgeon.	1 Asiatic Assistant Storekeeper.
2 Senior Sub-Assistant Surgeons.	2 2nd Grade Clerks.
22 Sub-Assistant Surgeons.	2 3rd Grade Clerks.
8 Compounders.	4 4th Grade Clerks.

NATIVE.

A varying number of Native Attendants including :—

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

(2) SHORTAGES ON ESTABLISHMENT :—

(a) Europeans.

At the beginning of the year there were the following shortages on establishment :—

- 3 Medical Officers.
- 3 Medical Officers of Health.

During the year six vacancies were created through transfers, death and termination of appointment, and four vacancies for Medical Officers were filled, so that at the end of the year the shortages on establishment were:—

- 1 Senior Medical Officer.
- 1 Sanitation Officer.
- 3 Medical Officers.
- 3 Medical Officers of Health.

Nursing Staff.—There were three vacancies on establishment at the beginning of the year, these being filled in January, May and June respectively.

(b) *Asiatics.*

On the 1st January there were seven posts vacant on the sanctioned establishment for Asiatic Medical Staff, *viz.*, five Sub-Assistant Surgeons and two Compounders. Four of these were filled during the year, *viz.*, two Sub-Assistant Surgeons and two Compounders.

(3) APPOINTMENTS, CHANGES, ETC., IN STAFF.

Appointments:—

Dr. E. A. C. Langton, Medical Officer, on transfer from Tanganyika Territory	....	....	....	....	25-11-21
Dr. S. W. T. Lee—on transfer from Northern Rhodesia Medical Service	....	....	....	....	7- 5-22
Miss H. C. Potter, Nursing Sister	....	....	....	....	16- 1-22
Miss F. E. Warner, Do	....	....	....	....	5- 5-22
Miss A. Miles, Do	....	....	....	....	30- 6-22
Mrs. M. S. Wilson, Do Venereal Diseases (temporary local agreement)	....	....	....	....	24- 6-22
Mr. C. Chorley, M.P.S., on relinquishing duties of Relief Medical Storekeeper was appointed Pharmacist on a temporary local agreement	....	....	....	....	1- 5-22
Mr. E. F. Busby, Sleeping Sickness Inspector (temporary local agreement)	....	....	....	....	15- 2-22
Mr. G. K. Pillai, Sub-Assistant Surgeon	....	....	....	....	20- 4-22
Mr. Nur Mohamed Do.	....	....	....	....	22- 4-22
Mr. S. R. Pillai, Compounder	....	....	....	....	14- 1-22
Mr. Dharam Chand Do.	....	....	....	....	25- 1-22

Promotion:—

Dr. J. M. Collyns, Sanitation Officer, to be Chief Sanitation Officer	8- 8-22
---	---------

Honours:—

Major C. A. Wiggins, Principal Medical Officer, to be a Companion of the Most Distinguished Order of Saint Michael and Saint George.	
--	--

Agreements Terminated:—

Dr. J. A. Quin, Temporary Medical Officer	....	....	....	27- 1-22
Dr. F. O. Simpson, Do	....	....	....	10-10-22
Mr. Lahna Singh, Sub-Assistant Surgeon	..	....	....	22- 4-22
Mr. Diwan Chand, Do	....	....	....	21- 5-22

Resignation:—

Miss A. Mason, Nursing Sister				2- 7-22
-------------------------------	------	------	------	---------

Transfers:—

Dr. A. H. Owen, Senior Medical Officer, to Tanganyika Territory as Chief Sanitation Officer	....	....	....	9-12-22
Dr. R. S. Taylor, Medical Officer, to Somaliland as Senior Medical Officer	....	....	....	1- 6-22
Capt. C. G. Timms, M.C., Medical Officer, to Somaliland as Medical Officer	....	....	....	1-12-22

Invaliding:—

Mr. K. R. Kanade, Sub-Assistant Surgeon				8-11-22
---	------	------	------	---------

Death:—

Dr. C. J. Baker, Chief Sanitation Officer, died at sea when proceeding on leave	...			7- 8-22
---	-----	------	------	---------

(4) LEAVE:—The following were on leave during the period stated opposite their names:—

	From	To
Major C. A. Wiggins, C.M.G., Principal Medical Officer	23- 7-22	End of year.
J. H. Reford, Ag. Principal Medical Officer	1- 1-22	25- 7-22
C. J. Baker, Chief Sanitation Officer	23- 7-22	7- 8-22*
H. L. Duke, O.B.E., Bacteriologist	1- 1-22	16- 4-22
R. A. L. van Someren, Senior Medical Officer	6- 4-22	25-11-22
A. H. Owen, Senior Medical Officer	1- 1-22	19- 2-22
Major R. J. A. Macmillan, D.S.O., T.D., Medical Officer	1- 1-22	19- 2-22
W. L. Webb, Pathologist	28- 2-22	28- 9-22
W. L. Peacock, Medical Officer	28- 2-22	25-11-22
S. M. Vassallo, Medical Officer	1- 1-22	28- 9-22
C. G. Timms, M.C., Medical Officer	12- 8-22	1-12-22†
J. A. Quin, Temporary Medical Officer	1- 1-22	27- 1-22‡
F. O. Simpson, Do	19- 6-22	10-10-22‡
W. F. Fiske, Reclamation Officer	27-10-22	End of year.
G. S. Bateman, Dental Surgeon	24- 4-22	do
Miss A. Mason, Nursing Sister	6- 4-22	2- 7-22§
Miss N. M. Adams, Do	24- 4-22	21-11-22
P. J. L. Waters, Medical Storekeeper	1- 1-22	19- 2-22
Hukam Singh, I.O.M., Sub-Assistant Surgeon	8- 2-22	17- 8-22
Ghulam Haider, Do	9-11-22	End of year.
Faquir Chand, Do	1- 1-22	31- 3-22

(B) Financial.

ESTIMATED EXPENDITURE FOR THE YEAR.

Medical Division.

PERSONAL EMOLUMENTS:—

Principal Medical Officer, Deputy Principal Medical Officer, Senior Medical Officers, Medical Officers, Dental Surgeon, Medical Storekeeper, Clerical Staff, Packers, Messengers, etc.	£ 27,420
--	----------

Sleeping Sickness Division.

Senior Medical Officer, Entomologist and Sub-Staff for the Suppression of Sleeping Sickness	3,364
---	-------

Venereal Diseases Division.

Specialist Officer and Sub-Staff for the Suppression of Venereal Diseases	6,457
---	-------

Sanitation Division.

Chief Sanitation Officer, Sanitation Officer, Medical Officers of Health and subordinate staff for the Suppression of Epidemic Diseases	8,476
---	-------

Laboratories Division.

Bacteriologist, Assistant Bacteriologist and Sub-Staff	3,559
--	-------

TOTAL PERSONAL EMOLUMENTS £ 49,276

OTHER CHARGES:—

Medical Division—General	4,200
Sleeping Sickness Division	1,425
Venereal Diseases Division	2,250
Sanitation Division	5,147
Laboratories Division	720

TOTAL OTHER CHARGES 13,742

TOTAL MEDICAL DEPARTMENT £ 63,018

Hospitals and Dispensaries.

PERSONAL EMOLUMENTS:—

Nursing Staff....	£ 2,627
Indian Medical Assistants	8,269
Native Attendants	2,000
Miscellaneous Allowances	15

TOTAL PERSONAL EMOLUMENTS 12,911

OTHER CHARGES:—

Medical, Surgical and Dental Stores	5,000
Upkeep and Equipment of Hospitals	2,700
Miscellaneous Charges	1,270

TOTAL OTHER CHARGES 8,970

TOTAL HOSPITALS AND DISPENSARIES 21,881

* Date of death. † Date of transfer to Somaliland. ‡ Date of termination of agreement. § Date of resignation.

SANCTIONED LOAN EXPENDITURE.

(3) PUBLIC HEALTH:—

				£
<i>Medical Department.</i>				
	Venereal Diseases purposes	....	....	3,484
<i>Entebbe:</i> —	Isolation Hospital, Asiatics, 6 beds	....	....	869
	Addition to Laboratory	....	....	400
	Cold Storage Plant for Laboratory....	....	....	1,000
<i>Kampala:</i> —	Completion of European Hospital	....	....	3,743
	New Native Hospital, 100 beds and outhouses	....	....	2,000
	Swamp	....	....	82
	Disinfectors for Kampala and Jinja	....	....	1,000
<i>Mubendi:</i> —	Dispensary	....	....	500
<i>Scroti:</i> —	Native Hospital, 50 beds	....	....	360
<i>Lira:</i> —	Native Hospital, 50 beds	....	....	500
	Equipment for Hospitals	....	....	1,000
TOTAL				£ 14,938

SECTION II.

PUBLIC HEALTH.

(A) Vital Statistics.

The births and deaths for the five Kingdoms—Buganda, Busoga, Bunyoro, Ankole and Toro are shown in Tables I to VII.

It is most satisfactory to note that the total births in these Kingdoms exceed the total deaths by 3,979, the birth-rate being 23·51 per thousand and the death-rate 20·80 per thousand.

In the Buganda Kingdom, however, there is a falling off in the birth-rate and an increase in the death-rate, the total deaths exceeding the total births by 1,458.

On the other hand, it is gratifying to record that the number of still-births has decreased in Buganda by 67. It is reasonable to conclude that this result is attributable in part to the splendid work done in some of the recently established maternity centres. In the Lady Coryndon Maternity Training School, for instance, 380 living babies were sent out well and strong during the year as compared with 134 the previous year. The antenatal work carried out at Mulago must also have contributed greatly in the same direction.

Although much excellent work, organisation and treatment have been carried out, at considerable expenditure, in the anti-venereal campaign in Buganda, the beneficial results hoped for are not so far noticeable in the general vital statistics of this Kingdom. It is hoped, however, that such results will emerge later when a sufficient period has elapsed; the indirect influence of the campaign on other diseases and on the still-birth-rate must have been considerable.

There is another Province, Bunyoro, where the death-rate exceeds the birth-rate and where the number of still-births is very high. There is some satisfaction in noting that these figures have shown a small but steady improvement for the last three years, but in view of the appalling still-birth-rate (amounting to 38·58% of live births) and the great prevalence of venereal diseases in this Province it has been decided to establish a new native hospital at Hoima during 1923 primarily for venereal diseases on Mulago lines, but merging at an early date into a general hospital.

Infantile mortality rates throughout the Protectorate are supposed to be, and undoubtedly are, very high. Figures for the returns have never yet been available, partly owing to the difficulties in ascertaining the age of death. Such returns would be of great value in assessing results of Venereal and Maternity and Childwelfare Schemes now being established, and an endeavour will in future be made to obtain the requisite data.

In calculating these rates the populations are taken from Census Returns of December, 1921, as being more accurate than the Blue Book Returns for 1921. Blue Book Returns for each year are not completed until June of the following year, and consequently are not available in time for the corresponding year's Medical Annual Report.

TABLE I.—TABLE OF DEATHS FOR THE FIVE DISTRICTS OF BUGANDA, BUSOGA, BUNYORO, ANKOLE AND TORO FOR THE YEAR 1922.
CAUSE OF DEATH.

County	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Influenza	G. S. M.	Fever	Relapsing fever	Plague	Small-pox	Measles	Erythema	Gonorrhoea	Dysentery	Diarrhoea	Leprosy	Cancer	Tuberculosis	Malaria (or Hibbels)	Dropsy	Chest Complaints	Erys	Paralysis	Abscess	Wounds and Injuries	Snake-Bite	Child-Birth	Other Causes	Total Deaths	Total Births	Still-Births
Buganda	461	28	3,415	—	128	—	14	855	920	44	203	136	305	365	238	134	1,720	108	1,043	84	25	61	235	3,415	13,939	12,481	1,102
Busoga	—	—	151	1	866	5	5	569	166	71	403	57	27	19	217	115	659	50	918	58	5	14	94	1,348	5,839	8,792	483
Bunyoro	127	—	46	1	1	—	15	72	54	60	182	91	45	57	41	39	459	25	83	14	11	4	27	1,055	2,430	1,539	967
Ankole	684	271	1,851	—	5	3	1	738	29	40	60	36	175	437	211	23	100	35	126	11	14	17	137	874	5,879	7,382	775
Toro	305	207	99	6	30	2	7	107	121	55	22	27	65	88	123	120	99	35	35	23	20	28	130	695	2,450	4,322	1,739
Totals	1,578	506	5,562	8	1,030	10	42	2,392	1,290	270	879	277	619	967	830	431	3,028	253	2,235	190	75	124	623	7,387	30,537	34,516	5,065

TABLE II.—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.

	BUGANDA	BUSOGA	BUNYORO	ANKOLE	TORO	TOTALS
Population	777,852	222,666	98,758	251,289	117,539	1,468,104
	Births (living)	Births (living)	Births (living)	Births (living)	Births (living)	Births (living)
	12,481	8,792	1,539	7,382	4,322	34,516
	13,939	5,839	2,430	5,879	2,450	39,537
	17.91	26.23	24.60	23.40	20.85	20.80
Rates per 1,000	16.03	39.49	15.57	29.38	36.78	23.51
Still-Births per cent of Total Births and Still-Births	1,102 = 8.11	483 = 5.20	967 = 38.58	775 = 9.50	1,739 = 28.69	5,065 = 12.79

TABLE III.

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

BIRTHS (LIVING.)

Year.	BUGANDA.	BUSOGA.	BUNYORO.	ANKOLE.	TORO.
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
1920	12,265	9,005	1,597	6,529	3,167
1921	13,050	9,829	1,602	7,095	3,872
1922	12,481	8,792	1,539	7,382	4,322
TOTALS ...	76,150	68,551	11,114	45,230	25,359

DEATHS.

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
1920	14,469	6,980	2,609	6,033	2,260
1921	13,761	11,312	2,599	6,206	1,976
1922	13,939	5,839	2,430	5,879	2,450
TOTALS ...	97,555	60,076	20,889	41,781	15,756

STILL-BIRTHS.

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
1920	1,127	484	953	773	1,478
1921	1,169	487	993	780	1,504
1922	1,102	483	967	775	1,739
TOTALS ...	7,428	3,716	6,091	5,448	10,682

TABLE IV.

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

Year.	BUGANDA.	BUSOGA.	BUNYORO.	ANKOLE.	TORO.	TOTAL INCREASE.	TOTAL DECREASE.
1916	-3,065	+4,322	- 517	+ 798	+1,864	3,402	—
1917	-4,385	+2,240	-1,466	+ 857	+1,583	—	1,171
1918	-3,873	+1,553	-2,851	+ 776	+1,657	—	2,738
1919	-5,709	-3,135	-2,061	-1,870	- 176	—	12,951
1920	-2,204	+2,025	-1,012	+ 496	+ 907	212	—
1921	- 711	-1,483	- 997	+ 889	+1,896	—	406
1922	-1,458	+2,953	- 891	+1,503	+1,872	3,979	—
TOTALS:—							
Increase ...	—	8,475	—	3,449	9,603	—	—
Decrease ...	21,405	—	9,795	—	—	9,672	—

TABLE V.

SHOWING THE NUMBER OF BIRTHS AND RATES PER 1,000 OF THE POPULATIONS IN THE SAME FIVE DISTRICTS FOR THE LAST SEVEN YEARS.

Year.	Buganda		Busoga		Bunyoro		Ankole		Toro		Totals	
	Births (living)	Rates per 1000	Births (living)	Rates per 1000	Births (living)	Rates per 1000	Births (living)	Rates per 1000	Births (living)	Rates per 1000	Births (living)	Rates per 1000
1916 ...	9,737	14.40	12,093	48.25	1,763	16.42	5,877	22.02	3,509	31.30	32,979	23.35
1917 ...	8,818	13.29	11,132	43.54	1,680	15.83	6,214	23.22	3,029	27.11	30,873	21.87
1918 ...	10,287	12.79	10,782	42.17	1,649	14.50	6,613	24.74	3,729	28.77	33,062	21.05
1919 ...	9,512	12.02	6,918	27.93	1,284	13.85	5,518	20.69	3,781	29.58	26,963	17.69
1920 ...	12,265	15.50	9,005	36.36	1,597	17.23	6,529	24.48	3,167	25.11	32,563	21.36
1921 ...	13,050	16.77	9,829	44.15	1,602	16.21	7,095	28.24	3,872	32.95	35,448	24.14
1922 ...	12,481	16.03	8,792	39.49	1,539	15.57	7,382	29.38	4,322	36.78	34,516	23.51

TABLE VI.

SHOWING DEATHS AND RATES PER 1,000 OF THE POPULATIONS IN THE SAME FIVE DISTRICTS FOR THE LAST SEVEN YEARS.

Year.	Buganda		Busoga		Bunyoro		Ankole		Toro		Total	
	Total Deaths	Rates per 1000	Total Deaths	Rates per 1000	Total Deaths	Rates per 1000	Total Deaths	Rates per 1000	Total Deaths	Rates per 1000	Total Deaths	Rates per 1000
1916 ...	12,802	18.93	7,771	31.00	2,280	21.24	5,079	19.03	1,645	14.67	29,580	20.94
1917 ...	13,203	19.69	8,892	34.78	3,126	29.46	5,357	20.02	1,446	12.91	32,021	22.69
1918 ...	14,160	17.61	9,229	36.10	4,500	39.57	5,839	21.84	2,072	15.98	35,800	22.80
1919 ...	15,221	19.22	10,053	40.59	3,345	36.09	7,388	27.71	3,907	30.98	39,914	26.19
1920 ...	14,469	18.28	6,980	28.18	2,609	28.15	6,033	22.62	2,260	17.92	32,351	21.22
1921 ...	13,761	17.68	11,312	50.81	2,599	26.31	6,206	24.70	1,976	16.81	35,854	24.42
1922 ...	13,939	17.91	5,839	26.23	2,430	24.60	5,879	23.40	2,450	20.85	30,537	20.80

TABLE VII.

SHOWING THE NUMBER OF STILL-BIRTHS AND STILL-BIRTHS PER CENT OF BIRTHS AND STILL-BIRTHS IN THE SAME FIVE DISTRICTS FOR THE LAST SEVEN YEARS.

Year.	Buganda		Busoga		Bunyoro		Ankole		Toro		Totals	
	No. of Still-Births	%	No. of Still-Births	%	No. of Still-Births	%	No. of Still-Births	%	No. of Still-Births	%	No. of Still-Births	%
1916 ...	968	9.04	548	4.33	841	32.29	787	11.80	1,473	29.56	4,617	12.28
1917 ...	971	9.91	726	6.12	806	32.42	763	10.93	1,211	28.55	4,477	12.66
1918 ...	1,082	9.52	669	5.84	893	35.12	820	11.02	1,510	28.81	4,974	13.07
1919 ...	1,009	9.59	319	4.40	638	33.19	750	11.96	1,767	32.12	4,483	14.25
1920 ...	1,127	8.23	484	5.10	953	37.37	773	10.58	1,478	31.81	4,815	12.88
1921 ...	1,169	8.22	487	4.72	993	3.82	780	9.90	1,504	27.97	4,933	12.21
1922 ...	1,102	8.11	483	5.20	967	38.58	775	9.50	1,739	28.69	5,066	12.79

(B) GENERAL REMARKS.

The total number of cases treated at Government General Hospitals and Dispensaries was 116,660 with 588 deaths, as against 90,466 with 726 deaths in 1921 and 62,405 with 742 deaths in 1920. This is a very satisfactory result and the figures show that a steady increase in cases treated with a diminishing mortality rate is being maintained.

Venereal Diseases cases treated at Mulago and its auxiliary centres are not included in the above totals and are considered separately in Appendix III.

Influenza was epidemic in all districts with the exception of Busoga, and native returns show 1,578 deaths from this disease. In the Government Hospitals 1,204 cases were treated with 12 deaths.

It is particularly gratifying to observe the reduction in the cases of *Plague* and *Smallpox*, and from the following table it will be seen that in or near the townships of Entebbe, Kampala, and Jinja the above two diseases and *Cerebro-Spinal Meningitis* were almost negligible.

TABLE VIII.

					Plague.	C.S.M.	Smallpox.
ENTEBBE TOWNSHIP:—	Cases	...	...	...	18	—	—
	Deaths	...	...	...	13	—	—
KAMPALA TOWNSHIP:—	Cases	...	...	...	24	1	—
	Deaths	...	...	...	18	1	—
JINJA TOWNSHIP:—	Cases	...	...	...	13	—	—
	Deaths	...	...	...	11	—	—
TOTALS:—	Cases	...	...	...	55	1	—
	Deaths	...	...	...	42	1	—

COMMUNICABLE DISEASES.

(1) MOSQUITO OR INSECT BORNE.

Malaria.—8,883 cases with 31 deaths are recorded. These were classified microscopically and clinically as follows:—

Tertian	...	...	1,458 cases with 10 deaths.
Mixed Infection—B. and S. T.	...	...	113 cases with 1 death.
Aestive—Autumnal	...	...	7,002 cases with 14 deaths.
Chronic	...	...	310 cases with 6 deaths.

This shows an increase in the incidence of Malaria and particularly of the sub-tertian type, which is prevalent.

Blackwater Fever.—83 cases with 14 deaths are recorded as against 62 cases with 15 deaths in 1921. See Special Report, Appendix No. 1.

Relapsing Fever.—302 cases were admitted with 3 deaths as against 269 cases with 5 deaths last year.

There is a distinct increase in this disease, as last year it was reported from 9 stations only and this year it has been reported from 14 stations. The main increase in the incidence occurred at Kabale in the Kigezi District where 175 cases with 2 deaths are recorded.

Trypanosomiasis.—138 cases are recorded with 31 deaths.
 91 cases and 12 deaths from Mbale District.
 26 cases and 11 deaths from Gulu.

In addition to the above, 8 deaths are reported in native returns.

