Annual report of the Medical and Sanitary Department / Sierra Leone.

SIERRA LEONE.

ANNUAL

MEDICAL AND SANITARY

REPORT

1928.

FREETOWN:
Printed at the Government Printing Office
SIERRA LEONE
—
1930.

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G.P. 1,804—500. 18/9/29.

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Drawn and Printed, Gold Coast Survey H.Q. Accra. 1928.

ANNUAL
MEDICAL AND SANITARY REPORT
FOR THE YEAR
1928.

I—Administration.

(a) ESTABLISHMENT, INCLUDING VACANCIES, ACTING APPOINTMENTS, AND PROMOTIONS.

Medical Staff.

1 Director of Medical and Sanitary Service.
1 Deputy Director of Sanitary Service.
1 Surgical Specialist.
1 Senior Sanitary Officer.
2 Senior Medical Officers.
1 Medical Officer of Health.
11 Medical Officers of the West African Medical Staff.
1 Lady Medical Officer.
8 African Medical Officers.

European Nursing Staff.

2 Senior Nursing Sisters.
4 Nursing Sisters.

Subordinate Medical and Sanitary Staff.

1 Sanitary Superintendent and Training Officer.
2 European Superintendent Sanitary Inspectors.
36 Dispensers.
1 Hospital Warden.
3 Store-keepers.
28 Male Nurses and Apprentices.
23 Female Nurses and Probationers.
2 Midwives.
3 Health Visitors.
33 Sanitary Inspectors and Learners.
1 Dispenser for Infant Welfare Clinic.
1 Head Attendant, Lunatic Asylum.
1 Assistant Head Attendant, Lunatic Asylum.
1 Matron, Lunatic Asylum.
3 Female Attendants, Lunatic Asylum.
12 Male Attendants, Lunatic Asylum.
1 Laboratory Assistant.
1 Public Vaccinator.

There are, in addition to above, cooks, stokers, gate-keepers, watchmen, labourers, hospital porters, carpenter, motor-ambulance driver, etc.

Clerical Staff.

There are eighteen clerks: 1 chief clerk, 2 second grade, 9 senior third grade and 6 junior third grade.

Temporary Assistance.

No necessity arose for temporary assistance during the year.

Principal Acting Appointments.

(*Substantive Holders are given in Table 1.*)

Dr. J. M. MacKay acted as Deputy Director of Sanitary Service from 29th August to 31st December.

Dr. J. D. Dimock acted as Medical Officer of Health from 18th April to 4th September and Dr. D. D. Barker from 5th September to 31st December.

New Appointments.

Dr. G. H. Gallagher, Medical Officer, Nigeria, was promoted Senior Medical Officer from 24th April to complete the establishment.

Dr. D. D. Barker was appointed Medical Officer and arrived in Freetown on the 24th March, *vice* Dr. M. Jackson, deceased.

Dr. W. Allan was appointed Medical Officer and arrived in Freetown on the 28th July as an additional Medical Officer for the Royal West African Frontier Force and Care and Maintenance Party of the Imperial Garrison.

Promotions.

Mr. S. G. Randall, First Grade Clerk, was promoted Chief Clerk from 1st January.

Mr. I. H. Wright, Assistant Chief Dispenser, was promoted Chief Dispenser from 1st August.

Mr. M. O. Frazer, First Class Dispenser, was promoted Assistant Chief Dispenser from 1st August.

Mr. P. Q. A. John, First Class Dispenser, was promoted Hospital Warden from 15th June.

Deaths.

Mr. C. E. King, Fourth Grade Sanitary Inspector, on the 22nd May.

Mr. E. A. Nicholson, Fourth Grade Sanitary Inspector, on the 4th June.

(*b*) LIST OF ORDINANCES, ETC., AFFECTING PUBLIC HEALTH ENACTED DURING THE YEAR.

Ordinance.

Freetown Improvement (Extension) (Amendment) Ordinance, No. 13 of 1928.

Orders in Council.

Sefadu Sanitary District Order in Council, No. 3 of 1928.

Kainkordu Sanitary District Order in Council, No. 4 of 1928.

Jaiama (Nimi Koro) Sanitary District Order in Council, No. 5 of 1928.

Jaiama (Nimi Yema) Sanitary District Order in Council, No. 6 of 1928.

Freetown Improvement Order in Council, No. 11 of 1928.

Panguma Sanitary District Order in Council, No. 16 of 1928.

Bandajuma Sanitary District Order in Council, No. 17 of 1928.

Special Sanitary Authority Order in Council, No. 27 of 1928.

(c) FINANCIAL.