The Sleeping Sickness Rules have been revised.

In the recently reclaimed islands in Lake Victoria three dispensaries have been erected and native dressers are in attendance.

In Sesse Island practically all the land which is required by natives and for which there is a demand has been reclaimed and it is now inhabited by over 5,000 people.

In Buvuma 2,700 have returned and further clearing is being done.

Much of the lake shore has also been re-opened for habitation.

A total of 7,385 of the natives who had been allowed to return to the islands were medically examined, most of them twice, during the year for Sleeping Sickness, but no cases were found.

A further report on Sleeping Sickness by the Senior Medical Officer, Sleeping Sickness, is appended, *vide* Appendix IV.

The Bacteriologist in Part III of his Annual Report describes in detail his investigations into Trypanosomiasis during 1922.

Pyrexia of uncertain origin.—3,561 cases with 7 deaths are entered under this heading—an improvement on last year's return, which was 4,282 cases.

(2) INFECTIOUS OR EPIDEMIC DISEASES.

Beri-Beri.—20 cases with 5 deaths are reported: 13 from Soroti, 4 from Lira, 2 from Mbarara, and 1 from Kampala Police.

Cerebro-Spinal Meningitis.—18 cases with 15 deaths treated at Hospitals, 13 of which with 12 deaths were at Kampala. Returns from all sources show 677 cases with 471 deaths. 482 cases with 300 deaths in Western Province, 181 cases with 158 deaths being in Eastern Province, and 14 cases with 13 deaths in Buganda. The Northern Province was free.

Dysentery.—There were 500 cases with 43 deaths treated at Hospitals:—

Amœbic	....	....	....	....	72
Bacillary	....	....	....	....	52
Unclassified	....	....	....	....	376

In addition Native returns show 270 deaths.

Steps have been taken to secure a more complete classification of types during 1923.

Enteric Fever.—Ten cases were recorded with two deaths under this heading as compared with 13 cases with one death in 1921. See special Report, Appendix No. II.

Erysipelas.—Ten cases were recorded with one death.

Gonorrhœa.—1,538 cases with one death were treated,—a decrease of 148 cases from the previous year. The Native returns show 1,290 deaths (920 in Buganda) as against 1,420 deaths (1,066 in Buganda) in 1921 from this disease.

N.B.—The Mulago cases are not included here.

Influenza.—1,204 cases with 12 deaths. Mbarara, Arua, Kampala and Fort Portal were the stations which suffered most.

Native returns show 1,578 deaths—Ankole suffered heavily again this year and they had 684 deaths as against 1,052 in 1921.

The Eastern Province was free.

Leprosy.—77 cases are recorded in hospital returns: 46 nodular with 1 death and 31 anæsthetic.

Native returns show 277 deaths from this disease.

In Bunyoro the lepers, about 250 in all, have been segregated, and six camps, now self-supporting, are maintained, where they are well housed and looked after.

An attempt was made in November, 1922, to treat these lepers by intravenous injections of Antimony Tartrate and on volunteers being called for, four were forthcoming. After the eighth injection, however, the natives refused to continue the treatment and ran away. During the course of treatment the natives were well-housed, well-fed and well-treated and provided with any necessities they required.

The native will not undergo a long course of treatment, intravenous or otherwise, unless it is made compulsory for them to do so.

At Barr Leper Camp in Lango, where a well found camp has recently been established, treatment is being carried out by injections of either Moogrol or Osool Stibium and I am informed that 16 cases out of 26 treated show decided improvement, but that it is too soon to render a detailed report.

Measles.—57 cases were recorded as against 72 cases in 1921.

Plague.—109 cases with 74 deaths were treated in various hospitals. They occurred as follow:—

	Cases.	Deaths.		Cases.	Deaths.
Mbale	48	42	Entebbe	11	6
Lira	18	11	Kampala	10	2
Jinja	22	13			

In 1920 there were 420 cases with 368 deaths.

"	1921	"	"	339	"	257	"
"	1922	"	"	109	"	74	"

Returns from all sources show 1,362 cases with 1,305 deaths.

Eastern Province	....	....	1,184 cases with 1,152 deaths.
Buganda Kingdom	....	....	178 „ „ 153 „

This shows a very satisfactory falling off in plague cases from last year.

The total deaths for the previous five years are:—

In 1917, 4,031; 1918, 2,493; 1919, 1,022; 1920, 1,732; 1921, 5,871.

See further report on Plague and Preventive Measures by the Acting Chief Sanitation Officer. Also the very interesting and important report in Appendix VIII on the treatment of 7 cases by Neokharsivan.

Pneumonia.—255 cases with 68 deaths are recorded as against 243 cases with 70 deaths in 1921.

Smallpox.—A most satisfactory reduction in the number of cases is shown and is due largely to the efficacy of the lymph used and the general vaccination carried out, 120,976 vaccinations being performed.

One case with no death is recorded from Gulu.

Returns from native sources show 104 cases with 12 deaths for the whole Protectorate as compared with 506 cases with 89 deaths in 1921.

Syphilis.—The number of cases treated at hospitals and dispensaries other than Mulago during the last five years is as follows:—

Year.	Cases.	Deaths.
1918	2,991	6
1919	2,497	8
1920	3,860	11
1921	4,798	16
1922	4,786	37

The native returns show 2,332 deaths from this cause.

Mulago returns are shown separately under the Venereal Diseases Report in Appendix No. III.

Tuberculosis.—15 cases with 4 deaths are recorded.

Typhus.—Nil.

Yaws.—819 cases with 1 death.

Treatment by salvarsan substitutes is being carried out wherever possible and good results are being obtained.

Mulago returns are dealt with separately in Appendix No. III.

Helminthic Diseases.—The figures for the last four years are:—

Year.	Cestodes.	Nematodes.	Ascaris.	Dracunculus.
1919	49	170	—	—
1920	42	115 (1 death)	—	—
1921	81	349 (1 „)	—	—
1922	100	1,124 (4 deaths)	626	244

An interesting paper by Dr. McConnell, West Nile District, is appended. See Appendix No. VI.

(C) European Officials.

The number of cases of sickness from all causes, the number of deaths and the number of illnesses for which officials were placed off duty during the last three years are as follow:—

Years.	Cases.	Deaths.	No. of illnesses for which placed off duty.
1920	473	2	432
1921	745	1	701
1922	884	6	850

Deaths.—The cause of death in each of the 6 cases was as follows:—

Tuberculosis (Caries of Bone and Pulmonary)	...	1
Blackwater Fever	...	1
Gored by Buffalo...	...	1
Heart failure from toxæmia following dysentery	...	1
Malaria (died at Sea when proceeding on leave)	...	1
Malignant Malaria	...	1

The principal causes of sickness were:—

Malaria	...	...	282	(of which 101 were returned as Benign Tertian and 6 as Chronic.)
Influenza	...	...	29	
Dysentery	...	...	12	(2 returned as Bacillary).
Blackwater Fever	...	...	4	
Enteric Para. B.	...	...	1	
Paratyphoid	...	...	1	
Digestive Diseases	...	...	117	
Respiratory	...	...	32	
P. U. O	...	...	26	
Dengue	...	...	1	
Relapsing Fever	...	...	3	
Neurasthenia	...	...	4	
Neurosis	...	...	1	

Medical Boards.

Medical Boards were held on 18 officials during the year, resulting in the following recommendations being made:—

(a) To be permanently invalided		....	....	....	8.
	Neurasthenia	...	...	3	
	Defective eyesight, Malaria, Heart	...	...	1	
	Henoch's Purpura	...	...	1	
	Chronic parenchymatous Nephritis	...	...	1	
	Alcoholism	...	...	1	
	Nervous breakdown	...	...	1	
(b) Leave and further treatment at home and re-examination before return to Uganda		....	....	....	5.
	Tuberculosis	...	...	1	
	Hernia	...	...	1	
	Excitable and dilated heart	...	...	1	
	Blackwater Fever	...	...	1	
	Mental excitability	...	...	1	
(c) To proceed on short leave		....	....	....	5.
	Chronic Malaria and Anæmia	...	...	1	
	Cerebral Congestion	...	...	1	
	Asthma and general debility	...	...	1	
	Blackwater Fever	...	...	1	
	Neurasthenia (slight)	...	...	1	

Table showing the Sick, Invaliding and Death Rates of European Officials during the last three years:—

	1922	1921	1920
Total number of Officials resident	413	390	350
Average daily number resident	266	244	280
Total number on sick list	850	701	432
Total number of days on sick list	3,563	2,493	2,343
Average daily number on sick list	9.76	6.83	6.42
Per cent of sick to average number resident	3.66	2.79	2.30
Average number of days on sick list for each patient	4.19	3.55	5.42
Average sick time to each resident	13.39	10.21	8.36
Total number invalided	18	4	11
Per cent of Invalidings to total residents	4.35	1.03	3.14
Per cent of Invalidings to average daily number resident	6.76	1.63	3.92
Total deaths	6	1	2
Per cent of deaths to total residents	1.45	0.26	0.57
Per cent of deaths to average daily number resident	2.25	0.41	0.71
No. of cases of sickness contracted away from Station	41	94	32

Invalidings.—The eighteen shown as invalided in the above table include:—

8 permanently invalided.

5 leave and further treatment at home and re-examination before return.

5 to proceed on short leave after various illnesses.

TABLE IX.

TABLE SHOWING THE CAUSES OF INVALIDING AMONGST EUROPEAN OFFICIALS
DURING THE PAST SIX YEARS.

DISEASES.	1922.	1921.	1920.	1919.	1918.	1917.	TOTALS.
Blackwater Fever	2	—	1	1	1	1	6
Circulatory Affections	—	—	—	—	1	—	1
General Debility	—	—	1	4	1	1	7
Nervous and Mental Diseases	1	—	—	1	1	1	4
Neurasthenia	4	—	5	—	2	1	12
Tuberculosis	1	—	1	—	1	1	4
Digestive Disorders	—	—	—	—	1	—	1
Carcinoma	—	—	—	—	2	1	3
Alcoholic Neuritis	—	1	—	—	—	1	2
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	—	—	1	2	—	—	3
Rheumatism	—	—	1	—	—	—	1
Villous Papilloma of Bladder	—	—	1	—	—	—	1
Henoch's Purpura	1	—	—	—	—	—	1
Alcoholism	1	—	—	—	—	—	1
Chronic Parenchymatous Nephritis	1	—	—	—	—	—	1
Nervous Breakdown	1	—	—	—	—	—	1
Malaria, Heart and Defective Eyesight	1	—	—	—	—	—	1
Cerebral Congestion	1	—	—	—	—	—	1
Asthma and General Debility	1	—	—	—	—	—	1
Chronic Malaria and Anæmia	1	—	—	—	—	—	1
Excitability and Dilated Heart	1	—	—	—	—	—	1
Hernia	1	—	—	—	—	—	1
TOTALS	18	1	11	12	13	8	63

European Non-Officials.

The total number of cases treated at Government Hospitals and Dispensaries during the year was 1,024, as compared with 676 in 1921 and 383 in 1920.

The principal causes of sickness were:—

Malaria	289	Diseases of the respiratory system	43
Blackwater Fever	9	Pyrexia of uncertain origin	31
Dysentery	9	Debility	50
Influenza	13	Neurasthenia	2
Diseases of the digestive system	225		

Deaths:—18

Cerebral Malaria	1	Burns and Asphyxiation	1
Acute Nephritis	1	Heart Disease	1
Blackwater Fever	3	Puerperal Pyæmia	1
Atelectosis	1	Sudden death after delivery shock	1
Catarrhal Colitis	1	Misadventure (took poison in error)	1
Cancer	1	Peritonitis following operation	1
Natural death	1	Dysentery	1
Tetanus	1	Motor Accident	1

The Census taken during 1921 showed that there were 924 European Non-Officials in the Protectorate; 553 males and 371 females.

(D) Asiatic Officials.

The total number of cases treated during the year was 2,338 with 4 deaths, as compared with 1,636 with 1 death in 1921 and 1,136 with 2 deaths in 1920.

The deaths were due to the following causes:—

Toxæmia	...	...	1
Blackwater Fever	...	...	2
Pneumonia	...	...	1

The principal causes of sickness were:—

Malaria	...	...	687	(of which 146 were returned as Benign Tertian).
Blackwater Fever	...	...	20	
Influenza	...	...	23	
Dysentery	...	...	10	(of which 4 were returned as bacillary).
Diseases of the nervous system	...	...	121	
Diseases of the digestive system	...	...	438	
Diseases of the respiratory system	...	...	193	
Pyrexia of uncertain origin	...	...	191	

Medical Boards.

12 Medical Boards were held on Asiatic Officials during the year, the following recommendations being made:—

TO BE PERMANENTLY INVALIDED—8.

Leprosy	...	...	1	Chronic Bronchitis and	
Continuous malaria	...	...	1	Asthma	1
Loss of memory and failing eyesight	...	...	1	A spastic paraplegia	1
Insomnia, loss of memory and anæmia	...	...	1	Pulmonary Tuberculosis	1 (since died)
Dyspepsia	..	...	1		

SICK LEAVE TO INDIA.

Nervous condition, nose and throat trouble	1	Blackwater Fever	...	1
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The following Table shows the Sick, Invaliding and Death Rates of Asiatic Officials during the last three years:—

	1922	1921	1920
Total number of officials resident	302	350	300
Average daily number resident	337	278	250
Total number on sick list	1,417	1,565	1,136
Total number of days on sick list	5,416	4,839	3,776
Average daily number on sick list	14.84	13.26	10.31
Per cent of sick to average number resident	4.40	4.77	4.12
Average number of days on sick list for each patient	3.82	3.08	3.32
Average sick time to each resident	16.07	17.40	15.10
Total number invalided	12	7	5
Per cent of invalidings to total residents	3.97	2.00	1.66
Per cent of invalidings to average daily number resident	2.37	2.51	2.00
Total deaths	4	1	2
Per cent of deaths to total residents	1.32	0.28	0.66
Per cent of deaths to average daily number resident	1.18	0.36	0.80
No. of cases of sickness contracted away from station	32	36	28

Housing of Officials.

The shortage of houses for European and Asiatic officials, mentioned in last year's report, still obtains.

Improvements have been effected at many stations during the year in the mosquito proofing of houses, tanks, etc., by the Public Works Department, but prompt repairs to gauze wire netting, gutterings, door and window frames, etc., is required.

SECTION IV.

Meteorology.

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

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

				<i>Highest.</i>	<i>Lowest.</i>
January	...	...	...	9.94	9.80
February	...	...	...	9.91	9.87
March	...	...	...	10.05	9.92
April	...	...	...	10.11	10.04
May	...	...	...	10.16	10.11
June	...	...	...	10.14	10.07
July	...	...	...	10.06	9.84
August	...	...	...	9.83	9.78
September	...	...	...	9.91	9.78
October	...	...	...	9.89	9.85
November	...	...	...	9.91	9.85
December	...	...	...	9.89	9.83

Note.—The zero of the gauge is 3,686.53 feet above the mean sea level.

SECTION V.

Hospitals and Dispensaries.

Accommodation.—The additions to our Medical buildings which were effected during the year were:—

1. The temporary dispensary begun at Fort Portal in 1921 was completed.
2. The permanent ward at Soroti commenced last year was also completed.
3. Additions to buildings at Mulago. *See* Appendix III.
4. A Native Isolation Hospital (30 beds) was built at Entebbe.
5. Kampala European Hospital—the north wing was almost completed, it and the south wing will be completed next year.
6. A Native Hospital and Dispensary at Lira (incomplete).

Branch Dispensaries.—At the end of the year 12 of these had been completed and were in full working order, staffed by native dressers and supervised by the District Medical Officer. They are undoubtedly proving a success and in the near future when more natives can be trained and more funds are available, it is hoped to build many more of these dispensaries.

For a report on Auxiliary Venereal Diseases centres, *see* Appendix III.

Medical School.—This building was commenced during the year and great advance had been made, by the end of the year, towards its completion.

Maternity Centres.—These were extended throughout the Protectorate under a re-organised scheme whereby each midwife comes under a District Supervisor who is appointed by the Mission Committee and on the whole excellent work is being done.

The Midwives Ordinance (No. 10 of 1922) with Rules and Regulations was passed during the year.

Maternity Training School.—Fourteen candidates were recommended for the Midwives' Certificates and three for the Diploma.

A steady increase in the number of patients treated either as out or in-patients was maintained during the year and the results are bound to have a far-reaching effect in increasing the birth rate and lowering the infantile mortality.

		<i>1921.</i>	<i>1922.</i>
Total in-patients	...	350	637
Living children sent out well and strong	...	134	380
Total out-patients	...	14,800	16,702
Attendances in child welfare department	...	1,600	2,150

Lunatic Asylum.—The building of this was again postponed owing to the lack of available funds. The need of a mental hospital and trained staff is very pressing.

Buildings.

STATEMENT OF WORK CARRIED OUT DURING 1922.

*Entebbe District.**Entebbe.—*

European Hospital—General Repairs	...	...	...	Shs.	cts.
				2,999	15

*Kampala District.—**Kampala.—*

Mulago and Auxiliary Centres—Repairs—Maintenance and Improvements	...	...	...	5,492	54
Kampala Civil Hospital and Dispensary—Maintenance and Improvements	...	...	...	774	97

*Eastern Province.—**Jinja.—*

European Hospital—General Repairs	...	...	...	200	20
Native Hospital and Dispensary—General Repairs	...	...	...	200	89
Isolation Hospital—General Repairs	...	...	...	73	17

Namasagali.—

Native Hospital—General Repairs	...	...	...	38	97
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Soroti.—

Native Hospital—General Repairs	...	...	...	228	81
Temporary Dispensary—General Repairs	...	...	...	308	29

Lira.—

Native Hospital—General Repairs	...	...	...	93	00
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Northern Province.—

Masindi Hospital—Minor Repairs	...	...	...	127	82
Hoima Hospital— " "	...	...	...	118	61
Butiaba Hospital— " "	...	...	...	58	55

TOTAL Shs. 10,714 97

Loan Expenditure.

STATEMENT OF WORK CARRIED OUT DURING 1922.

(3) PUBLIC HEALTH:

Mulago.—

Venereal Diseases Purposes—Completion of Buildings at Mulago...	...	...	...	£
New Native Hospital	...	...	...	2,688
Two 3rd class Houses	...	...	...	1,915
				2,355

Kampala.—

European Hospital—Completion of	...	...	...	3,760
Nurses' Quarters—Completion of	...	...	...	2,160

Entebbe.—

Isolation Hospital (Native) 30 beds	...	...	...	501
Addition to Laboratory	...	...	...	452

Soroti.—

Native Hospital—Completion of	...	...	...	497
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Lira.—

Native Hospital (Part)	...	...	...	440
Dispensary, etc.	...	...	...	369

TOTAL £ 15,137

(5) EDUCATION:—

Buildings and Equipment, Technical Schools—Medical Department (Native Hospital for Training Medical Students)	...	...	...	£ 2,385
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TABLE VI.

TABLE SHOWING, BY STATIONS, THE NUMBER OF CASES WITH DEATHS, TREATED AS IN-PATIENTS AT GOVERNMENT HOSPITALS DURING THE YEAR.

Stations.	1922.					1921.				
	Remain- ing 1921.	Yearly admis- sions.	Total Deaths.	Total cases treated.	Remain- ing 1922.	Remain- ing 1921.	Yearly admis- sions.	Total Deaths.	Total cases treated.	Remain- ing 1921.
Arua ...	28	683	23	711	21	11	701	15	712	28
Bombo—Civil ...	27	437	7	464	28	47	546	12	593	27
Military ...	—	152	2	152	3	—	—	—	—	—
Butiaba ...	—	152	2	152	3	—	—	—	—	—
Entebbe—European ...	16	305	24	321	15	8	574	81	582	16
Civil ...	—	1	—	1	1	—	—	—	—	—
Fort Portal ...	84	535	26	619	47	13	393	18	406	84
Gulu ...	4	64	4	68	2	—	70	5	70	4
Hoima ...	26	330	33	356	32	19	648	82	667	26
Jinja—European ...	25	223	17	248	11	—	—	—	—	—
Civil ...	—	—	—	—	—	—	—	—	—	—
Kabale ...	10	572	65	582	10	6	343	62	349	10
Kampala—European ...	2	117	6	119	8	—	52	1	52	2
Civil ...	27	525	41	552	45	19	368	19	387	27
Gaul ...	9	170	10	179	8	12	171	28	183	9
Police ...	22	307	17	329	11	12	108	17	120	22
Kitgum ...	95	1,479	114	1,574	74	78	973	77	1,051	95
Lira ...	15	182	14	197	10	11	172	15	183	15
Masaka ...	9	140	11	149	13	—	74	5	74	9
Masindi ...	—	38	3	38	2	10	52	1	62	—
Mbale ...	7	411	26	418	16	23	308	20	331	7
Mbarara ...	—	—	—	—	—	—	—	—	—	—
Mubendi ...	—	—	—	—	—	—	—	—	—	—
Namasagali ...	—	—	—	—	—	—	—	—	—	—
Soroti ...	—	—	—	—	—	—	—	—	—	—
Totals ...	406	6,671	443	7,077	357	269	5,553	458	5,822	381

Mulago figures not included.

TABLE VII.

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1922.