The following table gives the revenue and expenditure* for the years 1927 and 1928 :—

Medical Revenue.	1927. £	s.	d.	1928. £	s.	d.
Connaught Hospital receipts	135	4	0	169	19	6
European Hospital receipts	572	6	6	596	17	6
Sundry receipts (out-patients' fees, etc.)	361	7	11	405	11	6
Druggist fees (registration)		—			—	
Maintenance of lunatics	149	9	7	143	6	8
Departmental fines	25	14	1	12	14	6
Total	£1,244	2	1	£1,328	9	8

Medical Expenditure.	1927. £	s.	d.	1928. £	s.	d.
Personal Emoluments	33,395	11	10	37,193	13	8
Other Charges	18,916	17	6	22,711	9	10
Total	£52,312	9	4	£59,905	3	6

Sanitary Revenue.	1927. £	s.	d.	1928. £	s.	d.
Sanitary services (contributions from Bonthe) ...	208	0	0	207	12	2
Maintenance of persons in quarantine		—			—	
Total	£208	0	0	£207	12	2

Sanitary Expenditure.	1927. £	s.	d.	1928. £	s.	d.
Personal Emoluments	8,615	5	9	9,640	13	5
Other Charges	13,255	6	0	14,789	7	11
Total	£21,870	11	9	£24,430	1	4

Ratios of combined Medical and Sanitary votes to total estimated revenue for the past five years :—

	£	
1924	67,725	1 : 10·6
1925	73,731	1 : 11
1926	78,916	1 : 11·7
1927	82,206	1 : 11·8
1928	88,365	1 : 11·07

* This sum is the expenditure controlled by the Director of Medical and Sanitary Service and does not include money spent by the Public Works Department on new buildings, sanitary works, etc.

ANALYSIS OF HOSPITAL EXPENDITURE FOR THE YEAR 1928.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Institution.	Total Number of Patients.	Daily Average Number of Patients.	Hospital Days.	Provisions from Store-keeper. Total.	Fresh Provisions. Total.	5 and 6 per Patient per Day.	Wines, Spirits, Minerals, Tobacco, Ice. Total.	8 per Patient per Day.	7 and 9 per Patient per Day.	Fuel, Light. Total.	Miscellaneous: Cleaning Materials, Hospital Equipment, Replacements.	Total of 5, 6, 8, 11 and 12.	5, 6, 8, 11 and 12 per Patient per Day.	Total Sum recoverable from Paying Patients.
				£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
European Hospital ...	163	4	1,526	89 5 4½	192 1 1	0 3 8¼	51 3 4	0 0 8	0 4 4¼	45 9 0	54 6 3½	432 5 0¾	0 5 7¾	596 17 6
Connaught Hospital	1,945	79	29,169	624 8 10	1,058 1 5½	0 1 1¾	30 1 1	0 0 0¾	0 1 2	148 5 10	62 12 4	1,923 9 6½	0 1 3¾	169 19 6
Lunatic Asylum ...	160	99·39	36,108	31 13 1	992 13 7	0 0 6¾	25 16 4	0 0 0¾	0 0 7	37 15 9	29 19 1	1,117 17 10	0 0 7½	143 6 8
Kissy Infirmaries ...	257	78·32	28,770	48 0 4	710 7 10	0 0 6¾	19 15 0	0 0 0¾	0 0 6½	50 6 5	19 0 6	847 10 6	0 0 7¼	Nil
Bonthe Hospital ...	496	22·71	8,495	42 11 11	323 9 11	0 0 10¼	6 10 4½	0 0 0¾	0 0 10½	18 13 7	12 8 1	403 13 10½	0 0 11¼	

II—Public Health.

(*a*) GENERAL REMARKS.

(i)—General Diseases.

The health of European officials was better than in the previous year. The average sick time per resident remained about the same, but the percentage of invaliding to average number resident fell from 6·40 to 3·21 and there was only one death as against three in 1927. In only one instance was invaliding obviously due to climatic conditions. The health of European non-officials appeared to be about average.

The invaliding rate for the past ten years is shown below :—

Year.	Average Number Resident.	Total Number of Invalidings.	Percentage of Invalidings to Average Resident.	Remarks.
1919	—	—	—	Records destroyed in hospital fire of 3rd February, 1920.
1920	133	10	7·51	
1921	144	15	10·41	
1922	109	5	4·58	
1923	102	14	13·72	
1924	164	13	7·92	
1925	180	5	2·77	
1926	184	6	3·26	
1927	250	16	6·40	
1928	280	9	3·21	

Forty-four cases of malaria were treated as in-patients and eighty-eight as out-patients as compared with forty-six and 107 for 1927.