Diseases.	Total Cases.	Deaths.
INFECTIVE DISEASES:—		
Beri-Beri ...	20	5
Cerebro-Spinal Fever ...	18	15
Chicken-Pox ...	234	—
Dengue ...	5	—
Diphtheria ...	1	—
Dysentery unclassified ...	376	40
do Amoebic ...	72	1
do Bacillary ...	52	2
Enteric ...	10	2
Paratyphoid A. ...	1	—
Erysipelas ...	10	1
Gonorrhœa ...	1,538	1
Influenza ...	1,204	12
Leprosy (a) Nodular ...	46	1
(b) Anæsthetic ...	31	—
Madura Disease ...	3	—
Malaria (a) Tertian ...	1,458	10
(b) Mixed infection, Benign and Sub-tertian ...	113	1
(c) Aestivo-autumnal ...	7,002	14
(d) Chronic Malaria ...	310	6
(e) Blackwater ...	74	11
Carried forward ...	12,578	122

TABLE VII—*contd.*

Diseases.					Total Cases.	Deaths.
<i>Brought forward</i>					31,139	387
Local Diseases— <i>contd.</i>						
Diseases of the Ear—						
Inflammation	...	...	...	...	1,126	—
Other Diseases	...	...	...	...	447	—
Diseases of the Nose—						
Rhinitis	...	...	...	...	745	—
Coryza	...	...	...	...	1	—
Others	...	...	...	...	28	—
Diseases of the Circulatory System—						
Pericarditis	...	...	...	...	1	1
Endocarditis	...	...	...	...	3	—
Valvular Mitral	...	...	...	...	27	6
Aortic	...	...	...	...	4	—
Tricuspid	...	...	...	...	4	—
Arterial Sclerosis	...	...	...	...	2	—
Aneurism	...	...	...	...	1	1
Myocarditis	...	...	...	...	6	5
Others	...	...	...	...	168	5
Diseases of the Respiratory System—						
Laryngitis	...	...	...	...	92	—
Bronchitis	...	...	...	...	12,401	8
Broncho-pneumonia	...	...	...	...	120	21
Gangrene of Lung	...	...	...	...	1	—
Emphysema	...	...	...	...	5	1
Pleurisy	...	...	...	...	74	1
Empyema	...	...	...	...	6	1
Phthisis	...	...	...	...	29	8
Asthma	...	...	...	...	106	2
Others	...	...	...	...	111	2
Diseases of the Digestive System—						
Stomatitis	...	...	...	...	775	—
Caries of Teeth	...	...	...	...	951	—
Glossitis	...	...	...	...	8	—
Sore Throat	...	...	...	...	771	—
Inflammation of Tonsils	...	...	...	...	387	—
Gastritis	...	...	...	...	142	—
Ulceration of Stomach	...	...	...	...	2	—
Hæmatemesis	...	...	...	...	4	—
Stricture of Stomach	...	...	...	...	1	—
Dyspepsia	...	...	...	...	1,884	1
Enteritis	...	...	...	...	37	4
Appendicitis	...	...	...	...	9	—
Colitis	...	...	...	...	68	—
Ulceration of Intestines	...	...	...	...	1	—
Hernia	...	...	...	...	104	5
Diarrhœa	...	...	...	...	2,102	12
Constipation	...	...	...	...	4,378	1
Colic	...	...	...	...	1,544	—
Hæmorrhoids	...	...	...	...	50	—
Pancreatitis	...	...	...	...	1	—
Hepatitis— Acute	...	...	...	...	27	—
Abscess	...	...	...	...	9	—
Cirrhosis	...	...	...	...	6	1
Jaundice	...	...	...	...	150	2
Peritonitis	...	...	...	...	4	3
Ascites	...	...	...	...	21	3
Others	...	...	...	...	256	3
Diseases of the Lymphatic System—						
Splenitis	...	...	...	...	84	2
Inflammation of Lymphatic Gland	...	...	...	...	365	—
Suppuration of Lymphatic Gland	...	...	...	...	142	—
Lymphangitis	...	...	...	...	8	—
Elephantiasis	...	...	...	...	6	—
Others	...	...	...	...	20	—
<i>Carried forward</i>					60,964	486

TABLE VII—*contd.*

Diseases.					Total Cases.	Deaths.
Local Diseases— <i>contd.</i>						
<i>Brought forward</i>					60,964	486
Diseases of the Urinary System—						
Acute Nephritis	...	...	...	...	8	1
Bright's Disease	...	...	...	...	6	1
Pyelitis	...	...	...	...	1	—
Renal Colic	...	...	...	...	1	—
Cystitis	...	...	...	...	20	—
Vesical Calculus	...	...	...	...	2	—
Suppression	...	...	...	...	2	2
Hæmaturia	...	...	...	...	5	—
Others	...	...	...	...	8	—
Diseases of the Generative System—						
Male Organs—						
Urethritis	...	...	...	...	20	—
Gleet	...	...	...	...	47	1
Stricture	...	...	...	...	39	3
Prostatitis	...	...	...	...	5	—
Soft Chancre	...	...	...	...	300	—
Condyloma	...	...	...	...	40	—
Inflammation of Scrotum	...	...	...	...	7	—
Hydrocele	...	...	...	...	58	—
Orchitis	...	...	...	...	168	—
Epididymitis	...	...	...	...	4	—
Abscess of Testicle	...	...	...	...	2	—
Others	...	...	...	...	27	—
Female Organs—						
Ovaritis	...	...	...	...	4	—
Ovarian Cyst	...	...	...	...	1	—
Endometritis	...	...	...	...	6	—
Displacement of Uterus	...	...	...	...	5	—
Vaginitis	...	...	...	...	8	—
Amenorrhœa	...	...	...	...	7	—
Dysmenorrhœa	...	...	...	...	31	—
Menorrhagia	...	...	...	...	61	—
Leucorrhœa	...	...	...	...	44	—
Abortion	...	...	...	...	57	1
Delayed Labour	...	...	...	...	20	2
Postpartum Hæmorrhage	...	...	...	...	8	—
Retained Placenta	...	...	...	...	8	1
Premature Birth	...	...	...	...	5	2
Puerperal Septicæmia	...	...	...	...	5	—
Mastitis	...	...	...	...	25	—
Abscess of Breast	...	...	...	...	34	2
Parturition	...	...	...	...	83	4
Others	...	...	...	...	43	2
Diseases of Organs of Locomotion—						
Osteitis	...	...	...	...	19	—
Arthritis	...	...	...	...	156	—
Bursitis	...	...	...	...	35	—
Myalgia	...	...	...	...	6,657	3
Synovitis	...	...	...	...	70	—
Others	...	...	...	...	190	3
Diseases of Connective Tissue—						
Cellulitis	...	...	...	...	1,053	1
Abscess	...	...	...	...	1,128	9
Elephantiasis	...	...	...	...	28	2
Others	...	...	...	...	10	2
Diseases of the Skin—						
Urticaria	...	...	...	...	56	—
Eczema	...	...	...	...	214	—
Boil	...	...	...	...	588	—
Carbuncle	...	...	...	...	14	—
Herpes	...	...	...	...	37	—
Psoriasis	...	...	...	...	15	—
Oriental Sore	...	...	...	...	92	2
Tinea	...	...	...	...	206	1
<i>Carried forward</i>					72,757	531

TABLE VII—*contd.*

Diseases.					Total Cases.	Deaths.
Local Diseases— <i>contd.</i>					72,757	531
Diseases of the Skin— <i>contd.</i>						
Scabies	...	...	...	...	4,941	—
Acne	...	...	...	...	15	—
Prickly Heat	...	...	...	...	41	—
Ulcers	...	...	...	...	6,699	1
Others	...	...	...	...	236	2
Injuries—General	...	...	...	...	83	20
Local	...	...	...	...	10,983	27
Tumours	...	...	...	...	53	1
Malformations	...	...	...	...	3	—
Poisons	...	...	...	...	46	—
Snake Bite	...	...	...	...	19	—
Parasites—Animal—						
Bilharzia	...	...	...	...	21	—
Trematodo (Flukes)	...	...	...	...	2	2
Cestoda—						
Tænia Solium	...	...	...	...	53	—
Tænia Saginata	...	...	...	...	47	—
Nematoda—						
Ascaris	...	...	...	...	674	—
Dracunculus	...	...	...	...	332	—
Filariasis	...	...	...	...	20	1
Ankylostomiasis	...	...	...	...	85	3
Oxyuris	...	...	...	...	7	—
Others	...	...	...	...	6	—
Insecta—						
Myiasis	...	...	...	...	3	—
Jiggers	...	...	...	...	173	—
Others	...	...	...	...	9	—
TOTAL					97,308	588
Total Surgical Operations					1,658	

TABLE A.

The following table shows, by stations, the total number of cases treated, with deaths, at Government Hospitals and Dispensaries, during the years 1922, 1921 and 1920:—

Station.	1922.		1921.		1920.	
	Total Cases.	Total Deaths.	Total Cases.	Total Deaths.	Total Cases.	Total Deaths.
Arua	2,438	22	3,689	15	4,081	8
Bombo—Civil	5,126	13	6,895	18	2,291	16
Military	1,958	1			1,326	2
Butiaba	2,379	4	2,020	10	857	...
Entebbe—European	59	5	198	...	111	1
Civil	5,743	27	5,823	81	4,524	18
Fort Portal	7,557	4	5,793	2	...	...
Gulu	4,385	31	4,204	29	3,423	26
Hoima	2,388	17	2,619	9	1,165	2
Jinja—European	22	...	224	4	24	1
Civil	6,545	49	5,400	127	4,978	152
Kabale	5,260	23	1,075	3	...	...
Kampala—European	156	1	...	...	...	...
Civil	14,613	86	15,061	145	11,072	330
Police	1,497	1				
Gaol	3,467	10	3,671	7	2,679	8
Kitgum	6,085	11	4,002	3	...	...
Lira	3,707	57	3,118	86	2,812	23
Masaka	4,616	16	5,016	28	5,608	19
Masindi	3,889	19	4,701	33	5,287	21
Mbale	3,895	134	4,489	81	3,882	71
Mbarara	4,237	14	4,327	19	4,533	12
Mubendi	4,077	13	4,024	7	...	...
Namasagali	1,288	4	1,884	3	1,186	2
Soroti	1,861	26	2,203	25	2,356	30
Totals	97,308	588	90,466	726	62,405	742

In addition to the above the following cases were treated at County Dispensaries, etc.:—

County Dispensaries, Eastern Province	...	5,814
do Western Province	...	7,415
Labour Camps	...	4,951
Moroto—Karamoja	...	1,532
Military Outposts in Dodinga and Karamoja	...	1,640

Total ... 19,352

TABLE B.

RETURN SHOWING THE MEDICAL STAFF AND THE PRINCIPAL MEMBERS OF THE
SUBORDINATE STAFF.

Name and Qualifications.	Rank of Appointment.	Where stationed on 31st December, 1922.	Remarks.
Major C. A. Wiggins, C.M.G., M.R.C.S., L.R.C.P., F.R.S.	Principal Medical Officer	On leave	
J. H. Reford, B.A., M.D., B.Ch., B.A.O., L.M. (Dub.), D.T.M. (Liverp.), D.P.H. (Dist.) (Camb.)	Deputy P.M.O. ...	Entebbe	Acting P.M.O.
R. A. L. van Someren, M.D., Ch.B., D.P.H. (Edin.), M.B.O.V.	Senior Medical Officer	Jinja	Also Acting M.O.H., Jinja
C. H. Marshall, M.R.C.S., L.R.C.P., M.B., B.S. (London).	Do ...	Kampala	
G. D. H. Carpenter, M.B.E., B.A., M.D., B.Ch. (Oxf.), M.R.C.S., L.R.C.P., F.R.S., F.Z.S.	Do ...	Entebbe	In charge Sleeping Sickness Measures
J. A. Taylor, M.B., Ch.B. (Edin.), L.M. (Dub.), D.T.M. (Liverp.).	Do ...	Entebbe	Acting D.P.M.O.
J. E. Hailstone, M.A. (Camb.), M.R.C.S., L.R.C.P., D.T.M. (Lond.).	Medical Officer ...	Masaka	
R. E. McConnell, B.A., M.D., C.M. (Montreal), D.T.M. (Liverp.).	Do ...	Arua	
H. R. Neilson, M.B., Ch.B., D.P.H. (Aberdeen) ...	Do ...	Kampala	Acting S.O. and M.O.H., Kampala
Major R. J. A. Macmillan, D.S.O., T.D., M.B., Ch.B. (Edin.), D.T.M. (Liverp.).	Do ...	Masindi	
W. L. Webb, M.R.C.S., L.R.C.P., M.B., B.S. (Lond.), D.P.H., R.C.P.S.	Do ...	Mulago, Kampala	Acting S.O.V.D.
W. L. Peacock, M.B., Ch.B. (Glas.) ...	Do ...	Fort Portal	
S. M. Vassallo, M.D. (Malta), D.T.M. & H. (Lond.) (Duncan Medal).	Do ...	En route Mbale	
J. H. Neill, M.B., Ch.B. (Edin.) ...	Do ...	Entebbe	Also Ag. M.O.H., Entebbe
S. R. Eccles-Davies, B.A. (Camb.), M.R.C.S., L.R.C.P. (Lond.).	Do ...	Mulago, Kampala	
H. N. Pelly, L.R.C.P. & S. (Edin.), L.R.F.P.S. (Glas.), D.T.M. (Liverp.).	Do ...	Kitgum	
W. P. Kelly, L. & L.M.R.C.P.S., F.R.C.S., D.P.H. (Irel.).	Do ...	Lira	
H. G. Cimino, M.D. (Rome), M.D. (Freiburg) ...	Do ...	Soroti	
Capt. J. E. Brooks, R.A.M.C., M.B., Ch.B. (Man.) ...	Do ...	En route Mubendi	
J. C. Caldwell, M.B., C.M. (Edin.) ...	Do ...	Kampala	
P. H. Rawson, M.C., M.R.C.S., L.R.C.P. ...	Do ...	Arua	
R. G. Griffin, L.M. & L.R.C.P. & L.R.C.S. (Irel.), D.P.H. (Dub.).	Do ...	Mbale	
E. A. C. Langton, M.R.C.S., L.R.C.P. ...	Do ...	Mbarara	
S. W. T. Lee, M.B., B.Ch., B.A.O. ...	Do ...	Mulago, Kampala	
A. C. Rendle, M.D., B.C., M.R.C.S., L.R.C.P., D.P.H. (Camb.).	Do ...	Gulu	
L. E. S. Sharp, B.A., M.B., B.C. (Camb.), M.R.C.S., L.R.C.P.	Do ...	Kabale	C.M.S. Doctor—part time.
Major G. J. Keane, D.S.O., R.A.M.C., M.D., M.B., Ch.B., D.P.H., D.T.M. (Liverp.).	Specialist Officer, Venereal Diseases	Mulago, Kampala	
Mr. W. F. Fiske ...	Entomologist ...	On leave	
J. M. Collyns, M.B., D.P.H. (Lond.), M.R.C.S., L.R.C.P.	Chief Sanitation Officer	Entebbe	
H. L. Duke, O.B.E., B.A., M.D., B.C., D.T.M. & H. (Camb.), D.Sc. (Cantab.).	Bacteriologist ...	Entebbe	
M. Martin (Miss), M.B., Ch.B. (Edin.), D.P.H., D.T.M. & H. (Lond.).	Assistant Bacteriologist	Entebbe	
Mr. J. Stewart ...	Laboratory Assistant	Entebbe	
Mr. E. C. Haddon ...	Do ...	Entebbe	
Mr. G. S. Bateman, L.D.S.R.C.S. (Eng.) ...	Dental Surgeon ...	On leave	
Miss E. M. Pratt, A.R.R.C. ...	Matron ...	On leave	
Miss D. M. Ivers ...	Nursing Sister ...	Kampala	Acting Matron
Miss N. M. Adams ...	Do ...	Entebbe	
Miss C. M. Beville ...	Do ...	Jinja	
Miss M. J. Mackertich, R.R.C. ...	Do ...	Kampala	
Miss H. C. Potter ...	Do ...	Entebbe	
Miss F. E. Warner ...	Do ...	Kampala	
Miss A. Miles ...	Do ...	Kampala	
Miss E. M. Stringer ...	Nursing Sister, V.D.	Mulago, Kampala	
Mrs. M. S. Wilson ...	Do ...	Mulago, Kampala	
Mr. H. Flint ...	Office Superintendent.	Entebbe	
Mr. H. T. Bott ...	Clerk to C.S.O. ...	Entebbe	Secretary to Factories Board
Mr. F. G. Caldwell ...	Clerk, P.M.O.'s Office	Entebbe	
Mr. E. S. Smout ...	Superintendent, Venereal Diseases	Mulago, Kampala	
Mr. P. J. L. Waters ...	Medical Storekeeper	Entebbe	
Mr. C. O'Connor ...	Temporary Sleeping Sickness Inspector	—	
Mr. E. F. Busby ...	Do ...	Madi	
Mr. C. Chorley, M.P.S. ...	Pharmacist ...	Entebbe	
Mr. R. J. Wilkinson ...	Temporary Plague Inspector	Busoga District	

TABLE C.

RETURN SHOWING THE ASIATIC MEDICAL AND CLERICAL STAFF.

Name	Rank	Where stationed on 31st December, 1922	REMARKS
Achhru Ram, Rai Sahib	Assistant Surgeon	Kampala	
Karkhanis, A. D.	Senior Sub-Assistant Surgeon	Jinja	
Gokal Chand	Sub-Assistant Surgeon	Masaka	
Hukam Singh, I. O. M.	do	Masindi	Seconded from I. M. D.
Ram Chand	do	Entebbe	
Mangal Sain	do	Mbarara	
Andrews, C. P.	do	Mubendi	
Ahmed Din	do	Mbale	
Raja, K. J.	do	Jinja	
Mahindra, S. R.	do	Bombo	
Sheth, P. K.	do	Gulu	
Rao, A. V. S.	do	Hoima	
Thadani, H. M.	do	Dodinga	
Faquir Chand	do	Mbale	
Karam Dad	do	Kabale	
Menon, P. K. K.	do	Fort Portal	
Thakar, C. P.	do	Namasagali	
G. K. Pillai	do	Butiaba	
Nur Mohamad	do	Lira	
Ghulam Haider	do	On leave	
Mela Ram	Compounder	Jinja	
Fernandes, E. F. X.	do	Entebbe	
Balmukand Gopal	do	Arua	
Chitale, V. V.	do	Soroti	
Ahmed Din Ahmedi	do	Kampala	
S. R. S. Pillai	do	Kitgum	
Daram Chand	do	Kakamari, Northern Karamoja.	
D'Souza, M. P. D.	Asiatic Asst. Storekeeper	Entebbe	
D'Souza, M. N.	Clerk	Entebbe	
Sohan Singh Sandhu	do	Entebbe	
Moniz, C.	do	Entebbe	
Gunewardene, D. J.	do	Entebbe	
D'Souza, J. C.	do	Entebbe	
Martyris S. X.	do	Jinja	
D'Mello, F. H.	do	Mulago, Kampala	
Sant Singh	do	Kampala	

TABLE D.

SHOWING PRESENT STAFF AND HOSPITAL ACCOMMODATION FOR EACH DISTRICT, 1922.

(MEDICAL AND SANITARY BRANCHES COMBINED.)

BUGANDA KINGDOM

	Entebbe	Masaka	Mengo	Mubendi
Area in square miles	6,294	4,602	5,851	5,623
Population { Europeans	229	58	473	42
Population { Asiatics	441	299	1,513	44
Population { Natives	155,553	119,479	333,977	189,314
European Staff	1 Medical Officer 2 Nursing Sisters	1 Medical Officer	1 S. M. O. 1 M. O. 1 S. O. 1 Matron 4 N. Sisters	1 Medical Officer
Asiatic Staff	1 S. A. S.	1 Compounder	1 A. S. 1 S. A. S. 1 Compounder 2 Clerks	1 S. A. S.
Native Staff—				
Medical and Surgical	8	4	14	2
Sanitation	4	4	25	2
Number of Beds:—				
A. Med. and Surgical { European	6	—	12	—
A. Med. and Surgical { Asiatic	2	11	—	—
A. Med. and Surgical { Native	22	—	98	9
B. Isolation { European	—	—	—	—
B. Isolation { Asiatic	—	—	—	—
B. Isolation { Native	—	—	—	—

Mengo includes the Stations Kampala and Bombo, and the Townships of Port Bell, Mbale and Namirembe.

TABLE D (A).

EASTERN PROVINCE.

	Busoga	Bukedi	Teso	Lango	Lobor and Karamoja
Area in square miles	10,445	3,088	4,738	5,099	12,922
Population { Europeans	131	52	52	13	
{ Asiatics	1,427	718	510	296	
{ Natives	221,108	392,702	266,396	201,631	67,000
European Staff	1 S. M. O. 1 N. Sister 1 Plague Inspector	1 Medical Officer 1 S. S. Inspector	1 Medical Officer	1 Medical Officer	
Asiatic Staff	1 S. S. A. S. 1 Compounder 1 Clerk	2 S. A. S's.	1 Compounder	1 S. A. S.	—
Native Staff—					
Medical and Surgical	6	7	5	3	2
Sanitation	7	14	9	5	—
Number of Beds:—					
A. Med. and Surgical { European...	4	—	2		
{ Asiatic ...	2	6	4	Nil	Nil
{ Native ...	22	40	10		
B. Isolation { European...	—	Nil	Nil	Nil	Nil
{ Asiatic ...	6				
{ Native ...	6				

Busoga includes the Stations Jinja and Namasagali and the Townships of Iganga, Kamuli and Kaliro.

TABLE D (B).

WESTERN PROVINCE.

	Ankole.	Toro.	Kigezi.
Area in square miles	6,131	5,579	2,056
Population { Europeans	32	68	8
{ Asiatics	101	74	23
{ Natives	251,156	117,397	206,090
European Staff	1 Medical Officer	1 Medical Officer	1 Medical Officer (½ time)
Asiatic Staff	1 S. A. S.	1 S. A. S.	1 S. A. S.
Native Staff—			
Medical and Surgical	6	3	1
Sanitation	2	1	3
Number of Beds:—			
A. Medical and Surgical { European ...	—	—	—
{ Asiatic ...	14	Nil	6
{ Native ...	14		6
B. Isolation { European ...	Nil	Nil	Nil
{ Asiatic ...			
{ Native ...			