The following table shows the relative position of malaria as a cause of time lost through sickness (Imperial troops excluded) during the past five years.

Year.	Average Number Resident.	Total Sick Days.	Total Days spent on Sick List for Malaria.	Total Days spent on Sick List for other Causes.	Percentage of Malaria Days to Total Days.	Number of Days lost through Malaria for Year per 100 Residents.
1924	164	1,382	446	936	32·27	271
1925	180	1,683	402	1,281	23·88	223
1926	184	1,575	487	1,088	30·92	264
1927	250	1,816	497	1,319	27·36	198
1928	280	2,024	626	1,398	30·92	223

The health of African officials was fair. The percentage of daily sick fell from 2·16 to 1·66, but there was a rise in the invaliding and death rates. There was no outbreak of epidemic disease and the general health of the community compared favourably with previous years. There has been a steady general increase in the number of patients seeking relief at the various hospitals and dispensaries.

The following table shows the total number of new cases treated :—

	1926.	1927.	1928.
IN-PATIENTS :			
European	132	149	157
African	3,345	3,544	3,535
OUT-PATIENTS :			
European	262	568	532
African	64,236	76,874	83,417
Total	67,975	81,135	87,641
DEATHS :			
European	9	6	3
African	265	244	278
Total	274	250	281
Percentage of deaths to total number treated ...	·40	·30	·32

Showing an increase of 6,506 in the total number of in-patients and new cases treated.

The subsequent attendances numbered 194,256, an increase of 25,494 on 1927.

The following table contrasts the incidence of the prevalent diseases during the past three years :—

	1926.	1927.	1928.
Smallpox	—	16	1
Chicken-pox	64	64	135
Dysentery	193	299	272
Influenza	55	21	165
Malaria:			
Tertian	136	318	1
Quartan	11	4	3
Aestivo-autumnal	240	4,549	5,240
Unclassified	3,362	—	—
Cachexia...	—	—	10
Blackwater	7	9	12
Whooping cough	102	92	84
Tuberculosis	172	156	97
Measles	6	12	52
Yaws	427	2,035	4,088
Pneumonia	102	179	263

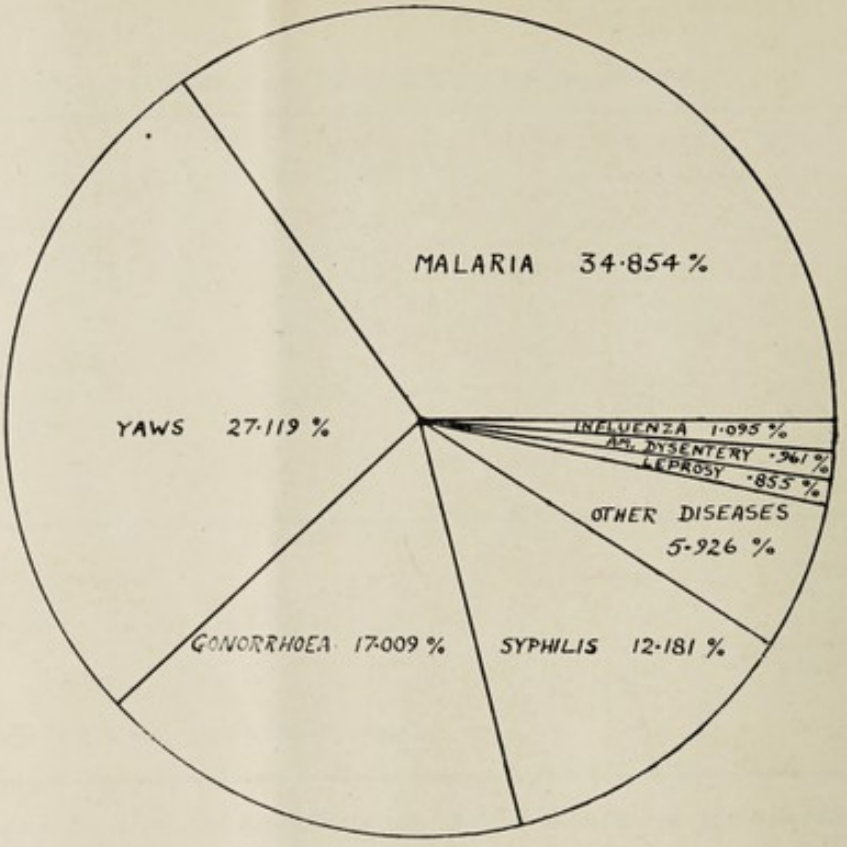
(ii) COMMUNICABLE DISEASES.

Malaria.—The total number of cases treated was 5,254 as against 4,968 in 1927. The reported deaths were five.

Blackwater Fever.—Twelve cases were reported during the year with five deaths as follows: one European Government official with one death; seven Syrians with three deaths; one West Indian Railway official and one African female child, both of whom recovered.

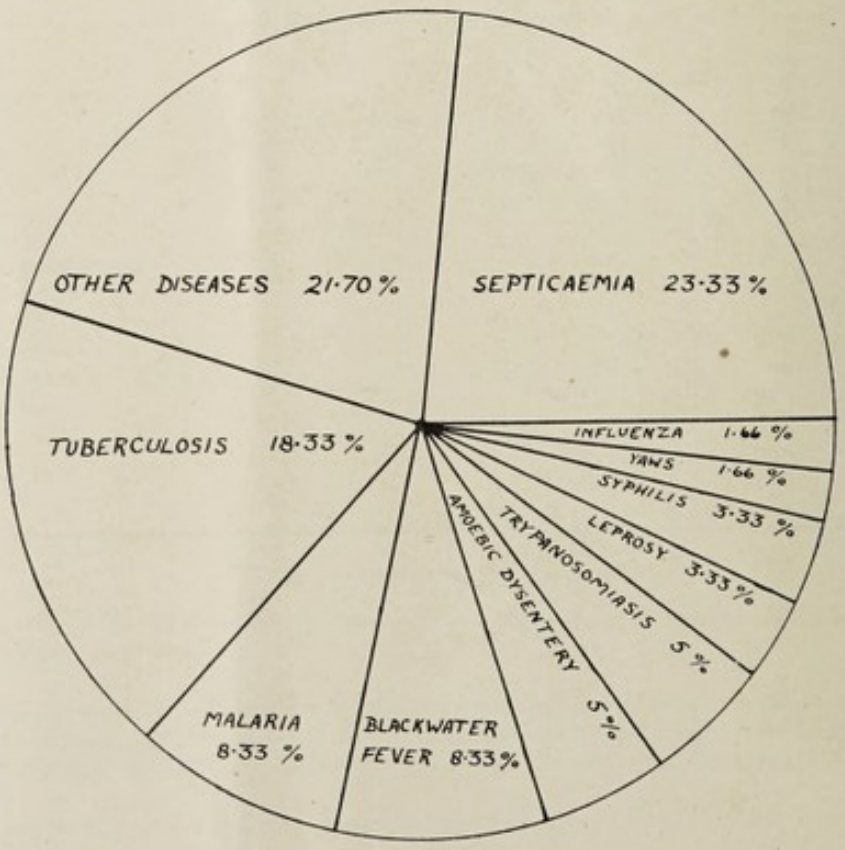
Trypanosomiasis.—Four cases were reported with three deaths.

Smallpox:—One case was reported at Bonthe, imported from Mattru in the Gbangbama District.



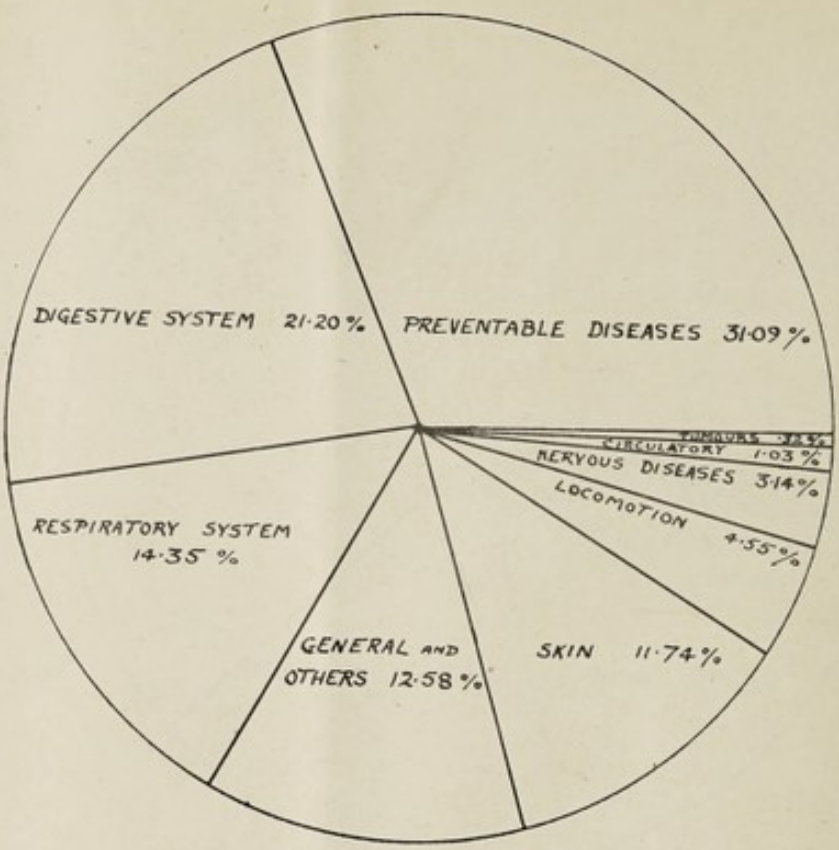
INFECTIVE DISEASES.