Dr. Sharp, of the Church Missionary Society, Kigezi, attends urgent cases and may be called upon to give up to half his time in Government Service.

TABLE D (C).

NORTHERN PROVINCE.

	Bunyoro	Gulu	Chua	West Nile
Area in square miles	5,619	5,995	7,007	4,113
Population { Europeans	60	18	13	29
{ Asiatics	125	13	9	11
{ Natives	98,573	83,872	71,258	162,799
European Staff	1 M. O.	1 M. O.	1 M. O.	1 M. O.
Asiatic Staff	3 S. A. S's.	1 S. A. S.	1 Compounder	1 Compounder
Native Staff—				
Medical and Surgical	10	3	3	4
Sanitation	4	5	2	1
Number of Beds:—				
A. Medical and Surg. { European ...	—	—	—	—
{ Asiatic ...	17	6	Nil	6
{ Native ...	17	6		6
B. Isolation { European ...	Nil	Nil	Nil	Nil
{ Asiatic ...				
{ Native ...				

Bunyoro includes three Government Stations:—Masindi, Hoima and Butiaba.

TABLE D (D).

In addition to the above Buganda Kingdom has the Venereal Diseases Hospital at Mulago.

Area in square miles	...	...	...	22,370
Population { Europeans	...	...	...	802
{ Asiatics	...	...	...	2,297
{ Natives	...	...	...	774,753
European Staff	...	...	...	1 Specialist Officer, 3 Medical Officers, 2 Nursing Sisters, 1 Superintendent
Asiatic Staff	...	...	...	1 Clerk
Native Staff—				
Medical	...	...	...	57
Clerical	...	...	...	16
Menial	...	...	...	59
Number of Beds	...	...	...	137

* Includes those at branch dispensaries and also those in training.

N.B.—In the above tables:—

- (1) Native Staff "Medical and Surgical" includes all Hospital and Dispensary Attendants, Dressers, etc. "Sanitation" includes all Plague Inspectors, Vaccinators, Headmen of Anti-Malarial Gangs and Sleeping Sickness Inspectors.
- "Menial Staff" includes cooks, water boys, wood boys, shamita boys and sweepers.
- (2) Number of Beds:—All are shown, even those in temporary unsuitable buildings. Temporary grass huts with no beds as in general use for Isolation Hospitals are not shown.

The Annual Medical Report of the Government of the Gold Coast for 1921 has just come to hand and a comparison between their establishment, their actual staff, cases treated and our establishment, our actual staff and cases treated is very interesting and worthy of note. Dental Surgeons and Analytical Chemists are not included in the list.

			Gold Coast.	Uganda.
Establishment	...	...	85	38
Actual Staff	...	...	52	30
Vacancies	...	...	33	8
Cases treated (In and Out-patients)...	...	...	57,442	116,660
Venereal Disease Cases	...	...	464	7,733
Vaccinations	...	...	87,449	120,976

SECTION VI.

Legislation.

The following Legislation was enacted during the year:—

- (1) The Midwives Ordinance, 1922 (No. 10 of 1922).
- (2) The Midwives Rules, 1922.
- (3) The Uganda Infectious Diseases Ordinance, 1922 (No. 23 of 1922).
See Chief Sanitation Officer's Report, page 33).
- (4) Various Rules under the Sleeping Sickness Ordinance 1913.

Conference.

There was no conference of the Principal Medical Officers of the East African Colonies and Protectorates during the year.

Registration of Medical Practitioners and Dentists.

The Ordinance governing Registration came into force on July 1st, 1913, since when and up to December 31st, 1922, the following have been placed on the Register:—

Registered Medical Practitioners	...	...	...	66
Dentist	...	...	...	1
Licensed Medical Practitioners	...	...	...	47

The numbers actually on the Register on December 31st, 1922, were as follows:—

Registered Medical Practitioners	...	...	...	38
Dentist	...	...	...	1
Licensed Medical Practitioners	...	...	...	21

Of the above 38 Registered Medical Practitioners, eight belong to the Church Missionary Society and one to the Mill Hill Mission; the remainder are in Government service.

The Board appointed for the purpose of the Ordinance consists of:—

Major C. A. Wiggins, C.M.G., President and Registrar.

Dr. C. J. Baker (died August 7th, 1922).

Dr. A. R. Cook.

Dr. J. Hope Reford.

Scientific Papers published during 1922 by Members of the Medical Staff.

DR. H. L. DUKE, O.B.E.—

“An Enquiry into an outbreak of Human Trypanosomiasis in a morskans belt to the East of Mwanza, Tanganyika Territory.”

DR. W. LESLIE WEBB—

“1,173 Serums tested by the formalin reaction for Syphilis.”

Recommendations made in 1921 Report and Action Taken.

GENERAL.

- (1) In view of great loss in efficiency caused by Malaria amongst all officials far stricter attention should be paid by the Public Works Department to minor repairs to houses.

Action taken.—See Section V.

- (2) Vote for Medical and Surgical Stores and for Native Attendants should be very considerably increased—if branch dispensaries to succeed.

	1921	1922
Medical, Surgical and Dental Stores	£5,500	£5,000
Native Attendants	£2,000	£2,000

so that instead of the vote being increased it was decreased.

- (3) Need of Lunatic Asylum becomes more pressing each year.

Action taken.—No funds have been available for this purpose.

SANITATION.

- (1) Building of adequate permanent Isolation Hospitals at Kampala and Entebbe.

Permanent Isolation Hospital was built at Entebbe during 1922.

Permanent Isolation Hospital, Kampala, to be built in 1923. Funds provided.

- (2) Extension of Kampala Swamp subsoil drainage. *Vide* Section III Sanitation.
- (3) Extension of Masonry drainage system at Kampala. *Vide* Section III Sanitation.
- (4) Pipe-borne water supply for Kampala and Jinja. Nil.
- (5) Manufacture of plague prophylactic at Entebbe Laboratory. 1,700 doses were manufactured successfully; handicapped by primitive nature of laboratory. (New laboratory projected for 1923.)
- (6) Intensive rat destruction wherever black rat prevalent or others prolific. *Vide* Chief Sanitation Officer's report.
- (7) Rat-proofing of food stores. *Vide* C. S. O's Report.

More stringent steps were taken to keep the ground clear round native granaries.

GENERAL RECOMMENDATIONS ON VENEREAL DISEASES MEASURES.

- (1) Conversion of Mulago into a permanent general native diseases hospital. General diseases ward for natives practically completed end of 1922. (Proposals are being submitted for the early extension of this principle to all hospitals and subsidiary centres).
- (2) Salvarsan substitutes to be distributed.

A limited supply was distributed to the value of £250/-, but general free issue was impossible owing to lack of adequate funds.

(3) Grants-in-aid to Voluntary Hospitals.

Specific grants to Mission Hospitals for venereal purposes were found impossible from our Venereal vote owing to the requirements of Mulago and auxiliary Venereal Diseases Centres.

(4) Grants to Auxiliary Centres.

Five auxiliary centres have been completed and equipped during the year. These were built by the Lukikos, the Government contribution in material and equipment amounting approximately to £1,000.

(5) Native Hospital, Bunyoro.

Postponed to 1923. Provisional plans and arrangements have been made for its early establishment.

(6) Staff Increase.

The Nursing staff has been increased to two. Provision for one relief will be made in 1924 Estimates.

Dr. Lamont has been replaced and the present staff of Medical Officers is four, of whom one is on leave. It will be impossible to increase this staff owing to shortage until the present vacancies are filled.

(7) Administration Block at Mulago to be built.

This was built during the year and is a fine building. Completion of the verandah is to be carried out in 1923.

SLEEPING SICKNESS.

Recommendations as to Officers for Sleeping Sickness duties in Madi and Lake Area.

One Medical Officer was appointed for Sleeping Sickness duties in Madi for a short period but later he had to be appointed District Medical Officer, Arua, as well, owing to shortage of staff.

Brief Review of Year's Work with Recommendations for Future Work.

1. The report shows the great increase in *the amount of work carried out* during the year.

(a) *General Medical Work*—(See general remarks, page 11, Table A page 24.)

(b) *Anti-venereal work*.—The great increase in the volume of work carried out in the extended hospital at Mulago and the completed five auxiliary centres is shown in the accompanying special Anti-Venereal Report. An abstract of this special report with the recommendations made is included in the present report for reference (See Appendix III).

(c) *County Dispensaries*.—Twelve were established during the year. Some of these, especially in Eastern Province, are doing excellent work and show great scope for successful extension. A wide extension of these dispensaries is recommended in the future; they must be in charge of well trained, capable and sympathetic natives, in suitable buildings of simple type and under frequent supervision of capable District Medical Officers. They undoubtedly represent the most practicable and economical means of bringing effective medical aid within reach of the mass of native populations in the populous outlying districts.

(d) *European Hospital, Kampala*.—Has been extended during the year and will be completed during 1923. It is a very fine building and is proving of the greatest service.

2. *The Vital Statistics* of the five districts from which returns are received (representing only 50% of the total population of the Protectorate) show a gratifying improvement, the total recorded returns indicating a birthrate of 23.51 per thousand and a death rate of 20.80 per thousand, as compared with 24.14 per thousand and 24.42 per thousand respectively for the previous year. The still-birth rate is still high being recorded as 12.79 per cent of total births and still-births. (See Tables II and VII, pp. 9 and 11). It is hoped to include infantile mortality rates for Buganda Kingdom in future reports.

3. The Chief Sanitation Officer's report gives a review of the work done in connection with *Sanitation*, with his recommendations for future requirements (See page 39).

It is with deep regret that I have to record the death of Dr. C. J. Baker, late Chief Sanitation Officer on 7th August, 1922.

4. The reduction shown in the incidence of *Plague, Smallpox and Cerebro-Spinal Meningitis* in townships is highly satisfactory (See Table VIII). It is, of course, recognised that relative freedom from these epidemics must be to some extent fortuitous. In connection with plague the very interesting report by Dr. Marshall and Assistant Surgeon Achhru Ram, Rai Sahib (Appendix VIII) on the successful treatment of 6 cases out of 7 by intravenous salvarsan substitutes is noteworthy and offers great promise.

5. The increase in *Tick Fever* especially in the Western Province is disquieting. Preventive measures are widely adopted but are difficult to enforce. Varying, but on the whole satisfactory, reports have been received on treatment by salvarsan substitutes.

6. The wide prevalence of *Leprosy* throughout the Protectorate is becoming increasingly apparent. Segregation and treatment in camps present many difficulties in control and collection of cases, and has not proved very successful. It is recommended that in future free voluntary treatment by the mixed esters of chaulmoogra oil be undertaken in all hospitals and dispensaries including the Venereal Diseases Centres, the lepers being induced to attend voluntarily by being well housed and cared for.

7. The free distribution of *Salvarsan Substitutes* in competent hands is recommended for the treatment of Syphilis, Yaws, Tick Fever and Plague in all suitable cases.

8. Provision for the care of lunatics in the Protectorate is far from satisfactory. They are housed in an asylum which forms part of the Hoima Prison and many of them being criminal native lunatics they come within the control of the prison staff under medical supervision. This arrangement in itself is unsatisfactory, and the accommodation and segregation facilities are inadequate for the increasing number of lunatics. Lack of funds and staff has hitherto rendered it impossible to establish a separate mental hospital with properly trained male and female attendants, but I strongly recommend that this be undertaken in 1924 and that one of the Sesse Islands be used for the purpose. In the meantime it is the intention of the prison authorities to withdraw prisoners at an early date from Hoima to the new temporary prison at Kampala, and I recommend that the whole of the present Hoima Prison be altered and adapted for the better accommodation and care of native lunatics under medical control, pending the erection of a proper mental hospital.

9. *Maternity and Childwelfare Schemes*.—Excellent work has been carried out during the year in the training of native midwives at the Lady Coryndon Maternity Training School and at Nsambya Mill Hill Mission, and in actual maternity and antenatal work in the field at some of the maternity centres which have been established. At some of the latter, however, the supervision has been found inadequate and the results unsatisfactory, so that a re-organisation of these schemes has become necessary as regards control, administration and finance. Proposals will shortly be submitted to the Government for such a re-organised scheme.

I desire to record our great indebtedness to Dr. Albert and Mrs. Cook, and during their absence on leave to Dr. Ernest Cook and Miss Hornby, C.M.S., for their invaluable work in supervising the training of the girls at Lady Coryndon Maternity Training School, and for their unremitting care in the treatment of the maternity cases at this school.

We are similarly deeply indebted to the Rev. Mother Kevin and Dr. E. M. Connolly for their excellent voluntary work in the training of girls as midwives at the Nsambya Mill Hill Mission School.

10. Satisfactory progress has been made during the year in the *Reclamation of Tsetse Areas* including the Sesse Islands, to which 9,000 of the original inhabitants have been repatriated. In certain areas near Mjanji on the lake shore and certain inland tsetse areas an endemic form of non-fatal trypanosomiasis is reported, being apparently conveyed, according to Dr. Duke's interesting theory referred to in the Bacteriological Report, by cyclical as contrasted to direct transmission.

11. The *Anti-Venereal Report* and the *Bacteriological Report* are being published and rendered as separate reports. These full reports being complete in themselves a detailed review will be unnecessary.

The present bacteriological laboratory is an unsatisfactory structure and is unsuited for the general bacteriological and research work being carried out. It is hoped that funds may be found available for the building of a new laboratory on the Entebbe peninsula during 1923.

12. With general reference to the *Anti-Venereal Campaign* the report shows the increasing volume of work carried out by the Venereal Diseases Staff. An extensive well built hospital with administrative offices and houses has been established at Mulago, and additional funds have been provided for its completion in 1923. Five auxiliary centres in the surrounding district have been established. These are run by trained native staff and are doing excellent work. A large staff of natives has been trained in special methods of treatment; the European Venereal Diseases Staff is a small one (four only at present) owing to general shortage of Medical Officers, and the organisation which has been carried out and the volume of work achieved by Major Keane and this small staff is highly praiseworthy.

Cost.—The work has been carried out in an intensive campaign in a selected area around Kampala with a population of some 150,000 natives representing about 5% of the total population of the Protectorate, and the cost has been considerable. The original £10,000 provided from Loan funds being expended, an additional £15,000 has been inserted for extension of the campaign, £10,000 of which is to be spent in 1923 together with a recurrent expenditure of about £20,000 per annum, £6,000 of this capital and recurrent expenditure is provided for preliminary extension of the campaign to Bunyoro and Eastern Province during 1923.

It is obvious that general extension on a similar scale is not within the possibilities of our resources in funds, staff, buildings or equipment. But venereal diseases are widespread throughout the Protectorate, with the exception of a few Nilotic tribes, and all the sick merit similar consideration and treatment, so that general extension under a modified scheme to embrace all tribes and provinces becomes imperative. Such a modified scheme co-ordinated with the general treatment of all native diseases as referred to below has already been submitted to the Government for consideration.

Results.—The present campaign has now been conducted for two years, but owing to the prolonged period of two years required for the treatment of syphilis and the intractability of gonorrhœa, the infectiveness of patients under treatment and the probability of reinfection after cure, sufficient time has not yet elapsed to demonstrate final scientific results in any marked reduction in the incidence of these illusive diseases or improvement in the birth and death rates of the Buganda Kingdom. A great volume of suffering and disability however have been relieved, the treatment carried out must have reacted beneficially on other diseases in the district, and the ante-natal work has undoubtedly contributed to the reduction of the still-birth rate. Moreover, the educative effects on the natives and the training and discipline of native attendants are unquestionably of great value; so also is the political effect in creating a new native attitude of confidence in treatment and hope of delivery from a traditional scourge.

Recommendation.—In order to extend the benefits of this campaign more widely and to bring all the natives of the Protectorate within its influence I recommend the adoption of an extended modified scheme whereby the organisation and special treatment now being carried out at Mulago and the auxiliary Venereal Diseases centres may be extended on a simpler and less costly scale as part of the work of all general hospitals and county dispensaries throughout the Protectorate, while on the other hand Mulago and its auxiliary centres are thrown open for the admission and treatment of all native diseases. The present plan of allotting separate hospitals and selected staff for dealing with venereal diseases alone places the venereal diseases work under the disadvantage of having to refuse admission of general cases, while the general medical work throughout the Protectorate is being hampered by restriction of resources in staff, store, and funds required for venereal diseases purposes.

Such a co-ordinated and mutually beneficial scheme will necessitate no drastic or expensive re-organisation of the present policy. The recent new buildings at Mulago and the new hospital projected for Hoima have been designed for future merging into general hospitals. The venereal auxiliary centres are admirably adapted

for the treatment of general cases and the extended scheme for county dispensaries is planned on similar lines. The district hospitals on which the latter are based can be extended and where necessary new hospitals built under provision already existing in the case of some stations.

Under such a co-ordinated scheme for dealing effectively with the mass of native diseases throughout the country I am confident that with a moderate expenditure and adequate staff a highly efficient native medical service can be established of greatly increased usefulness and economic value in the relief of an enormous volume of sickness and disability through the Protectorate.

The success of this scheme will depend upon our possession of an adequate staff both of European Medical Officers and trained native attendants. Without such a staff our efforts towards extension can be of little avail. With this view I would urge the necessity of filling our eight vacancies for Medical Officers and Medical Officers of Health at an early date with keen and suitable candidates. With the same object arrangements are now being made for the special training at Mulago and elsewhere of suitable native apprentices from the various outlying tribes to afford material for future work at the dispensaries among their own people.

J. HOPE REFORD,

Acting Principal Medical Officer.

SECTION III.

SANITATION.

General Review of Work Done.

ADMINISTRATIVE.

The death of Dr. C. J. Baker, Chief Sanitation Officer, which occurred at sea on his way home on leave, has been a great loss to this Department, and to the Protectorate as a whole.

Dr. J. M. Collins, Sanitation Officer, was appointed Acting Chief Sanitation Officer on July 12th, and Chief Sanitation Officer on August 8th.

Owing to illness, the latter has had to proceed home on short leave, and it has fallen to me to prepare the Annual Sanitation Report.

With the exception of Kampala, where there is a whole-time Medical Officer of Health, Superintendent of Conservancy, and European Sanitary Inspector, all sanitary work is attended to by the Medical Officers and local authorities at their respective stations.

Tours of inspection were made in the Northern and Eastern Provinces by the late Dr. Baker, and in the Western Province by Dr. Collins.

All townships in these Provinces were visited.

Mr. W. N. van Someren, who was engaged on a rat survey in the Eastern Province, was killed by a buffalo in April. The late Dr. Baker was very appreciative of the excellent work being carried out by the latter officer before his unfortunate death.

LEGISLATION, ETC.

A new and comprehensive Infectious Diseases Ordinance—The Uganda Infectious Diseases Ordinance, 1922—was enacted and came into force on 30th September, 1922. The Ordinance, which is based generally on the Kenya Public Health Ordinance, 1921, consolidates the law with respect to the prevention and treatment of Infectious Diseases and should prove invaluable in combatting outbreaks of Plague, Smallpox, etc.

The publication of this Ordinance renders necessary new Infectious Diseases Rules and the consequent cancellation of existing rules under the old (1902) Ordinance. It is hoped that the new rules will be taken in hand next year.

FACTORIES BOARD.

Much useful work in connection with "rat-proofing" and sanitary measures in general has been accomplished during the year under review, due very largely to the activities of the Factories Inspector appointed in 1921. The progress made has only been attained by continual pressure being put on owners of factories, many of whom have cheerfully complied with the factories regulations, but, to bring all factories into line, it may become necessary in the near future to prosecute a few recalcitrant owners.

The Factories Inspector's Annual Report is published in the Annual Report of the Public Works Department.

CENTRAL TOWN PLANNING BOARD.

Only two formal meetings have been held during the year, the general question of Town Planning in connection with schemes of segregation being in abeyance pending further instructions from the Secretary of State.

PREVENTIVE MEASURES.

INSECT-BORNE DISEASES.

(a) MALARIA.

Anti-Malarial Measures.—

(a) *Major.*—

The Kampala Swamp.—No new subsoil drains have been constructed during the year, work being confined to clearing, grading and draining the main and secondary channels.

Bush clearing, digging for planting, and cultivation on a fairly large area, have also been carried out.

The Agricultural, Public Works, and Prisons are the departments responsible for swamp drainage up to now, but at the beginning of 1923 all swamp work is to be under the Municipal control, except that the Agricultural will control their own labour. This will be more satisfactory, as in future the gangs employed will be under control of one head, who will supervise and co-ordinate the work done. This supervision will be carried out by myself personally, with the help of the Superintendent of Conservancy and the Sanitary Inspector.

Part of the swamp area is I understand to be converted into a public park by the Agricultural Department, and much has been done to forward this scheme during the year by preparation of the ground.

(b) *Minor.*—

That part of the swamp area within the township to the west, in which were many clay burrow pits, has been attended to, the pits have been filled in or drained, and the slope of the land graded.

A good deal of work will have to be done in the near future in connection with adequate drainage into the main channel, as with the permanent concrete drainage of the township now well in hand, the outlet would appear to be insufficient, and a good deal of open water might result.

Anti-Malarial gangs have been employed as formerly, and compounds and premises have been visited systematically throughout the year, search being made for conditions favourable to, and the necessary steps taken to control, mosquito breeding.

During the year thousands of larvæ have been brought to me for examination, but with the exception of adults and larvæ found at the European Hospital (and this was during building operations when the water was being brought from the swamp area) no anopheles were found outside the actual swamp area. *Culex* and *Stegomyia* are very common in tanks and in old tins and other articles thrown out by one's staff.

The Senior Medical Officer, Kampala, in his report shows a great many malarial cases treated during the year at the Civil Hospital. As this would make it appear that Kampala is the most malarial-ridden town in the Protectorate, I would like here to state that in my opinion very little malaria is actually contracted in the township, except among Indians, other Asiatics, and natives living near the swamp area, and most of these have had previous infections. Among the European community both officials and non-officials are constantly out of the station on business or pleasure, and it is more than probable that infection is contracted in that way.

Clearing in the Kampala township this year has been inadequate owing to lack of funds, the Municipal vote for this having been cut down by a third.

Larvicides.—With the exception of large areas of water, such as occur in brickfields, it has been found hardly practicable to employ these. Relying, as we do throughout the Protectorate, mainly to our tanks to provide drinking water, it is not to be wondered at that householders object to larvicides in these receptacles.

Quinine prophylaxis, etc.—Together with an increasing number of houses wholly or partially mosquito proof, and the order making it compulsory under penalties for all officials to use mosquito nets, the above are the chief preventive measures upon which we depend for the reduction of malaria.

(b) SPIRILLUM FEVER.

This disease as usual practically remains confined to the Ankole District in the Western Province, and is spread to other places by travelling natives. Cases occurring away from any known tick area should invariably be investigated, and if ticks are found, immediate measures should be taken to eradicate them.

In the infected area, permanent porters' camps are forbidden. Trial was made of skeleton shelters, but these were never used, the natives preferring to build little grass shelters on the road side. These, unless pulled down and burned, very quickly become tick infected, and as many of these structures are on the porters' tracks, well away from the main roads, constant and thorough supervision is necessary to see that these are destroyed.

Rest houses in this area should never be used for sleeping, in, as they are never safe, and many Europeans have cause to regret that they ever disregarded this advice.

HELMINTHIC DISEASES.

Ankylostomiasis.—Cases were reported from Arua in the West Nile District, and also from Gulu, both in the Northern Province.

Latrine infection is the main cause, and attention is being given to these. The habits of the natives in these districts are however very primitive, and any system however perfect theoretically would at present be most difficult of practical application.

Bilharzia.—Also reported from the West Nile. In all probability imported from the Anglo-Egyptian Sudan. During my three years in Nile Districts, the few cases I came across of this trouble were all in natives from across the Uganda border, who had come down to join the King's African Rifles.

As both these diseases seem to cause the average native very little suffering, and their condition is generally only diagnosed while under treatment for some other complaint, I should imagine that both diseases are very much more common than the returns represent.

EPIDEMIC DISEASES.

PLAGUE.

Compared with 1921 there has been a very satisfactory falling off in plague cases during the year. 1,362 cases occurred with 1,305 deaths, whereas in 1921, 5,871 cases occurred in the Eastern Province alone. (*Vide* last year's Annual Report).

The disease seems to remain endemic in certain areas.

The Buganda Kingdom and the Eastern Province were alone infected, the Northern and Western Provinces presenting clean sheets.

Buganda Kingdom.—Here it has been mainly confined to the Kampala or Mengo District. Out of a total of 178 cases, 138 or over 77% occurred in this district. This compares very favourably with the 440 cases in 1921.

1. *Mengo District—Kiagwe County*.—A mild localised epidemic broke out at Goma in March; this was followed by a sharp outbreak in Buikwe, at and near the Bugungu Ferry, lasting from April to beginning of July; and another short outbreak at Lugala in October and November.

It seems probable that in the case of the Buikwe outbreak, the infection had been brought from the Busoga side, as it first occurred among the fishermen. From there it was carried by wandering natives to Najembe, Buvuma, and in time Lugala. Sporadic cases occurred throughout the year at Nakifuma.

Kyadondo County.—The Kampala outbreak was the only serious one during the year in this county. Out of 46 cases, 22 were in the township, and another 16 within a radius of seven miles.

Infection in the township outbreak, for which see Appendix VII., was brought from Nakifuma district in Kyagwe County, in old dirty seed cotton, brought in for ginning to a ginnery inside the town.

Bugerere County.—During December 11 cases were reported from one of the Catholic Missions there. Infection had been brought from Busoga in the Eastern Province by children returning to school across the Nile Ferry there. Measures were immediately taken, and the ferry closed. As only four cases died, it is more than probable that the diagnosis was incorrect in some of these cases at any rate, especially as Influenza had been reported from that part.

2. *Entebbe District.*—There was no serious outbreak in this district, cases appearing from time to time during the year.

35 cases occurred with 24 deaths, Entebbe township accounting for 18 of these with 13 deaths.

3. *Masaka District.*—A small outbreak occurred in Mawokota County, on the Kampala—Masaka road during November. Infection in all probability was carried from Kampala area to both township and district.

5 cases with 2 deaths occurred during June in the township.

Eastern Province.—1,184 cases with 1,152 deaths. Busoga, Bukedi, Teso and Lango all being attacked. In comparison to 1921 this means a falling off of 80%.

1. *Bukedi District.*—Mbale township, with 55 cases and 48 deaths, and district, with 175 cases and 158 deaths, suffered severely.

Infection was brought across the border from the Kenya side, Budama and Bugwe, the two bordering counties becoming infected in April, and the township at the end of May. These remained infected throughout the year.

2. *Busoga District.*—Although only 13 cases with 11 deaths occurred in the headquarters township of Jinja, the district suffered very severely, 723 cases and 722 deaths.

Kigulu County.—This county alone accounted for 565 of the total cases, the maximum being reached in October and November with over 100 cases per month. In December it had lessened slightly, and at the present time (March, 1923) it has abated markedly.

Bugabula County.—A few cases occurred during the first three months of the year, being the tail end of the previous year's serious epidemic in this county. Cases cropped up again in September, October and November, the total number, including Namasagali being 45.

Bugweri County.—This county, which borders on Kigulu County, became infected in June, although a few cases were reported in January. 125 cases were reported during the year, the maximum number occurring in September.

The other counties were practically free.

3. *Lango District.*—An epidemic occurred in April and lasted until July, 199 cases with 196 deaths. The disease, which during 1921 was confined to the township of Lira, this year spread to the district, only 10% of the cases occurring in Lira itself.

PREVENTIVE MEASURES.

GENERAL.

(1) Destruction of infected huts by fire, or in the case of superior and costly houses, the removal of the grass roof which is burnt, and exposure to the elements, of the building, for a month when sanction is given for re-thatching.

In the case of old and rat-ridden houses, total destruction is carried out, irrespective of type of house.

Permanent houses, such as those in Indian bazaars, are disinfected, together with their furnishings and all contents.

(2) Isolation of sick and segregation of contacts, except in actual townships, has been carried out more or less satisfactorily by the chiefs concerned. In townships the Medical Officer sees to this.

(3) *Prophylactic Inoculation with Haffkine's Vaccine*—The number of people inoculated was:—

14,241	in Buganda Kingdom	(Mengo District—14,187)
20,236	in Eastern Province.	

(4) *Rat Destruction*.—3,936,502 were killed, poisoned, trapped or found dead during the year, as follows:—

Buganda	....	58,063	(Mengo District = 23,212). Examined
Eastern	....	3,876,909	1130. Infected 59
Western	....	624	
Northern	....	906	
Total	....	3,936,502	

Poison, Barium Carbonate, was very successful in the Kampala District, accounting for 16% of all rats destroyed.

All through the Buganda Province it is practically impossible to get the Chiefs to take anything but a very apathetic interest in rat destruction in infected areas. They can be relied on to report plague cases, and to take all precautions as regards quarantine, but somehow, rat destruction seems too much trouble.

Mr. Wilkinson's (Plague Inspector) work in the Eastern Province has been of great value, and to his efforts, much of the success which has been obtained in the anti-plague campaign in that area is due.

SMALLPOX.

There has also been in this disease a very satisfactory falling off. 104 cases with 12 deaths, compared to 506 with 89 in 1921.

No cases occurred in any township. The only serious outbreak occurred in Mbale District, Eastern Province, during January. Vaccinations were immediately carried out, 12,449 being done, and the disease slowly came to an end late in June, the total cases numbering 73.

VACCINATIONS.

120,976 were performed during the year with locally-prepared lymph:—

Successful	86,153	Failed	9,423
Modified	14,085	Unknown	11,315.

Thus of the total number actually examined 78·5% were successful, 12·8% were modified, and 8·5% failed.

In the Buganda Kingdom the chiefs are very apathetic as regards vaccination, and natives vaccinated are with great difficulty collected for arm inspection, only about one-third turn up for inspection.

However, the results all round in this Kingdom appear to be quite satisfactory, as of those actually inspected, over 80% were successful.

A few complaints *re* the lymph have been made during the year, but on investigation proved frivolous; the cases in question presenting either some previous skin lesion, or showing signs that the vaccinated area had been tampered with in an attempt to prevent the normal reaction.

DYSENTERY.

The main bulk of these cases occurred in the Northern Province, being most serious at Lira in Lango District, where 19 deaths occurred in 43 cases. At this township, Dr. Kelly, the District Medical Officer, has built a collecting tank and filter for the township water supply.

INFLUENZA.

Cases have occurred practically throughout the Protectorate. The type has fortunately been a mild one, the case mortality in towns working out at under 1%.

CEREBRO-SPINAL MENINGITIS.

677 cases with 471 deaths were reported during the year.

Buganda Kingdom.—

Kampala District.—14 cases with 13 deaths, all within a radius of a few miles of the Kampala township. One case only contracted in township.

No cases in Entebbe or Masaka Districts.

Eastern Province.—

Lango and Teso were the only districts infected. Both these districts are practically separated from the rest of this Province by water, and it is interesting to note that no cases occurred in either of the two remaining thickly populated districts.

181 cases with 158 deaths, Teso accounting for 167 and 150 of these.

Western Province.—

482 cases with 300 deaths. 421 with 273 being from Fort Portal alone. As these were all district cases reported by chiefs, it appears fully evident from the case mortality, that these cases could not have been all Cerebro-Spinal Meningitis; and the probability is that Influenza, which was prevalent throughout the Province, should be the correct diagnosis for many of them, especially as, since Dr. Peacock went there as District Medical Officer very few cases have since been reported. The same may be said *re* Kabale with 61 cases and 27 deaths.

GENERAL SANITATION.

SEWAGE DISPOSAL.

The bucket system is the one generally used by Europeans, and, in the larger townships by the Indian and Native communities as well.

Removal of excreta is carried out by nightsoil carts or manual labour, and is either trenched, buried or incinerated.

In the latter case, town and domestic refuse is mixed with it. At Namasagali alone, excreta is thrown into the Nile, at some distance from and below the township.

Public latrines are also in use in the larger townships.

SCAVENGING.

This is carried out in Kampala by the Municipality, under the Superintendent of Conservancy, but in all other townships, the local authority is responsible.

The refuse is either incinerated or used for levelling up low-lying parts.

Taken all round and allowing for financial restrictions this service is performed satisfactorily.

WATER SUPPLY.

This is by far the most serious problem that will have to be considered in the very near future, from the health point of view. To say the least of it, it is most unsatisfactory.

Inhabitants have to rely mainly on their tanks for water for household purposes, and many stations are not fully provided with these. River water, shallow wells, and surface springs are thus the sole source of supply for many stations, and in the dry season for practically all.

These sources (and I have had personal experience of ten stations) must, from their nature, be liable to contamination, either continually or periodically.

Samples from three springs, from which practically all Kampala water is collected, have been lately examined both bacteriologically and chemically, and the findings mark the water as "suspicious" or worse. A pipe-borne water supply is absolutely essential for Kampala, Entebbe and Jinja, especially for Kampala; although the difficulties and also the expense in bringing water to this last township, would naturally be much greater than for the other two towns which are on the Lake side.

DRAINAGE.

With the exception of Kampala, very little permanent masonry drainage work has been done during the year.

Entebbe and Jinja are both sorely in need of a permanent drainage scheme, but here again it is a matter of getting sufficient funds to carry it out.

Efficient drains plus a laid on water supply would do much towards the health of the three large towns especially, besides cutting down appreciably Municipal expenditure.

ISOLATION HOSPITALS.

A new isolation hospital has been built at Entebbe.

RECOMMENDATIONS FOR FUTURE WORK.

- (1) A laid-on water supply for Kampala, Entebbe and Jinja.
- (2) Control of native markets within a three-mile radius of Kampala so as to ensure a satisfactory meat supply to the township.
- (3) An isolation hospital for Kampala.
- (4) Masonry drainage schemes for Entebbe and Jinja.

H. R. NEILSON,

Acting Chief Sanitation Officer.

TABLE IV.

Summary of Routine Sanitary Work done during the Year.

1. NAME OF TOWN.—ENTEBBE.

		Approximate area.	Number of proclaimed open spaces.
1920	...	12 square miles	13
1921	...	12 square miles	13
1922	...	12 square miles	13

2. POPULATION.

		NUMBER OF ASIATICS.		NUMBER OF NATIVES.		NUMBER OF EUROPEANS.		TOTAL.
		Males.	Females.	Males.	Females.	Males.	Females.	
1920	...	210	94	2,017	1,857	96	50	4,324
1921	...	321	130	2,307	2,692	143	85	5,669
1922	...	202	88	2,358	2,164	110	67	4,989

3. HOUSING.

		Number occupied by Europeans.	Number occupied by Natives.
Number of Houses :—			
1920	...	79	450
1921	...	80	457
1922	...	90	390

Number of Huts :—			
1920	...	...	1,267
1921	...	...	1,350
1922	...	...	3,071

4. ERECTION OF NEW BUILDINGS DURING THE YEAR.

		1920	1921	1922
Number of houses built without sanction	...	—	—	—
Number of huts built without sanction	...	—	—	—

ACTION TAKEN.

		Number of Prosecutions.	
		Huts.	Houses.
1920	...	—	—
1921	...	—	—
1922	...	—	—

5. LATRINES.

		For Males.		For Females.	
		Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—					
1920	...	5	15	—	—
1921	...	5	24	—	—
1922	...	5	24	—	—
Number of new Public Latrines erected during the year :—					
1920	...	2	12	—	—
1921	...	1	6	—	—
1922	...	—	—	—	—

LATRINES—contd.

	1920	1921	1922
Number of Private Latrines	330	299	450
Average number of pails of nightsoil removed daily	450	410	450
Average number of soiled pails removed and clean pails substituted	51	44	51
Number of nightsoil men employed to clean latrines and remove excreta	24	24	24
Number of cesspools	1,370	917	1,108
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	980	453	567
Number of old cesspools abolished ...	500	453	376

6. REMOVAL OF REFUSE.

	1920	1921	1922
Number of dustbins ..	15	208	137
Number of carts at work daily to remove refuse from streets ...	9	9	9
Amount of refuse removed daily ...	27	27	27
Number of carts at work daily to remove refuse from yards and premises ...	Included in above		
Amount of refuse removed daily from yards and premises ...			
Number of men employed for removing refuse ...	16	18	18

7. 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.		
	1920	1921	1922	1920	1921	1922	1920	1921	1922
Buried or trenched ...	400	410	450	27	27	27	1	1	1
Burnt ...	—	—	—	—	—	27	—	—	—
Thrown into sea ...	—	—	—	—	—	—	—	—	—
Otherwise dealt with ...	—	—	—	—	—	—	—	—	—

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

1920	1921	1922
$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$

9. WATER SUPPLY.

Nature of Water Supply	1920	1921	1922
PIPE-BORNE WATER :—			
Source (river, lake, or spring) :—			
Number of stand-pipes along road ...	—	—	—
Number of stand-pipes in compounds and houses ...	—	—	—
WELLS :—			
Public :—			
Number ...	20	16	28
Number with pumps protected against surface water and mosquito-protected ...	—	—	—
Private :—			
Number ...	1	1	3
Number protected against surface water and mosquito-protected ...	—	—	—
TANKS :—			
Public :—			
Number mosquito-protected and served by pumps ...	—	—	—
Number above ground ...	—	—	—
Number mosquito-protected ...	—	—	—

WATER SUPPLY—*contd.*

Nature of Water Supply.	1920.	1921.	1922.
TANKS— <i>contd.</i>			
Private :—			
Number underground	3	3	3
Number mosquito-protected	3	3	3
Number above ground	160	139	152
Number mosquito-protected	160	132	149
Number of 400 gallons capacity or less	2	6	6
Number above 400 gallons	158	126	149
Nature of tank :—			
Wood	—	—	—
Iron	58	18	18
Concrete	102	114	134
Barrels :—			
Number	20	70	46
Number mosquito-protected	12	15	17

10. DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry drains :—		
Linear yards of masonry drains :—		
1920	2161	612
1921	2161	612
1922	2161	617
Linear yards reconstructed during the year :—		
1920	—	—
1921	—	—
1922	—	—
Linear yards repaired during the year :—		
1920	—	—
1921	—	—
1922	—	50
Linear yards of new drains constructed during the year :—		
1920	—	—
1921	—	—
1922	—	5
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :—		
1920	No record	No record
1921	"	"
1922	"	"
Number of linear yards of ditches dug and graded :—		
1920	No record	No record
1921	"	"
1922	"	"
Average frequency of clearing ditches of grass :—		
1920	1 monthly	1 monthly
1921	"	"
1922	"	"

11. INSPECTIONS AND PROSECUTIONS.

	1920	1921	1922
Number of inspectors employed... ..	1	2	2
Number of houses inspected	400	457	480
Number of houses where larvæ were found	15	7	10
Number of notices served to remove conditions causing the breeding of larvæ	5	7	10
Number of persons fined for having mosquito larvæ on premises	—	—	—
Number of notices served to remove insanitary conditions on premises	3	12	20
Number of persons fined for not removing insanitary conditions after notice	—	—	—
Number of soda and aerated water factories inspected	1	1	1

R. J. JOWITT,
for Acting District Commissioner.

TABLE IV.

Summary of Routine Sanitary Work done during the Year.

1. NAME OF TOWN.—KAMPALA.

	Approximate area.	Number of proclaimed open spaces.
1920	3,220	8
1921	3,220	8
1922	3,220	8

2. POPULATION.

	NUMBER OF ASIATICS.		NUMBER OF NATIVES.		NUMBER OF EUROPEANS.		TOTAL.
	Males.	Females.	Males.	Females.	Males.	Females.	
1920	666	328	1,452	342	140	67	2,995
1921	642	312	1,320	304	161	82	2,821
1922	709	325	1,261	362	176	108	2,941

3. HOUSING.

	Number occupied by Europeans.	Number occupied by Natives.	Number occupied by Asiatics.
Number of Houses :—			
1920	130	476	399
1921	137	483	404
1922	149	525	408

Number of Huts :—			
1920	...	...	1,257
1921	...	...	1,073
1922	...	...	1,076

4. ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1920	1921	1922
Number of houses built without sanction	—	—	—
Number of huts built without sanction	—	—	—

ACTION TAKEN.

	Number of Prosecutions.	
	Huts.	Houses.
1920	—	—
1921	—	—
1922	—	—

5. LATRINES.

	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1920	15	68	2	14
1921	16	74	2	14
1922	16	74	2	14
Number of new Public Latrines erected during the year :—				
1920	2	12	—	—
1921	2	16	—	—
1922	—	—	—	—

LATRINES—contd.

	1920	1921	1922
Number of Private Latrines	766	795	822
Average number of pails of nightsoil removed daily	848	878	1,020
Average number of soiled pails removed and clean pails substituted	—	—	—
Number of nightsoil men employed to clean latrines and remove excreta	42	24	33
Number of cesspools	50	69	76
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	—	—	—
Number of old cesspools abolished	—	—	—

6. REMOVAL OF REFUSE.

	1920	1921	1922
Number of dustbins ...	0	124	162
Number of carts at work daily to remove refuse from streets ...	16	16	16
Amount of refuse removed daily ...	74	74	74
Number of carts at work daily to remove refuse from yards and premises ...	16	16	17
Amount of refuse removed daily from yards and premises ...	35	48	68*
Number of men employed for removing refuse ...	55	83	83

* Cart loads.

7. 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.		
	1920	1921	1922	1920	1921	1922	1920	1921	1922
Buried or trenched ...	890	883	1020	—	—	—	—	—	—
Burnt ...	—	—	—	—	—	—	2	2	2
Thrown into sea ...	—	—	—	—	—	—	—	—	—
Otherwise dealt with † ...	—	—	—	70	70	68	—	—	—

† Filling up old excavation in swamp area.

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

1920	1921	1922
2	2	2

9. WATER SUPPLY.

Nature of Water Supply	1920	1921	1922
PIPE-BORNE WATER :—			
Source (river, lake, or spring) :—			
Number of stand-pipes along road ...	—	—	—
Number of stand-pipes in compounds and houses ...	—	—	—
WELLS :—			
Public :—			
Number ...	6	6	6
Number with pumps, protected against surface water and mosquito-protected ...	6	6	6
Private :—			
Number ...	1	1	1
Number protected against surface water ...	1	1	1
TANKS :—			
Public :—			
Number mosquito-protected and served by pumps ...	—	—	—
Number above ground ...	—	—	—
Number mosquito-protected ...	—	—	—

WATER SUPPLY—*contd.*

Nature of Water Supply.	1920.	1921.	1922.
TANKS—<i>contd.</i>			
Private:—			
Number underground	10	10	10
Number mosquito-protected	10	10	10
Number above ground	246	263	279
Number mosquito-protected	240	263	279
Number of 400 gallons capacity or less	141	148	155
Number above 400 gallons	115	115	124
Nature of tank:—			
Wood	—	—	—
Iron	218	218	227
Concrete	38	45	52
Barrels:—			
Number	12	6	2
Number mosquito-protected	2	—	—

10. DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry drains:—		
Linear yards of masonry drains:—		
1920	6025	
1921	6452	
1922	7030	
Linear yards reconstructed during the year:—		
1920	—	
1921	—	
1922	—	
Linear yards repaired during the year:—		
1920	600	
1921	—	
1922	578	
Linear yards of new drains constructed during the year:—		
1920	416	
1921	427	
1922	578	
Earth drains or ditches:—		
Number of linear yards of ditches cleaned:—		
1920	6974	
1921	7346	
1922	10120	
Number of linear yards of ditches dug and graded:—		
1920	450	
1921	670	
1922	300	
Average frequency of clearing ditches of grass:—		
1920	6	
1921	6	
1922	6	

No record

11. INSPECTIONS AND PROSECUTIONS.

	1920	1921	1922
Number of inspectors employed	6	4	4*
Number of houses inspected	1750	2172	2158†
Number of houses where larvæ were found	306	286	353
Number of notices served to remove conditions causing the breeding of larvæ	27	22	77
Number of persons fined for having mosquito larvæ on premises	—	—	1
Number of notices served to remove insanitary conditions on premises	122	181	189
Number of persons fined for not removing insanitary conditions after notice	11	18	22
Number of soda and aerated water factories inspected	2	3	2
Number of persons fined for selling impure milk	—	—	11
Number of nuisance orders made in Court for not removing insanitary condition	—	—	3

* Including two probationers.