Total Incidence ... ... 15,074.



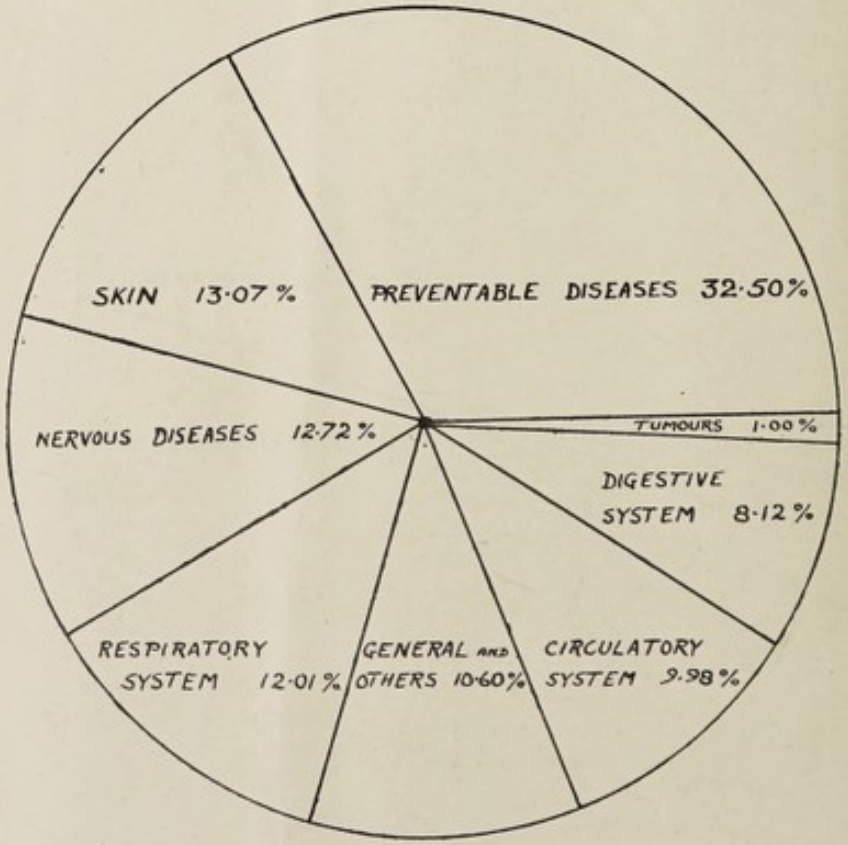
INFECTIVE DISEASES.

Total Deaths ... ... 60.



GENERAL SYSTEMIC AND PREVENTABLE DISEASES.

Total Incidence ... ... 87,848.



GENERAL SYSTEMIC AND PREVENTABLE DISEASES.

Total Deaths ... ... 283.

Chicken-pox:—A total of 135 cases was reported from all stations, outbreaks occurring at Kenema, Pujehun, and Kaiyima (Kono District).

Dysentery.—272 cases were reported, 145 amœbic and 127 unclassified or due to other causes, a slight reduction on the previous year.

Tuberculosis.—Ninety-seven cases were reported with eleven deaths, as compared with 156 and thirteen in 1927.

Venereal Diseases.—2,564 cases of gonorrhœa were treated as against 2,286 for 1927, an increase of 278. The figure for syphilis was 1,836 as compared with 2,116 for 1927.

TABLE OF INCIDENCE.

Disease.	1924.	1925.	1926.	1927.	1928.
Tuberculosis	131	194	172	156	97
Dysentery	481	191	193	299	272
Gonorrhœa	1,248	1,523	1,701	2,286	2,564
Syphilis	919	1,005	874	2,116	1,836

Influenza.—165 cases were treated in all stations. Mild outbreaks took place at Bo, NJala, Bonthe and Wilberforce Barracks.

Leprosy.—129 cases were reported as against eighty in 1927 and forty-three in 1926.

Ankylostomiasis.—A total of 149 cases was recorded at all hospitals and dispensaries.

Yaws.—Owing to the success of modern methods of treatment there was again a great increase in the number of cases attending the various hospitals and dispensaries—4,088 as compared with 2,035 in 1927 and 427 in 1926.

Paratyphoid.—One case of paratyphoid B. was treated at the European Hospital, Hill Station.

(*b*) VITAL STATISTICS.

(i) GENERAL POPULATION.

The 1921 census figures, which are the only ones available, are as follows.—

Colony and Protectorate	1,541,311
Colony	85,163
Colony excluding Freetown	41,021
Freetown	44,142

Owing to the fact that the last census was taken in 1921, there is probably a considerable error in the population figure. There is no means of correcting this as, owing to movement of population, methods of estimation employed elsewhere are quite inapplicable.

Registration.—Two new registration districts were added to the Protectorate list making a total of sixteen. The number of districts in the Colony remained the same, viz. seventeen.

The following table gives the birth, death and infant mortality rates in Freetown for the last five years:—

Year.	Population, 1921.	Births Registered.	Birth Rate.	Deaths Registered.	Death-rate.	Number of Deaths under Twelve Months.	Infant Mortality Rate.
1924	44,142	982	22·2	1,143	25·9	316	321
1925	,,	1,102	25·	1,124	25·5	321	291
1926	,,	1,047	24·	1,231	27·9	318	296
1927	,,	1,010	22·8	1,290	29·2	355	351
1928	,,	1,036	23·5	1,389	31·5	377	364

Owing to non-registration of many births, the "available" birth rate is undoubtedly much below the actual birth rate and for this reason the infantile mortality rate appears a good deal higher than it actually is. It will be seen, however, that there is a slight increase in the birth rate, but there is also a corresponding increase in the infant mortality rate.

This increase in the infant mortality rate may be due, in part, to the success and popularity of the infant welfare clinics, because a great number of infants are brought to Freetown from Colony villages to these clinics in a moribund condition and the deaths are registered in Freetown.

The increase in the number of deaths in Freetown is rather difficult to explain because there were no epidemics during the year, but it must be due to the undoubted increase in population due to immigration from the Protectorate.

The folowing table gives the deaths in Freetown under five years :—

Year.	Age—Period.	Number of Deaths.	Percentage of Total Deaths.
1927	0–1	355	27·1
	1–4	146	11·3
1928	0–1	377	27·1
	1–4	172	12·4

Table showing the deaths in Freetown at various ages up to twelve months with percentage of total deaths.

Year.	Under One Month.	1-3 Months.	Total Under Three Months.	3-6 Months.	6-12 Months.
1927	169 or 47·6 per cent.	44 or 12·4 per cent.	213 or 60 per cent.	56 or 15·8 per cent.	86 or 24·2 per cent.
1928	186 or 49·3 per cent.	62 or 16·4 per cent.	248 or 65·8 per cent.	42 or 11·1 per cent.	87 or 23 per cent.

Table showing births and deaths recorded at registration districts in the Colony :—

RETURN OF BIRTHS AND DEATHS, 1928.

DISTRICTS.	BIRTHS.			DEATHS.			DEATHS UNDER TWELVE MONTHS.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
Freetown	471	444	915	699	535	1,234	174	153	327
Cline Town ...	59	62	121	73	82	155	24	26	50
Regent	18	15	33	23	12	35	7	1	8
Wilberforce ...	39	27	66	50	35	85	11	11	22
Kissy	20	21	41	59	44	103	4	7	11
Tassoh Island ...	55	31	86	40	35	75	17	14	31
Murray Town ...	26	20	46	47	32	79	14	9	23
Wellington ...	7	12	19	15	16	31	3	4	7
Hamilton	9	13	22	18	14	32	4	5	9
Waterloo	133	116	249	82	101	183	19	19	38
Hastings	19	38	57	29	29	58	3	8	11
Kent	14	12	26	14	14	28	3	2	5
Tombo	31	23	54	36	27	63	10	6	16
York	19	20	39	20	23	43	3	4	7
Songo Town ...	63	50	113	56	55	111	20	15	35
Bananas	8	5	13	10	8	18	2	4	6
Sherbro Judicial ...	37	49	86	51	45	96	10	12	22
Total	1,028	958	1,986	1,322	1,107	2,429	328	300	628

(ii)—Health of European Officials (excluding Imperial Forces.)

Table showing Sick, Invaliding and Death-rates of European Officials.