† Including huts.

Geo. McKENZIE,
Executive Officer, Township Authority.

TABLE IV.

Summary of Routine Sanitary Work done during the Year.

1. NAME OF TOWN.—JINJA.

—	Approximate area.	Number of proclaimed open spaces.				
1920 ...	2,560 acres, approx. 4 square miles ..	6	Tennis Courts—Europeans, Goans and Indians.			
1921 ...	" " ...	7	do	do	do	
		10	do	do	do	
1922 ...	" " }	2	Sports Club Grounds, 1 Square.			
		3	do	do	1	do

2. POPULATION.

	NUMBER OF ASIATICS.		NUMBER OF NATIVES.		NUMBER OF EUROPEANS.		TOTAL.
	Males.	Females.	Males.	Females.	Males.	Females.	
1920 ...	—	—	1,315*	1,040*	36	16	2,407
1921 ...	—	—	2,016*	1,403*	42	13	3,474
1922 ...	395	193	1,950	1,277	32	16	3,863

3. HOUSING.

	Number occupied by Europeans.		Number occupied by Natives.	
Number of Houses :—				
1920 ...	59		318	
1921 ...	64		321	
1922 ...	65		316	

Number of Huts :—

1920 ...	...	...	...	700 approx.
1921 ...	...	...	...	930 "
1922 ...	...	...	...	860 "

4. ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1920	1921	1922
Number of houses built without sanction ...	—	—	—
Number of huts built without sanction ...	—	—	—

ACTION TAKEN.

	Number of Prosecutions.	
	Huts.	Houses.
1920 ...	—	—
1921 ...	—	—
1922 ...	—	—

5. LATRINES.

	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1920 ...	46	—	—	—
1921 ...	47	—	—	—
1922 ...	49	—	—	—
Number of new Public Latrines erected during the year :—				
1920 ...	3	—	—	—
1921 ...	2	—	—	—
1922 ...	2	10	—	—

* Including Asiatics.

LATRINES—*contd.*

	1920	1921	1922
Number of Private Latrines	312	325	325
Average number of pails of nightsoil removed daily	560	614	635
Average number of soiled pails removed and clean pails substituted	—	—	—
Number of nightsoil men employed to clean latrines and remove excreta	25	33	33
Number of cesspools	—	—	43
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year ...	—	29	14
Number of old cesspools abolished ...	—	—	—

6. REMOVAL OF REFUSE.

	1920	1921	1922
Number of dustbins ...	11	11	50
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 ...	6	7	9
Amount of refuse removed daily from yards and premises ...	50	65	95
Number of men employed for removing refuse ...	29	30	30

7. 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.		
	1920	1921	1922	1920	1921	1922	1920	1921	1922
Buried or trenchd ...	545	630	660	30	37	1	1	1	2
Burnt ...	—	—	—	—	—	—	—	—	—
Thrown into sea ...	—	—	—	—	—	—	—	—	—
Otherwise dealt with ...	—	—	—	—	—	—	—	—	—

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

1920	1921	1922
3	5	8

9. WATER SUPPLY.

Nature of Water Supply	1920	1921	1922
PIPE-BORNE WATER :—			
Source (river, lake, or spring) :—			
Number of stand-pipes along road ...	—	—	—
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 mosquito-protected and served by pumps ...	—	—	—
Number above ground ...	—	—	—
Number mosquito-protected ...	—	—	—

WATER SUPPLY—*contd.*

Nature of Water Supply.				1920.	1921.	1922.
TANKS— <i>contd.</i>						
Private:—						
Number underground	...	...	...	—	—	—
Number mosquito-protected	...	...	...	—	—	—
Number above ground	...	...	...	46	50	58
Number mosquito-protected	...	...	...	46	50	58
Number of 400 gallons capacity or less	...	...	...	44	47	55
Number above 400 gallons	...	...	...	2	3	3
Nature of tank:—						
Wood	...	...	...	—	—	—
Iron	...	...	...	35	37	45
Concrete	...	...	...	11	13	13
Barrels:—						
Number	...	...	...	—	—	—
Number mosquito-protected	...	...	...	—	—	—

10. DRAINAGE.

Nature of Drainage.				Public.	Private.
Masonry drains:—					
Linear yards of masonry drains:—					
1920	...	...	...	300	500
1921	...	...	...	350	700
1922	...	...	...	550	750
Linear yards reconstructed during the year:—					
1920	...	...	...	—	100
1921	...	...	...	50	200
1922	...	...	...	—	—
Linear yards repaired during the year:—					
1920	...	...	...	24	—
1921	...	...	...	34	—
1922	...	...	...	25	—
Linear yards of new drains constructed during the year:—					
1920	...	...	...	—	—
1921	...	...	...	—	—
1922	...	...	...	200	50
Earth drains or ditches:—					
Number of linear yards of ditches cleaned:—					
1920	...	...	...	—	—
1921	...	...	...	—	—
1922	...	...	...	—	—
Number of linear yards of ditches dug and graded:—					
1920	...	...	...	1,600 yards	—
1921	...	...	...	including the	—
1922	...	...	...	new Township	—
Average frequency of clearing ditches of grass:—					
1920	...	...	...	—	—
1921	...	...	...	Every month	—
1922	...	...	...	—	—

11. INSPECTIONS AND PROSECUTIONS.

	1920	1921	1922
Number of inspectors employed	1	2	2
Number of houses inspected	299	318	316
Number of houses where larvæ were found	20	20	5
Number of notices served to remove conditions causing the breeding of larvæ	45	35	30
Number of persons fined for having mosquito larvæ on premises	—	—	—
Number of notices served to remove insanitary conditions on premises	85	60	75
Number of persons fined for not removing insanitary conditions after notice	—	—	—
Number of soda and aerated water factories inspected	—	—	—

C. HENRY,
District Commissioner.

APPENDIX No. I.

Report on Blackwater Fever in Uganda for 1922.

1. 83 cases with 14 deaths occurred in 1922 as against 62 cases with 15 deaths in 1921.

74 of these cases with 11 deaths were reported by Government Medical Officers and 9 cases with 3 deaths by Church Missionary Society's doctors.

The following table shows the number of cases, deaths and case death rates during the past 19 years:—

Year.	Cases.	Deaths.	Case 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
1920	56	7	12.5
1921	62	15	24.19
1922	83	14	16.8

2. *Locality and Seasonal Variation.*—The following table shows the stations or localities at which the Blackwater Fever was contracted, the number of deaths and the monthly variation:—

STATIONS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	1922		1921		1920	
													Total		Total		Total	
													Cases	Deaths	Cases	Deaths	Cases	Deaths
BUGANDA KINGDOM.																		
Entebbe	...	...	...	...	...	1	...	...	1	...	...	...	2	...	3	1	4	1
Kampala	...	3	3	1	2	4	2*	1	3	2	3	...	26	3	18	4	12	...
Kampala C.M.S.	...	1	...	...	...	1	1	2	1	...	2	1	9	3	16	3	7	2
Bombo	...	...	...	...	...	...	1	...	1	...	...	...	2	1	2	1	...	...
Mubendi	...	...	...	...	...	1	...	...	...	...	...	1	1	...	...	...	...	...
Masaka	...	...	...	...	...	1	...	...	...	...	...	1	2	...	...	...	1	...
WESTERN PROVINCE.																		
Mbarara	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
Toro	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kabale	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
NORTHERN PROVINCE.																		
Hoima	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Masindi	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
Butiaba	...	...	2	...	...	...	...	3	1	...	...	...	6	1	...	...	1	...
Gulu	...	...	...	...	...	1	1	...	...	...	...	...	2	...	...	...	1	1
Atura Port	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Kitgum	...	...	...	...	...	...	...	1	1	...	...	...	2	...	1	...	2	...
Arua	...	...	...	...	...	1	...	...	...	...	...	1	2	...	...	...	...	...
EASTERN PROVINCE.																		
Jinja	...	1	...	1	...	2	3	1	...	1	1	...	10	2	6	4	20	2
Namasagali	...	...	...	...	...	...	...	...	...	2	...	...	2	...	3	...	4	...
Mbale	...	1	...	3	1	...	...	4	...	1	1	1	13	3	6	1	2	1
Soroti	...	...	1	...	...	...	...	...	1	...	...	...	2	...	3	...	...	...
Lira	...	1	...	...	...	...	...	...	...	...	...	...	1	1	1	...	1	...
TOTALS 1922	7	3	8	3	9	10	10	8	8	4	9	4	83	14	...	...	...	...
TOTALS 1921	2	3	5	2	7	9	7	6	5	9	3	4	...	...	62	15	...	...
TOTALS 1920	3	1	4	...	5	7	13	9	6	4	1	3	...	...	...	...	56	7

* One case treated at Entebbe.

It will be seen from the above table that there is an increase in the incidence of this disease in Buganda, Northern Province, and Eastern Province and that no cases occurred in the Western Province.

An analysis demonstrates that in—

BUGANDA KINGDOM—42 cases with 7 deaths occurred as against 39 cases with 9 deaths in 1921 and 24 cases with 3 deaths in 1920.

WESTERN PROVINCE—No cases as against 1 case with 1 death in 1921 and no cases in 1920.

NORTHERN PROVINCE—13 cases with 1 death occurred as against 3 cases with no deaths in 1921, and 5 cases with 1 death in 1920.

EASTERN PROVINCE—28 cases with 6 deaths occurred as against 19 cases with 5 deaths in 1921 and 27 cases with 3 deaths in 1920.

The Township incidence is—

Kampala	....	....	....	31 cases with 5 deaths
Mbale	....	....	....	7 cases with 2 deaths
Jinja	....	....	....	5 cases with 0 deaths
Butiaba	....	....	....	5 cases with 0 deaths

The greatest number of cases occurred during the rainy season as the following demonstrates:—

<i>Dry Season</i>	<i>Rains</i>	<i>Before Rains</i>	<i>After Rains</i>
18	41	9	15

3. Race, Sex and Age Incidence.—

		NATIONALITY.					
		Europeans.	Indians.	Goans.	Singalese.	Seychelles.	Natives.
		15	51	13	2	1	1
SEX:—							
Males	...	12	43	13	2	1	1
Females	...	3	8	—	—	—	—
DEATHS:—							
Males	...	3	6	1	—	1	—
Females	...	1	2	—	—	—	—

AGES.

<i>Under 10</i>	<i>10-20</i>	<i>20-30</i>	<i>30-40</i>	<i>40-50</i>	<i>Over 50</i>	<i>Unknown</i>
6	6	32	31	4	2	2

The African native would appear to be practically immune whilst other races especially Asiatics are prone to the disease.

4. As occupation does not seem to have any influence I have not given details beyond the following table which shows the incidence between officials and non-officials:—

				Europeans.				Asiatics.				Natives.				Total cases.
				Cases.		Deaths.		Cases.		Deaths.		Cases.		Deaths.		
				M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Officials ...	...	..		4	—	1	—	20	—	2	—	1	—	—	—	
Non-Officials	...	...		8	3	2	1	39	8	6	2	—	—	—	—	58
				12	3	3	1	59	8	8	2	1	—	—	—	—
				15		4		67		10		1		0		—

5. Length of Residence in (a) Tropics, (b) place where Blackwater Fever was contracted:—

(a) Length of Residence in Tropics.—

				Under 1 year.	1-5	5-10	10-15	15-20	Not known.	
Europeans	...	...	...	1	5	5	2	—	2	82
Asiatics	...	...	...	3	33	16	7	5	3	
Natives	...	...	...	—	—	—	—	—	—	1

(b) I hold that it cannot be definitely stated that blackwater fever was contracted in any certain place unless the case was resident for a certain period in that place, *e.g.*, cases resident at Butiaba go by car, motor van or bicycle to some planter's house 50 or 60 miles away and there develop blackwater fever 3 or 4 days after arrival. I maintain that the blackwater fever was contracted at Butiaba although it occurred at the planter's house in a different locality and that it was brought on by some exciting cause such as chill, over-exertion or quinine.

6. *Result.*—14 of the cases ended fatally. Recorded cause of death:—

Suppression	....	....	....	....	7
Uræmia	....	....	....	....	2
Heart Failure	....	....	....	....	5

7. *Predisposing Causes.*—

In all except one of the cases a history of previous and, more or less, frequent attacks of malarial fever is recorded.

The malaria suffered from was mainly of the S.T. type and to my mind there is very little doubt but that, in these previous attacks of malaria, we have the real predisposing cause, *i.e.*, a malarial toxicity.

It is worthy of note to mention here that 70 of the cases were suffering from an attack of malaria at the time the hæmoglobinuria came on and that the onset of the blackwater fever was usually ushered in with a rise in temperature and a rigor.

The single case, in which no previous attack of malaria is recorded, was that of an Indian woman, wife of a Sub-Assistant Surgeon stationed at Butiaba; she had been just over six months in the country and for the five months ended 31st January, 1921, she had taken five grains of quinine every day. She stopped taking it on that date as she discovered she was pregnant and on the 9th March, *i.e.*, 1 month and 9 days later, she developed blackwater fever.

She had then been three months in Butiaba and was exposed to malarial infection daily.

There were no cases in the Western Province and yet malarial fever occurs in the stations in this province and one of them, Fort Portal, had the fairly high incidence of 830 cases during 1922. I tentatively suggest that height may have some influence as all the Western Province stations are situated at elevations well over 4,000 feet above mean sea level, Fort Portal being 5,299 feet, and all the other stations at which blackwater fever occurred were under 4,000 feet.

8. *Exciting Causes.*—

The immediate supposed exciting cause of the disease has been recorded in 75 of the cases:—

Over-exertion (in between attacks of malaria)	....	38
Malaria inadequately treated	....	15
Malaria attack	....	8
Quinine	....	7
Chill	....	7
Not known	....	1
Not stated	....	7

9. *Enlarged Spleen* is recorded in 54 cases.

10. In most of the cases anopheles are reported as being prevalent in the localities where the blackwater fever was contracted.

11. *Quinine Habits.*—Quinine was taken as a prophylactic as follows:—

Regularly.	Irregularly.	Not taken.	Not known.
13	56	10	4

In three cases of blackwater fever it is noted that quinine combined with Pot. Bicarb. was being taken as a prophylactic on Medical Officer's advice and although taken for periods of from four to five weeks this combination failed to prevent the hæmoglobinuria developing. In the seven cases where the exciting cause is stated to have been quinine I think it is more or less definitely established that there is a critical dose and for these cases it lay between 15 and 25 grains taken within four hours of the attack.

12. *Blood Examination.*—This was done in 54 cases and malarial parasites were found as follows:—

(a) Before attack	(b) During	(c) After	(d) Negative
16	23	3	12

Of above 1 case showed parasites (a) (b) (c)

"	6	"	"	(a)	(b)
"	1	"	"	(a)	(c)

13. *Previous Attacks of Blackwater Fever.*—This is recorded as having occurred in 23 of the 83 cases:—

12	had	1	previous attack
6	had	2	previous attacks
3	had	3	previous attacks
1	had	10	previous attacks
1	had	an unknown number of	attacks

Blackwater Fever is recorded as having occurred in the same house in 13 cases and in the same neighbourhood in 38 cases.

14. *Albuminuria* occurred in 60 cases and as persisting after the attack in five cases.

15. *Other Complications.*—In 44 of the cases Jaundice, in 15 of the cases Suppression of Urine, and in 13 of the cases Relapse, is stated to have occurred.

16. *Duration of Hæmoglobinuria.*—

(a) In cases without relapse:—

Under 1 day	1 day	1½	2	2½	3	4	4½	5	6	7	8	9	10
12	2	10	10	6	14	7	1	3	1	—	1	1	1

(b) In cases with relapse:—

Cases.	Original attack.	Interval.	1st Relapse.	Interval.	2nd Relapse.	Result.
1	6 days	3 days	...	3 days	...	Recovery
1	72 hours	8 days	...	2 hours	...	Recovery
1	72 hours	18 days	...	24 hours	...	Recovery
1	72 hours	6 days	...	4 hours	...	Recovery
1	72 hours	Not stated	...	Few hours	...	Recovery
1	72 hours	24 hours	...	72 hours	...	Death
1	48 hours	5 days	...	4 hours	...	Recovery
1	48 hours	Not mentioned...	6 hours	Not mentioned	6 hours	Recovery
1	36 hours	8 days	...	6½ hours	...	Death
1	36 hours	Not mentioned...	4 hours	Not mentioned	36 hours	Recovery
1	24 hours	12 hours	...	4 hours	...	Recovery
1	24 hours	12 hours	...	12 hours	...	Recovery
1	24 hours	24 hours	...	?	...	Recovery
1	12 hours	6 hours	...	45 hours	...	Recovery

17. *Treatment.*—The following methods of treatment were employed and the results of each are given:—

Hearsey's mixture	...	...	in 17 cases	...	3 deaths.
Quinine injections	...	...	24	"	3
Hearsey plus Quinine injections	...	...	6	"	0
Hearsey plus Pituitary extract	...	...	1	"	0
Pituitary extract injections	...	...	12	"	1
Quinine injections plus Pituitary extract	...	...	8	"	2
Alkalines	...	...	9	"	2
No treatment mentioned	...	...	6	"	3

Apart from any special treatment, as referred to above, the general routine treatment relied on is (a) absolute rest, (b) early purge, (c) copious draughts of fluids.

R. J. A. MACMILLAN, MAJOR,
Acting Deputy Principal Medical Officer.

APPENDIX No. II.

Annual Report on Enteric Fever for 1922.

SIR,

I have the honour to inform you that during the year 1922, six cases of typhoid fever with no deaths, two cases of paratyphoid "A" with no deaths, and two cases of "Enteric group" with two deaths were recorded, a total of ten cases as against ten cases of typhoid with one death and three cases of paratyphoid with no deaths, a total of thirteen cases in 1921.

2. The enteric group cases recorded were probably typhoid cases and were clinically diagnosed as such but as in both the cases the diagnosis was made in the third week of the disease, the bloods were not sent to the Entebbe Laboratory for examination and I have therefore classified them as belonging to the enteric group. They were both fatal cases.

3. The Racial Incidence was as follows :—

Race.	Typhoid.	Paratyphoid "A."	Enteric Group.	Deaths.
Europeans	1	1	...	...
Asiatics	4	1	2	2
Natives	1	...	...	...

4. These occurred at the following stations :—

Station.	Typhoid.	Paratyphoid.	Enteric Group.	Deaths.
Jinja	2	1	1	1
Kampala	4	1	1	1

5. Of the above cases only one, a European Official suffering from paratyphoid "A," had been previously inoculated against typhoid fever and that had been done more than two years ago.

6. No inoculations were done in this Protectorate during 1922.

7. A return in accordance with the Secretary of State's letter No. 729 of 30th November, 1922, will be rendered annually in future years.

I have the honour to be,

Sir,

Your obedient servant,

J. HOPE REFORD,

Acting Principal Medical Officer.

THE HON'BLE THE CHIEF SECRETARY,
ENTEBBE.

APPENDIX No. III.

Extract from the Annual Report on Venereal Diseases Measures, Uganda, 1922.

A. INTRODUCTORY.

1. The year 1922 has witnessed the extension of the anti-venereal campaign in Uganda in a very notable degree. Activities have been restricted to the Province of Buganda, but plans have been laid for other parts of the country to be brought under its influence in the near future. The work accomplished has been nearly four times as great as that of 1921. A marked feature of the year has been the establishment of the auxiliary centres on a sound practical basis, and their success to a degree that was in no way anticipated. The treatment of natives of the district by natives, on a scale carried out at these centres, is an innovation in Uganda than cannot fail to have a marked influence on the general medical policy of the country in the future. The cost of building and maintaining these centres is most moderate. The appreciation of them is made evident by the number of natives who attend them. The treatment carried out in them is of a very high order indeed. They mark the first successful attempt on a large scale to meet the medical requirements of the rural native as opposed to the town native.

2. The work of the year shows that not only is the influence of the campaign increasing by leaps and bounds as a whole, but that each individual centre shows signs of extension and growth in the future. This has been attained without a proportional increase of European staff, but has meant a degree of effort on the part of the European staff that is worthy of every praise. We are faced in the year 1923 with double the work of 1922, and a somewhat depleted staff. Whether perfection of organization can fully meet these demands is a question for the future.

B. WORK OF THE YEAR.

I. *Buildings.*

1. The accompanying table gives a list of buildings in use at Mulago and auxiliary centres in 1922. The considerable programme undertaken by the Public Works Department will be noted. The completion of the 52-bedded ward, of the administrative block and laboratory and of the kitchen and laundry block marked an important period in the development of Mulago.

2. The buildings programme contemplated in the immediate future includes the conversion of the present 25-bedded female ward into a 52-bedded ward, and the erection of a pack store and disinfecting room; as well as the building of another third class house and replacement of a temporary second class house by a permanent building.

MULAGO BUILDINGS IN USE OR BUILDING IN 1922.

	Built and completed 1921	Built and completed 1922	Commenced 1922 but not completed
A. Permanent buildings erected by the Public Works Department.			
2nd class houses	2	—	—
3rd class houses	—	2	—
5th class house	—	1	—
Out-patient department	1	—	—
Superintendent's office	1	—	—
52-bedded ward	—	1	1
25-bedded ward	1	—	—
Kitchen and laundry block	—	1	—
Operating theatre	1	—	—
B. Temporary buildings erected by the Public Works Department.			
2nd class house	1	—	—
3rd class house	1	—	—
30-bedded wards	3	—	—
C. Temporary buildings erected by Medical Department.			
2-roomed native quarters on Mulago	3	—	—
5-roomed native quarters on Mulago	3	1	1
20-bedded ward, Mityana	1	—	—
Dispensary buildings, Mityana, Kasangati, Mbale, Mukono and Wakiso	1	3	1
Native quarters at above centres	2	6	3

II. *The Clinical Work of the Year.*

1. Table I. shows the work accomplished during the year at all centres. It will be seen that 113,158 attendances were recorded, 5,346 new cases were registered and 7,733 cases treated. The number of cases shown as cured is small and consists entirely of cases of gonorrhœa and soft sore. The standard of cure is high; that for syphilis entailing treatment for a period of two years, and as Mulago has not yet been open for this period, no cases of syphilis are shown as cured.

2. Table II. gives the in-patient return of the year. The number of beds available during the year at Mulago was 137. The average number occupied daily was 117.

3. *Ante-natal Cases.*—Every effort is made to attract the pregnant woman to Mulago. The main lure is the exhibition of all treatment, including arsphenamine, without payment. 167 pregnant women suffering from a variety of forms of syphilis were taken on the register. Of the results only 39 were known at the end of the year. 22 had resulted in the birth of living children which at the end of the year were healthy. 17 resulted in miscarriage, still birth, or congenital syphilitic children who died soon after birth.

These records are obviously incomplete. In the future it is intended to keep full details of every pregnancy and its results. Next year these figures should be of particular value.

III. *Receipts.*—

The total receipts for the year received from natives amounted to Shs. 12,297/67. Of this about Shs. 10,000 represents payment on account of salvarsan substitutes.

IV. *Auxiliary Centres.*—

Auxiliary centres at Mukono, Kasangati and Mbale were opened during the year. In every case their success was immediate. At these four centres during the part of the year they were open, 2,085 cases were treated, and attended for treatment 45,032 times.

C. CONCLUSIONS AND RECOMMENDATIONS.

It is hoped that the year 1923 will see the following undertakings completed or at least commenced :—

1. Establishment of electric power at Mulago for lighting and laboratory purposes.
2. Establishment of water supply at Mulago.
3. The completion of auxiliary centres by the addition of wards.
4. The building of new centres in the Province of Buganda amongst populations not yet served by existing centres.
5. The re-opening of laboratory work at Mulago.
6. The extension of the anti-venereal campaign to the Eastern Province and to Bunyoro.
7. The extension of anti-venereal measures by Mission Hospitals, as outlined in the annual report in 1921.
8. Supplies of arsphenamine in sufficient quantities to allow of the free treatment of syphilis in accordance with modern methods.

W. LESLIE WEBB,

Acting Specialist Officer, Venereal Diseases.

TABLE II.

RETURN OF IN-PATIENTS, MULAGO AND MITYANA.

DISEASE.	Number of patients in wards on January 1st, 1922.		Number of patients admitted to wards in 1922.		Total number of patients in wards during 1922.		Aggregate number of in-patient days.		Number of patients remaining in wards on 31st December, 1922.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
* Primary Syphilis ...	...	...	...	...	...	...	...	...	...	...
* Secondary Syphilis ...	...	...	...	...	...	...	...	...	...	...
* Tertiary and Latent Syphilis ...	...	...	...	...	...	...	...	...	...	...
* Congenital Syphilis...	...	...	...	...	...	...	...	...	...	...
* Gonorrhœa ..	...	...	...	...	...	...	...	...	...	...
* Soft Sore ...	...	...	...	...	...	...	...	...	...	...
* Other Venereal Diseases ...	...	...	...	...	...	...	...	...	...	...
* Non-Venereal Disease ...	...	...	...	...	...	...	...	...	...	...
Total Mulago only ...	...	...	...	...	...	...	...	...	...	...
Total both sexes :—	...	...	...	...	...	...	...	...	...	...
Mulago only ...	...	...	...	...	...	...	...	...	...	...
Mityana only ...	...	...	...	...	...	...	...	...	...	...
Total both sexes :—	...	...	...	...	...	...	...	...	...	...
Mulago and Mityana ...	...	...	...	...	...	...	...	...	...	...

* Mulago only.

APPENDIX IV.

Report of Senior Medical Officer i/c Sleeping Sickness for 1922.

At the commencement of the year the only Sleeping Sickness area that had not been visited was Gulu and Chua. Accordingly as soon as I could get away in the New Year a tour was made of these districts, the route taken being from Atura to Palaro, where a conference with the District Commissioner, West Nile, and the Assistant District Commissioner, Madi, resulted in settlement of the boundaries of closed areas. From Palaro I went through Attiak to Nimule, thence eastwards along the northern border of Chua to Madi Opei and back to Kitgum, thence through Gulu to Atura.

The situation in Gulu is much the same as in Madi and conditions are similar. With the exception of the R. Toshi and its tributaries all the streams may be considered fly-infested and the suppression of Sleeping Sickness depends upon the enforcement by the Administration of adequate clearing of crossings over streams and of watering places.

The population is concentrated along the main roads and it seems that unless they do the requisite clearing there is nothing for it but to advocate wholesale removal.

In Chua there is no indigenous Sleeping Sickness but many of the rivers are infested with *palpalis* (e.g., the Pager which flows through Kitgum), which seems as yet not to be infected. Correspondence was exchanged on this matter with the Sudanese authorities who pointed out that the Acholi were much recruited by them and that it was of great importance to them to know whether Chua was infected. A total of 3,351 men, 3,066 women, and 3,141 children were examined along the northern border and along the Kitgum—Abbia Ferry road. Only three cases were found *near the Gulu border*, who had come over from Gulu.

I have strongly pointed out to the Administration that herein lies the danger to Chua and that no effort must be spared to watch the Gulu—Chua border, and suggested that chiefs in Chua should be instructed to arrest any person coming from Gulu who has not a medical certificate. As a result of correspondence with the Assistant Secretary Native Affairs it has been also decided that Atura shall no longer be the port for Chua, but that all transport should be from Kachung through Lira: thus a large amount of traffic into Chua from Gulu will be stopped.

It would indeed be lamentable should the *palpalis* of Chua pick up *T. gambiense*; the effect would probably be as disastrous to Chua as it has been in Madi and Gulu.

I returned to Entebbe at the end of March, and was then occupied for months with revision of the Sleeping Sickness Rules which had been objected to by the Reclamation Officer, and the whole troublesome question was again the subject of interminable meetings and discussions. Just when a deadlock had apparently been reached a solution was found and an elastic system of informal Instructions was devised and approved by all concerned.

Two visits were paid to Sesse to inspect landing places and examine the populace; no signs of Sleeping Sickness were found.

In August I started on a three months' safari in order to examine the Katwe Sleeping Sickness Area and specially to endeavour to arrive at a satisfactory decision regarding the closed area of the Kigezi district. The Administration had reported that it was impossible to keep people—both subjects of the Congo and Uganda—from trespassing for the sake of fishing from the mouth of the Ishasha river. I went first to Kigezi and thoroughly investigated the whole question, as a result it was decided to open two large parts of the closed area, giving ample opportunity for safely conducting the fishing industry.

I then proceeded to the settlement of Kazinga at the Ankole bank of the entrance of the Kazinga channel into L. Edward. Dr. Marshall had reported in August 1920 that nearly 18% of the population were infected and recommended the destruction of the village. However I took the opposite view and found on this visit that with an increase of 58% of the population there were no cases of Sleeping Sickness at all. The clearings had been kept up very satisfactorily and the Saza Chief asked that the area permitted should be extended to which I agreed.

All the southward salt traffic from Katwe now passes by this route, the old ferry across the middle of the Kazinga channel having been completely abandoned.

The state of affairs at Katwe is equally satisfactory. Dr. Marshall reported in 1920 that "the true percentage of infection among the permanent residents was probably over 15%". In October, 1922, I examined the whole of the population in the village. There are 77 poll tax payers at Katwe and I examined a total of 267 men and 134 women and children. One man and one woman only were found infected. These had without doubt been infected on the upper reaches of the Nyamagasani river which comes down to Katwe, and possibly has been the source of infection of some of the cases at Katwe for years. The Saza Chief told me that last year on account of deaths from Sleeping Sickness the people living near to the Nyamagasani had moved away from it. The presence of Sleeping Sickness on the upper reaches of this river had never before come to my notice.

From Katwe I went to L. George where a ferry was opened a year ago from Kashenyi to Mahyoro in Kitagwenda. All was well there, and I decided, on the request of the Owesaza, that more land west of the landing at Mahyoro could be taken up when properly cleared.

It is noteworthy that the opening of this ferry has been of much indirect benefit to the porters who fetch salt from Katwe to Mubendi and other parts of Buganda. Formerly these men had to take the longer route to Fort Portal and the arduous road along the base of Ruwenzori which necessitated crossing many deep and not always fordable rivers. Now these men go across into Kitagwenda and north-eastwards to Mubendi by a much more direct route.

The whole of the western corner of L. George behind the island Irangara has been thrown open without restriction. It is expected that this will greatly benefit the population owing to the abundance of fish in that part of the lake.

The situation in the Mpologoma area is a little uncertain as the natives have failed to maintain the complete clearing of the Namatala, especially in Bugweri. The Administrative officer has also been changed and the situation will be thoroughly discussed with him in January when I go to the Eastern Province to settle the question of what is to be done in Busitema. Mr. O'Connor has made a very careful map and fly survey of the area which the Assistant District Commissioner, Tororo, desires to repopulate and I hope by a personal visit to be able to lay down the boundaries and decide how much clearing must be done. After this, before the close of my tour in March, I intend to re-visit Madi and discuss progress with Dr. Rawson.

The situation in Madi is I think more hopeful. The Administration has shown the greatest willingness to carry out the various recommendations in my report regarding clearing, movement of people and opening new and safer routes, and much has been done. The salvarsan treatment in various forms as modified by Drs. Marshall and Vassallo has been given an extensive trial and a report is expected from Dr. Vassallo who has been following up the cases treated at the beginning of the year.

Dr. Rawson has at my suggestion, been treating all and sundry for any other complaints, and has done a considerable amount of useful work specially in connection with venereal disease and yaws. He was instructed to concern himself with Sleeping Sickness in Gulu, Madi and the West Nile (Alur) as this work is quite beyond the powers of the District Medical Officer, Gulu, and the District Medical Officer, Arua.

In Madi he has gained the confidence of the natives who come up freely for treatment but I regret to say that in the West Nile (Alur) practically nothing can be done although he has reported that several natives have come up for treatment for venereal disease. The necessary wholesale examination of the population conducted by myself a year ago, in order to ascertain the extent of Sleeping Sickness, followed by the deaths of many of the people actually subjected to gland puncture (*i.e.*, natural deaths from the disease) has so frightened the people that nothing more can be done with them. In this district therefore reliance must be placed entirely on prevention of contact between people and fly, until they have learnt not to be afraid of purely medical measures. For this reason alone Dr. Rawson should be kept up in the Northern Province as long as possible, so that the natives may learn to come for treatment for general diseases and thus eventually for Sleeping Sickness. (*See note by Dr. Wiggins at close of my report for 1921 in the Annual Report for that year.*)

Most unfortunately the shortage of medical staff is such that the Hon'ble The Principal Medical Officer found it impossible to keep Dr. Rawson on purely Sleeping Sickness duties after the middle of December, and he was transferred for station duties

to Arua. This, I fear, will be a severe set back to the progress of the campaign against Sleeping Sickness in Madi, as it will only be possible for Dr. Rawson to pay occasional visits to Madi and anything like quarterly examination of the whole population will be impossible. It is greatly hoped that with the arrival of a new batch of Medical Officers Dr. Rawson can be returned to purely Sleeping Sickness work.

Mr. Busby was engaged early in the year as Inspector for Madi to organize and supervise the clearing measures, and has done useful work. It will of course be some time before the benefit of the preventive measures can be shown in the death rate, but by the end of 1923 I confidently expect great improvement in this respect.

In December the re-opening of the Uganda bank of the Nile (Bugerere) was considered at the request of the Administration. Inspection showed that, provided that watering places were cleared and houses grouped so that only these places would be used for drawing water the populace could be allowed to live within the present boundary of one mile from the river, and to fish from canoes in a certain section.

G. D. HALE CARPENTER,
Senior Medical Officer, Sleeping Sickness.

APPENDIX V.

Government Dentist's Annual Report.

SIR,

I have the honour to submit to you my Annual Dental Report for 1922.

During eight and a half months of the year I was on leave.

The following tables will show the Dental treatment of Officials :—

(i)	Appointments	...	...	...	249
	Officials treated	...	...	...	111
(ii)	The following conditions were treated :—				
	Caries Simplex	...	...	...	159
	Extractions	...	...	...	34
	Pulpitis	...	...	...	17
	Abscess	...	...	...	9
	Odontalgia	...	...	...	2
	Periostitis	...	...	...	11
	Erosion	...	...	...	9
	Gingivitis	...	...	...	3
(iii)	Conservation work :—				
	Synthetic Porcelain and Cement	...	...	...	46
	Ag. Amalgam	...	...	...	125
	Cu. Amalgam	...	...	...	3
	P. Gutta Percha	...	...	...	11
	T. Gutta Percha with Dressings	...	...	...	49
	Scaling and Cleaning	...	...	...	52
	Ag. No. 3 Applications	...	...	...	15
(iv)	Prosthetic work :—				
	Dentures	...	...	...	19
	Repairs to Dentures	...	...	...	23
	Crowns	...	...	...	7
(v)	The following outstations were visited :—				
	Jinja 1 visit; Fort Portal 1 visit; Mubendi 1 visit.				

I have the honour to be,

Sir,

Your obedient servant,

THE HON'BLE,

THE PRINCIPAL MEDICAL OFFICER,

UGANDA.

G. STANLEY BATEMAN,

Government Dental Surgeon.

APPENDIX VI.

A Report on Helminthiasis in the West Nile District.

In June, 1922, two patients from different parts of the West Nile District were admitted whose symptoms were anæmia, some puffiness of the face, a little of the ankles and indented tongue. Both complained of severe weakness and discomfort in the upper abdomen. The clinical picture in these two cases pointed to ankylostomiasis and the ova were found in both. Attention thus having been drawn to the presence of this disease in the district, ova were looked for in all cases of obscure chronic abdominal disorders presenting in the months of July and August. The symptomatology of these was usually some milder form of the picture given above with sometimes burning or cutting epigastric pain and in some tenderness; also bowel irregularities, headache and very occasionally vomiting. In 19 out of 20 of these cases, some from distant parts of the Protectorate, the ova of an ankylostome were found and I have no doubt in the light of subsequent work they were present in the other also. This negative case showed *Ascaris lumbricoides* and *Trichuris trichiura*.

In most of these cases other contributing causes took their parts in the symptom-picture. Very usually the ova of other worms were also present. These were not carefully sought for so allowance should be made for some margin of error in the following analysis of these 21 cases (including the two from June). Thirteen had *Ascaris lumbricoides*, six *Trichuris trichiura*, three a Cestode and two doubtful eggs. They were distributed as follows:—

Ankylostome alone	...	...	...	...	5 or 23·8%
"	"	+ <i>Asc. lumbricoides</i>	...	...	3 or 14·28%
"	"	+ Cestode	...	...	1 or 4·76%
"	"	+ Unidentified	...	...	1 or 4·76%
"	"	+ <i>Asc. lumbricoides</i> + <i>Trichuris trichiura</i>			5 or 23·8%
"	"	+ <i>Asc. lumbricoides</i> + <i>Schistosoma mansoni</i>			3 or 14·28%
"	"	+ <i>Asc. lumbricoides</i> + Cestode	...	...	2 or 9·52%
"	"	+ <i>Trichuris trichiura</i> + <i>Schistosoma mansoni</i>			
		+ unidentified	...	...	1 or 4·76%

In four of these cases an active Nematode larva was found. These were about 275 microns long and in the active state indistinguishable to me from those of Ankylostomes. In another later case, however, one of these was isolated and quietened for examination and though it did not accurately conform to the only description accessible here in that a clear subcuticular area only surrounded the anterior half of the mouth instead of the whole of it, the mouth was about half as deep as the width of the body which probably identifies it with *Strongyloides stercoralis*. As corroborating this, one case treated for Ankylostomes, in which ova could not subsequently be found, still showed these larvae, *Strongyloides stercoralis* being difficult to dislodge except possibly with Oil of *Chenopodium*. Though common in the tropics I think this is the first time this parasite has been reported from Uganda.

In October the examination of 100 adult natives was undertaken with a view to the better establishment of the incidence of Ankylostomiasis. The examinees consisted of prisoners and poll tax labourers. Eight were females and 92 males, the tribal distribution being Lugwari 59, Kakwa 19, Aluru 12, Madi 6, Bari 2, Acholi 1, and 1 Muganda.

Again the ova of other parasites were not carefully sought for but probably only a small proportion was overlooked with the exception of those of *Schistosoma mansoni*, a thorough search for which, as the eggs do not float on a medium of equal parts of glycerine and saturated salt solution, would have involved a different technic. Intestinal Bilharziasis is therefore probably more widespread than this record shows, though the percentage found (*i.e.*, 7%) must be considered heavy. The larvae of *Strongyloides stercoralis* would also be killed by the medium used so that they were only noted in three of these examinations in which water happened to be used as a diluent.

It will be seen that in 99 adults hookworms were present. The Alur who did not show them (he showed the ova of *S. mansoni*) was examined twice in October and again in November unsuccessfully. The ova were usually in the 8-segmented stage, though a few were more advanced and a not inconsiderable number seemed to show 6, the two lateral segmented having divided. In only one case were some 4-segmented

eggs seen, and they were mixed with older ones. This however is qualified by the fact that examinations were often made some hours after the sample had been passed.

Ankylostome ova were found in 99 cases, those of *Ascaris lumbricoides* in 51, of *Trichuris trichiura* in 11 and *Schistosoma mansoni* in 7. In one case a Cestode ovum was noted and in three the larvæ of *Strongyloides stercoralis*. Not one was free from a helminthic infection.

			Cases
Ankylostome ova alone	....	....	43
"	"	+ <i>Ascaris lumbricoides</i>	40
"	"	+ <i>Trichuris trichiura</i>	4
"	"	+ <i>Ascaris lumbricoides</i> + <i>Trichuris trichiura</i>	6
"	"	+ <i>Ascaris lumbricoides</i> + <i>Schistosoma mansoni</i>	5
"	"	+ <i>Trichuris trichiura</i> + <i>Schistosoma mansoni</i>	1
<i>Schistosoma mansoni</i> alone	....	....	1

An arbitrary system of estimating the number of eggs was adopted, which naturally allowed much overlapping, and the connection of this with symptoms of those showing only Ankylostome ova is given, for what it is worth, in the table below. Of the 43 purely hookworm infections the records were incomplete in three, so that only 40 are analyzed. It must be admitted that the results do not seem to throw much light on symptomatology as connected with a numerical estimation of ova. The degree of anæmia was hastily judged by the appearance of the skin below the eyes and the conjunctival and lingual mucous membranes.

		Very scant.	Scant.	Not numerous.	Moderately numerous.	Numerous.
Not anæmic, no discomfort	...	8	5	2	2	6
Anæmic, no discomfort	...	3	2	3	—	4
Not anæmic, pain in epigastrium	...	1	—	—	—	—
Anæmic, epigastric pain	...	—	—	—	2	1
Anæmic, diarrhœa, epigastric pain	...	—	—	1	—	—

The examination of 25 children was next essayed, not without some little difficulty. Their ages were estimated as carefully as it was possible to do. The following table contains the result. No ova in the 4-segmented stage were seen.