——	1926.	1927.	1928.
Total number of officials resident	231	300	320
Average number resident	184	250	280
Total number on sick list	181	210	247
Total number of days on sick list	1,575	1,816	2,024
Average daily number on sick list	4·31	4·97	5·53
Percentage of daily sick to average number resident	2·34	1·98	1·97
Average number of days on sick list to each patient	8·70	8·64	8·19
Average sick time to each resident	8·55	7·26	7·22
Total number invalided	6	16	9
Percentage of invalidings to total residents ...	2·56	5·33	2·81
Percentage of invalidings to average number resident	3·26	6·40	3·21
Total number of deaths	1	3	1
Percentage of deaths to total residents ...	·42	1·00	·31
Percentage of deaths to average number resident	·54	1·20	·35

Causes of Invalidings and Deaths of European Officials.

Cause.	Invalided.	Died.
Neuritis	1	—
Hæmorrhoids	1	—
Neurasthenia	4	—
Pulmonary tuberculosis	1	—
Large varicose vein of left leg	1	—
Blackwater fever	—	1
Lamblia	1	—
Total	9	1

(iii)—Health of European Non-officials.

Table showing Sick, Invaliding and Death-rates of European Non-officials.

——	1927.	1928.
Total number of non-officials resident	369	380
Average number resident	299	301
Total number on sick list	40	51
Percentage of sick to average number resident	13·37	16·94
Average number of days on sick list to each patient ...	—	—
Average sick time to each resident	—	—
Total number invalided	16	14
Percentage of invalidings to total residents	4·32	3·68
Percentage of invalidings to average number resident ...	5·35	4·66
Total deaths	5	4
Percentage of deaths to total residents	1·35	1·05
Percentage of deaths to average number resident ...	1·67	1·32

Causes of Invaliding and Deaths of European ***Non-officials.***

Causes.	Invalided.	Died.
Duodenal ulcer	1	—
Pleurisy	1	—
Malaria	2	1
Mental disease	1	—
Cardiac affection	—	1
Blackwater fever	1	1
Rodent ulcer	1	—
Incipient tuberculosis	1	—
Paratyphoid B	1	—
Alcoholism	—	1
Tropical buboes	1	—
Anæmia and inguinal adenitis	1	—
Kidney trouble	1	—
Liver „	1	—
Anæmia	1	—
Total	14	4

(iv)—Health of African Officials.

Table showing the Sick, Invalidings, and Death-rates of African ***Officials.***

———	1926.	1927.	1928.
Total number of officials resident	1,200	1,200	1,265
Average number resident	1,000	1,000	1,050
Total number on sick list	950	933	967
Total days on sick list	5,375	7,919	6,415
Average daily number on sick list	14·72	21·69	17·52
Percentage of daily sick to average number resident	1·47	2·16	1·66
Average number of days on sick list to each patient	5·65	8·48	6·63
Average sick time to each resident	5·37	7·91	6·10
Total number invalided	6	20	25
Percentage of invalidings to total resident ...	·50	1·66	1·98
Percentage of invalidings to average number resident	·60	2·00	2·38
Total deaths	4	4	9
Percentage of deaths to total residents ...	·33	·33	·71
Percentage of deaths to average number resident	·40	·40	·85

Causes of Invalidings and Deaths of African Officials.

Causes.	Invalided.	Died.
Senility	2	1
Suppurating cyst of left side of neck	1	...
Arterio-sclerosis and cerebral thrombosis	1	...
Valvular disease of the heart and enlarged spleen ...	...	1
Arterio-sclerosis	1	...
Optic neuritis and amblyopia	1	...
Pulmonary tuberculosis	2	1
Arterio-sclerosis and rheumatism	1	...
Valvular disease of the heart	2	1
Chronic bronchitis	1	...
Hyperpiesis and cardiac decompensation	1	...
Carotid aneurism and aortitis	1	...
Amblyopia and paralysis agitans	1	...
Incipient cataract and arterio-sclerosis	1	...
Chronic bronchitis and myocardial degeneration ...	1	...
Chronic nephritis with cardiac hypertrophy ...	1	...
Cardiac hypertrophy, aortitis and arterio-sclerosis ...	1	...
Chronic rheumatism and arterio-sclerosis	1	...
Arterio sclerosis and debility	1	...
Paraplegia	1	...
Hæmaturia	1	...
Amnesia	1	...
Fracture of right wrist	1	...
Lobar pneumonia	...	1
Dysentery	...	1
Calculus, pyonephrosis	...	1
Cerebral œdema following injury to membranes ...	...	1
Pneumococcal septicæmia and meningitis	...	1
Total	25	9

TABLE SHOWING THE COMPARATIVE HEALTH OF AFRICAN OFFICIALS FOR THE LAST TEN YEARS.