Age.	Sex.	Tribes.	Spleen in fingers.	Ankylos-tomes.	Asc. lumbricoides.	T. trich.	Ova.	Symptoms.
9	F	Muganda	1	+	—	—	Numerous	Not anæmic, no complaint.
9	M	Alur	0	+	+	—	V. scant	Little anæmic, no complaint.
8	F	Muganda	1	+	—	—	V. scant	Little anæmic, no complaint.
8	M	Alur	0	+	—	+	Numerous	Not anæmic, no complaint.
8	M	Swahili	0	+	—	+	V. scant	Little anæmic, no complaint.
7	F	"	0	+	—	—	V. scant	Little anæmic, no complaint.
6	M	Muganda	2	+	+	—	V. scant	Little anæmic, no complaint.
5	F	Swahili	1	+	—	+	V. scant	Not anæmic, no complaint.
3½	F	"	2½	+	—	—	V. scant	Not anæmic, no complaint.
3½	M	Acholi	1	+	—	—	V. scant	Little anæmic, no complaint.
3	F	Alur	2	+	+	—	Very numerous	Not anæmic, no complaint.
2½	F	"	0	+	—	+	V. scant	Not anæmic, no complaint.
2½	F	Lugwara	0	+	+	—	Not numerous	Anæmic, pain in stomach.
2½	F	Munyoro	1	+	—	—	Numerous	Very anæmic, pain in stomach.
2¼	M	Alur	0	+	+	—	Very numerous	Not anæmic, no complaint.
2¼	F	"	0	+	+	+	Not numerous	Not anæmic, no complaint.
2¼	M	Acholi	4	+	—	—	Not numerous	Anæmic, no complaint.
2	M	Munyoro	3½	+	—	—	V. scant	Not anæmic, no complaint.
2	M	"	2½	+	—	—	Fairly	Not anæmic, no complaint.
2	F	Alur	0	—	+	+	Partly at breast	Nil.
2	M	"	0	+	—	—	V. scant	Nil.
1¼	F	Lugwara	4	+	—	—	"	V. anæmic, not well.
1¼	M	Munyoro	2	—	—	—	Still at breast	Nil.
7 m.	F	"	0	—	—	—	"	"
7 m.	F	Alur	4	—	—	—	"	"

The three children of 15 months or under showed no parasites; of those over two years and up to nine, 100% had Ankylostomiasis; of those 18 months to nine years 95.45% showed Ankylostomes, 31.8% *Asc. lumbricoides* and 27.27% *Trichuris trichiura*. Though 25 is not a sufficiently large number on which to base far reaching deductions it points to the age of infection as being in the neighbourhood of 16 months or about the time one would expect the children to crawl or toddle about the infected gardens near the huts. Long before this the babies would have partaken of some of the water and food used by the family with apparent immunity so that the usual source of infection would seem to be the soil. While no doubt they infect themselves some times by putting the soiled hands into the mouth it seems probable that the cutaneous is the usual route of entrance.

From the foregoing data and from the varied places of origin of other cases found to have Ankylostomiasis it is indicated that this disease is probably equally prevalent throughout the Protectorate and possibly other adjacent subject areas. Great economic importance must therefore be attached to it. When the parasites are few the appearance of health may be maintained; a larger number may not show loss of flesh or striking anæmia but may present an appearance of laziness; the heavier infections I believe will prove to be a factor in the poor adult physique in some parts of the Protectorate. It should also be remembered that in certain other tropical communities similarly infected some 30% of the deaths, directly or indirectly, have been attributed to this disease.

After the first few examinations the method of searching for eggs employed was that once advocated by Barber or the flotation method on a mixture of equal parts glycerine and saturated salt solution. The facts that in 99 cases out of 100 eggs were found, usually with ease, and that the number of parasites was generally small do not leave much margin for error or much to be desired with the method. A small portion of the faeces was placed on a slide with a platinum loop; a few drops of the medium were added and the whole well mixed and spread out. Very liquid samples did not seem to be as satisfactory as the more normal types.

On August 9th the first adult worms were recovered, and they proved to be *Necator americanus*. Previously the relatively small number of cases of Ankylostomiasis reported in the Protectorate had been considered to be *A. duodenale*.

In all the subsequent cases in which the adult worms were found they belonged without exception to the same species. The almost complete absence of ova in the 4-segmented stage points to the untreated cases also as being *Necators*.

A collection of worms from some of the cases was found to consist of 127 females and 41 males.

The treatment for adults adopted in the first seven cases was magnesium sulphate 2 oz. in the evening with three doses each of 15 grains thymol and 15 or 20 of sodium bi-carbonate in emulsion the following morning with magnesium sulphate again four hours later. In none of these cases were adult worms found in one subsequent examination, while in five ova were later found to persist, one was negative and one was not examined. In one a *Tænia saginata* was expelled.

A dose of 3 grains of Santonin was then substituted for the first one of thymol. This was given in 41 cases up to the middle of November, 23 of which yielded Ankylostomes. Usually only one sample was examined and the native attendants (particularly in the earlier examinations as more recently in eight out of nine cases they found them) were very inept at and disliked the work of hunting for worms so that the treatment was probably very much more effective than appears from these figures. This is borne out by a subsequent search for ova in 19 cases. This was done usually only once but in some cases two or three times up to a period of 2½ months after treatment. Ten of those from whom worms had been recovered and five who had not shown them proved negative, while one patient belonging to the latter category was brought in two months later moribund with pneumonia and a post mortem showed no Ankylostomes. In only three cases therefore were ova found after treatment.

In twelve instances worms were found on the same day as medicine was exhibited after which they were usually not re-examined, in six on the following day, in two on both and in one only on the second day afterwards.

Tape worms, round worms and pin worms were also expelled though in one case the ova of round worms were subsequently found. Until Oil of *Chenopodium* is available this system, or some modification of it suggested by experience, will be adhered to.

In eight of the more recent cases the *Ankylostomes* passed on the day of treatment and the following one were counted. The result was 2, 16, 6, 20, 8, 17, 27, and 22, or an average of 14.7, which of course is very small and probably incomplete, as the patients when not under direct observation at night resort to the adjoining pit latrines. The five with the highest counts, 16—22 were the only ones noted as being distinctly anæmic and only two of those showed any other parasite, *viz.*, a nematode 6.2 cm. long, possibly *Toxascaris canis* in one and *Ascaris lumbricoides* in the other.

It is the common habit throughout the Protectorate to attend the calls of nature on the ground in the neighbourhood of the dwelling huts. This is generally cultivated land and parts are usually shady, so that it is suitable soil for the development and preservation of larvæ. Except in townships and in the cases of a few educated natives there is no thought of having anything in the nature of a latrine. Mass treatment at the beginning of the dry season, repeated annually, would under present conditions, be the only possible effective means of attempting to deal with the disease outside townships. This is rendered impracticable on account of cost and numerous other inherent difficulties in addition to its lack of finality. Sporadic treatment (except in the case of a heavily infected individual for his own welfare) or indeed anything short of mass treatment would be valueless until a campaign of education has been undertaken which, in the presence of the extreme ignorance of the enormous majority of the population extending even to the non-recognition of this disease among them, would be a matter of years. In this prime importance would be given to the protection of the feet and to the maintenance of a well kept latrine or the burning of all excreta. Incineration is by far the best mode of disposal for night soil in ignorant communities.

For application to native hamlets nothing seems more practical than a pad of dried grass, such as is placed on the head when carrying loads, for the reception of excrement, the whole to be placed in a fire. A supply of these could be kept on hand for family use.

A pit latrine to be satisfactory should be very deep and be capped by a well-made, close-fitting platform of wood or other material which should be frequently cleaned. There should also be a lid over it as doubtless certain flies may mechanically transfer the larvæ to food or the human skin. To fulfil these conditions would be impossible for the ordinary country native but should be insisted upon in townships where pit latrines are in use and elsewhere where Government interference is justifiable.

In four cases small nematodes were found. (1) 2.63 cm. long by 55 mm. wide, white, with fine transverse cuticular striations and a pair of anterior and posterior cuticular alæ? *toxascaris*. (2) 6.2 cm. long, white, with lateral cuticular ridges and a three-lipped mouth. *Ascarid* sp.? (3) Three worms were found of two species, one being 4 cm. long with numerous papillæ on the tail, possibly a young *Asc. lumbricoides*, and the other two 3 cm. by 0.64 mm. and 2.8 cm. 0.53 mm. respectively, white; *Ascarids* sp.? (4) Two worms of different species, one with cephalic papillæ and corona radiata, 1.6 cm. long by 0.61 mm. broad, the vagina near the anus, ? *oesophagostomum*; the other 1.1 cm. long, cylindroid, with a trilobed ribbed bursa and a mouth of an ankylostomoid type. These are in process of being definitely placed.

In one case admitted for acute enteritis and showing ankylostome ova, who died two days later, two large oval eggs were found measuring 125 microns. x 72 microns. The shell of one was clear like that of an *Ankylostome*, broader at each end and contained a light brown granular raspberry-like mass. The other was in a more advanced state and its internal formation gave promise of insect development. They were probably those of a mite as in one case with *Ankylostomiasis* and one of *Bilharzia* disease a mite was later found, possibly one of the *Sarcoptidæ* (? *Cytoleichus*) but I am without literature for close identification. They were 150 microns x 80 microns and 150 microns by 78 microns of regular oval shape except for the small conical head, the posterior pair of legs were well set back from the anterior ones and when the mite was viewed from above these were seen protruding. They will be followed up should further specimens present.

Recently, in two out of four samples being examined after treatment for hookworms, pin-worms were found. The native assistants had not previously been instructed to look for anything smaller than an *Ankylostome*. Doubtless they were missed in some former cases, as a few others have since been found. Their eggs have only been found once in all the cases examined here, which is at least partly explained by their low position in the alimentary tract and their probably being confined to a part only of the matter under examination.

A specimen of faeces from an early case of an Ankylostomiasis was laid aside on an island of filtre paper in a beaker on July 6th. The ova of *Necator* were still present on August 14th and live larvæ observed on November 20th. In this specimen *Spiroschandinia eurygysata* was found in large numbers and also, somewhat late, insect larvæ and numerous flagellates and ciliates (*Enteromonas*?, a balantidium-shaped flagellate organism, balantidia, and an elongate ciliate). These may have been introduced by a cockroach type of insect which forced its way into the beaker. They were not found in its intestinal contents however, though Ankylostome larvæ were, which would point to this and other foul-feeding insects in like manner being vehicles for the occasional dissemination of the disease.

A number of flies of a small hump-backed hairy species which I do not think could have gained entrance were found in the beaker several times. Specimens of these have been sent to England for identification. Full developments from the observation of this specimen are beyond the scope of these notes and may be dealt with elsewhere.

Bilharziasis Intestinalis.

In 1921 three cases of Bilharzia disease were found in this District. The first was an infection of *Schistosoma hæmatobium* (May). The patient had travelled in the Sudan where he probably contracted it as no other case has been found here. The second, caused by *Schistosoma mansoni*, was found on June 17th, and most probably became infected in Uganda, though he had visited Kenya Colony. The third also showed *S. mansoni* and had never been out of this District. As far as my information goes these were the first cases of Bilharziasis to be officially reported in Uganda though Castellani in 1902 found some lateral spined Bilharzia ova near Lake Victoria.

In June, July, and August, 1922, in examining 22 cases with abdominal complaints 21 showed Ankylostomes and four of these *S. mansoni* also, i.e., 18.18%. Dilution with water on the slide was used in most of these examinations. In October in an examination of 100 unselected adults for hookworms seven were found with *S. mansoni*. This is a large percentage but does not show the full incidence of this disease among the examinees as the finding of the ova in four cases in the original examinations was rather in the nature of an accident, the technique employed not being suitable for such heavy eggs, while three of the 51 prisoners comprised therein came shortly afterwards with abdominal complaints leading to their detection. The 49 porters included in the examination all returned to their homes at the end of the month. Probably all seven contracted the disease in this District. No children have yet been found infected.

Up to November 20th, ten cases (including three from the series of 100 examinations) have been admitted to the hospital. One was probably infected in the Congo, three in the Protectorate outside this District, one in the District or Protectorate and five in the District.

Three were treated by the method of rectal injection of tartar-emetic advocated by Wilson of Nyasaland. One received eight injections of 2, 4, 6, 8, and 10 grains, the others four injections of 5, 8, 10, and 12 grains. In all cases eggs were found two weeks later. The treatment was repeated in two of these, they being kept under observation for four hours after each injection to make certain it was retained. One still showed ova and the other has not been available for examination. The third, who was a very sick man, after an interval had some intravenous and intramuscular injections, returned to his home temporarily, still showing ova and is reported to have died there four or five weeks later. Both the others seemed to be much improved generally. One of these cases came with a very much enlarged liver and, as a diagnosis of Bilharziasis had not yet been established, he was given a course of six emetin injections of one-third grain each under which the hepatic condition disappeared. Of the remaining six cases one has not yet been treated, four had mixed intravenous and intramuscular and one only intramuscular injections (Castellani's injection of antimony potassium tartrate 8 grains, carbolic acid 10 m. and glycerine $\frac{3}{4}$ iii). In none of these cases has a full course of between 20 and 30 grains yet been given. The intramuscular injection caused serious pain and swelling at some point in the treatment in all cases, the results were disappointing and they have been abandoned.

Intravenous injections caused phlebitis on two occasions possibly because a too tightly bandaged pad impeded the circulation and allowed the irritant action of the drug to make itself felt on the vein, and on two the escape of a little of the solution into the subcutaneous tissue caused pain and swelling. Our syringes in the earlier

treatments were not suitable, however, and the small experience here points to this being undoubtedly the most satisfactory method. A few injections with a more suitable syringe given recently have been more satisfactory but I am inclined to think that a double barrelled syringe with a shut-off so that one could begin with saline solution until the vein was satisfactorily entered and then turn on the antimony solution, would give better satisfaction spread over a large number of treatments.

Two of these cases and one of last year's (3 in 12) came with typical dysenteric symptoms and showed *amoeba histolytica*. The acute symptoms rapidly cleared up under emetin. One already mentioned, who had a very much enlarged liver but did not show *amoeba* was given emetin with the result that this organ rapidly decreased in size so as not to be palpable. It was again tried recently in a case with a very much enlarged left lobe but with little effect so far. No experiment with this drug has been tried with respect to its reputed curative effect on Bilharziasis in large doses.

The usual picture associated with any but the early stages of this disease is one of considerable suffering and great disability. If its incidence, as is not improbable, is found to be as great in other parts of the Protectorate as it is here, economically it must be viewed with concern. Of the two cases admitted here last year one died a few days after the disease was recognised in a condition of great emaciation and the other of carcinoma of the liver. Of this year's ten admissions one, who came in a very serious condition with a much enlarged painful and tender ascending colon, had rectal treatment without success and then some intravenous and intramuscular injections. He went back to his home, did not return for examination and is reported to have died some five weeks later.

One of the cases at present in hospital who, after an incomplete course of antimony treatment, has not recently shown ova has a very much enlarged left lobe of the liver with enlarged abdominal veins and emaciation which may connote malignancy. In another recent case there is reason to connect several former severe attacks of Hæmoptysis, in the absence of any other apparent cause, with this disease.

The primary purpose of the observations contained in these notes is to draw attention to the presence of Ankylostomiasis and Bilharziasis in this Protectorate. Mr. B. Gopal, the Medical Assistant here, has taken much interest and has been of great assistance in the work generally.

R. E. McCONNELL,
District Medical Officer.

APPENDIX VII.

Plague Epidemic, Kampala, 1922.

Although two cases had been reported during May and June from just outside the township, no case occurred in the township until the end of August. On August 24th, a dead body was brought in by a native priest from the Catholic Mission mailo at Nsambya, and on examination it proved to be a case of plague. I was informed that the dead man had been working as a porter for one of the Fathers, but this proved incorrect, and it was not until the 29th August, after another case had been brought in moribund, subsequently found to be pneumonic plague, from the same place, that I ascertained that both these men had been working at a ginnery inside the township. Another death occurring, also a ginnery employee made it certain that here was the source of the trouble.

Together with the Factories Inspector, I visited the ginnery on the 30th, and ascertained, after a good deal of obstruction on the part of the owners that another six of their employees had been absent for some days. On enquiry I found that all had died. One man who had only just died was examined, and his death was found to be due to plague.

I therefore took it for granted that the other five were all plague cases. On August 30th I started a thorough inspection of the ginnery godowns and adjoining premises, and instituted rat drives.

On that day ten dead rats were found, five only being fresh enough to examine, and these were all plague-infected. Poison and traps were laid down. On the 31st five rats were killed in the premises and all proved plague-infected.

The ginnery and godowns were in a deplorable state, and were anything but rat-proof. I therefore closed the premises on September 1st, until such repairs as were necessary should be carried out, and also forbade any more cotton from being brought into the premises.

This second order being unheeded, action was taken under the Infectious Diseases (Townships No. 2) Rules, 1916.

Other ginneries in the township were informed and ordered to take all necessary precautions, and all Heads of Departments, and the Indian Association were written to, and prophylactic inoculation advised.

Compulsory inoculation was carried out when advisable, 4,332 being done during September in the township alone.

Only fully and three-quarter-pressed cotton was allowed to be kept in the township, and that only in rat-proof godowns, and inoculation was insisted on for Indians and natives leaving by steamer.

No further case occurred until September 6th, when I was called in by an Indian practitioner to see an Indian child living in the Bazaar. This was a plague case and died within a few hours.

During the month several more cases occurred in the Bazaar, including one Indian. This man and two others recovered under treatment.

On September 19th and 21st, two rats dead from plague were brought in from Port Bell, and on the 21st a pier porter died from plague. That afternoon, I visited and inoculated all the porters in the camp there, and all fishermen and others found on the pier: 112 in all.

The following day all prisoners and warders at the jail there were inoculated. Infected huts were burnt down.

A week later another death occurred there, this time, a pregnant woman who had run away the previous week, as she did not want to be inoculated. No further case occurred here during the year.

As a further precaution, during this month I stopped all rat-attracting material from being transported on the Kampala-Port Bell Railway, with the exception of fully-baled cotton, and, in cases certified by myself, hides.

Indian schools were closed down, as also was the Cinema. There was a good deal of trouble about the latter, as it meant a monetary loss. Unfortunately for the lessees, but I must say fortunately for me, the whole building was burnt down within a day or two of my closing it.

During October only two cases occurred in the township, one being an Indian. Dr. Cook sent down a case from Namirembe to my quarantine. All three cases recovered under treatment by Neokharsivan administered intravenously by Mr. Achhru Ram, Assistant Surgeon at the Civil Hospital, who has written a separate report *re* these cases.

At the end of this month, on the Factories Inspector's guarantee that all necessary repairs had been carried out satisfactorily at the infected ginnery, I sanctioned the re-opening, so as to allow the owners to remove their half-baled cotton from one of their outside ginneries where repairs were necessary, into their ginnery here.

Indian schools were re-opened, and merchandise, provided my permit was shown, was allowed to proceed by train to the Port.

No cases occurred during November, but plague-infected rats were found near and in the Railway goods sheds. I therefore again stopped transport on Railway of all except fully-baled cotton, and forbade any rat-attracting material from being stored in the Railway godowns.

In December, three cases with two deaths occurred. One plague-infected rat only was found.

The whole epidemic only accounted for 24 cases (Kampala 22, Port Bell 2) with 6 recoveries.

For the small number of cases occurring, I have to thank the good work done by my native plague inspectors and inoculators, several of them, especially the long service ones, having been of estimable help in ferreting out hidden cases, and in bringing to my notice any suspicious fatal illnesses occurring round about. As the average Indian and Native here have no scruples, but lie without shame if by so doing they can escape the inconvenience of being quarantined, or of having their premises disinfected or closed, the "detective" abilities of the above inspectors is invaluable.

In addition to the above, a plentiful supply of fresh vaccine, and with a few exceptions, whole hearted cooperation of all residents, official and non-official, in helping me to carry out measures necessary in my opinion to stop the spread of the disease, have been factors, in the absence of which, a very serious epidemic must have been the result.

My Sikh clerk, Mr. Sant Singh, was of great help in matters connected with the Indian community.

H. R. NEILSON,

Acting Chief Sanitation Officer.

APPENDIX VIII.

Treatment of Plague by Neokharsivan

Following the suggestion made by Mr. Ram Nansoor, M.B., B.S., in the *British Medical Journal* of July 22nd, 1922, during the last epidemic, four cases of Plague were treated by intravenous injections of Neokharsivan, and all made an uninterrupted recovery. In three cases treatment was commenced at an early stage, but in the fourth, it was not begun until the third day of the disease.

In three patients the enlarged glands were femoral, and in one axillary, and all showed *B. pestis* on microscopical examination.

The dosage was 0.6 gm. of Neokharsivan for an adult, and 0.4 gm. for a child of 12 years, and no more than one injection was given.

In each case the temperature of 104-105°, at once began to fall, coming to normal on the fourth or fifth day. In two cases bubos were formed and had to be incised, but in the other two the glands subsided without pus formation.

From such very limited experience, this method of treatment appears to compare favourably with that by intravenous iodine, as it avoids the sudden drop in temperature so frequently followed by collapse, and further does not require to be repeated.

CLAUDE H. MARSHALL,

Senior Medical Officer, Kampala.

ACHHRU RAM,

Assistant Surgeon, Kampala.

P.S.—Since writing our note on the treatment of Plague by intravenous Neokharsivan, we have been fortunate in obtaining three more cases of the Septicæmic form of the disease, which strongly support our previous results.

The first case was an Indian from the Kampala Bazaar, admitted to hospital within 24 hours from the onset of the illness, with a femoral bubo, temperature of 104°, diarrhoea and delirium. The gland smear was positive to *B. pestis*, and his finger blood was swarming with the organism, and continued to be positive until the sixth day of the disease.

The patient was violently delirious for seven days. The treatment adopted was as follows:—Two intravenous injections of Neokharsivan 0·6 gms. at an interval of 48 hours, 1 cc. of tincture of iodine injected into the bubo on the second day, and liq. adrenalin m. VII twice daily for three days until the diarrhoea stopped. Recovery was uninterrupted, except for the breaking down of the bubo.

Case 2 was a Native from the same building as the case above, he also was admitted early, with a temperature of 103°, delirium and diarrhoea. On admission *B. pestis* was not found in the peripheral blood, but on the morning of the second day, blood slides showed the organism to be present in considerable numbers, and did not give a negative result until the sixth day. There was no glandular inflammation, but profuse diarrhoea and vomiting, which however responded to liq. adrenalin by the mouth.

Treatment was on the same lines as the case quoted above, except for the injection of iodine into the bubo.

Recovery was complete on the fourteenth day.

The third case of a native woman did not give such a happy result, but she had been ill three days before coming into hospital, and was then collapsed with a temperature of 99·4°, gland smear and finger blood both being full of *B. pestis*.

She was given an intravenous injection of Neokharsivan, but died a few hours after admission.

CLAUDE H. MARSHALL,

Senior Medical Officer, Kampala.

ACHHRU RAM,

Assistant Surgeon, Kampala.

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