Year.	Average Number of Officials.	Number on Sick List.	Number of Days off Duty through Sickness.	Average Sick Time to each Official.	Number Invalided.	Percentage of Invaliding to Average Number.	Total Deaths.	Percentage of Deaths to Average Number.
1919	Records	destroyed in hos	pital fire of 3rd	February, 1920.				
1920	750	1,862	5,742	7·60	23	3·06	9	1·20
1921	750	1,248	7,780	10·37	24	3·20	6	1·20
1922	750	1,071	7,887	10·38	7	0·93	6	0·80
1923	750	879	7,586	10·11	13	1·73	7	0·93
1924	900	1,009	8,920	9·91	18	2·00	5	0·55
1925	997	1,121	8,735	8·76	18	1·80	10	1·00
1926	1,000	950	5,375	5·37	6	0·60	4	0·40
1927	1,000	933	7,919	7·91	20	2·00	4	0·40
1928	1,050	967	6,415	6·10	25	2·38	9	0·85

(v)—Health of Troops and Police.

Royal West African Frontier Force (Non-European).

Average Strength of Battalion in 1928.	Total Number of Deaths.	Death-rate per 1,000.	Total Number of Men on Sick List.	Sick Rate per 1,000
325	2	6·15	555	1,707

Police.

Total Number of Men.	Total Number of Deaths.	Death-rate per 1,000.	Total Number of Men on Sick List.	Sick Rate per 1,000.
307	—	—	310	1,009

(vi)—Prisoners.

Freetown Prison.	1926.	1927.	1928.
Total number of prisoners admitted	1,140	762	755
Average strength	298	298	258
Total deaths	5	8	4
Total number of prisoners on sick list	288	176	141
Daily average number on sick list	7	8	5·15
Daily sick rate per 1,000 of average strength	23·48	26·97	19·96
Death-rate per 1,000 of average strength	16·77	26·85	15·50

Prison.	Daily Average Number in Custody in 1928.	Daily Sick Rate per 1,000 of Average Strength.	Death-rate per 1,000 of Average Strength.
Freetown	258	19·96	15·50
Batkanu	27	37·70	—
Moyamba	49	2	—
Kenema	57	26·70	17·54
Pujehun	14	71·42	71·42

III—Hygiene and Sanitation.

A—GENERAL REVIEW OF WORK DONE AND PROGRESS MADE.

1—Preventive Measures.

(*a*) *Insect-borne Diseases.*

Malaria.—In the Annual Report for 1927 a description was given of the anopheline breeding places in Freetown, the main breeding-places being found in the flat western area and along the courses of the various streams running through the town. The surface drains in the western area are mostly hewn out of solid laterite and no attempt was made to grade them properly when they were constructed. The result is that pools of water are found all along the course of these drains and during the rains the pools are overgrown with algous growths making ideal breeding-places for anophelines.

During the year under review approval was given for the provisional inclusion in the 1929 Estimates of a scheme for anti-malarial measures to be undertaken in this western area of the town. The area is approximately 50 acres in extent and comprises fifteen streets, all with exceedingly bad surface drainage. The scheme also entails canalization of about 500–600 yards of Sanders Brook which runs through the area.

The replacement of these laterite drains by modern concrete inverts is estimated to take about four to five years to complete, and it is hoped that a start will be made early in 1929.

When this drainage is completed, it will undoubtedly obliterate all anopheline breeding-places in the area and thus be of inestimable value in reducing malarial infection, particularly of children.

The main streams running through Freetown to empty into the sea are four in number,—Alligator Brook, Sanders Brook, Nichol's Brook and Moore's Brook with various tributaries. These brooks have their sources in the hills behind the town and pursue a very tortuous course through Freetown before emptying into the sea.

It will therefore be seen that permanent canalization of these streams will be a very large and expensive undertaking.

Temporary canalization is done at the end of each year, but this only lasts for some six months, when the heavy rains wash away the work. Again it becomes increasingly difficult each year to get material for this temporary canalization, boulders, stones, rubble, etc.

The problem of permanent canalization will have to be faced some day, but, so far, the financial condition of the Colony has not permitted of such a huge undertaking.

Routine anti-malaria measures are carried out all the year round, both in Freetown and in the various Protectorate stations.

Trypanosomiasis.—During the year two cases of trypanosomiasis were discovered at Aberdeen village. In one patient, a female, trypanosomes were found in the lymphatic glands and in the other, a male, trypanosomes were found in the peripheral blood. Steps were immediately taken to commence clearing of trees, bush and undergrowth in Aberdeen and its vicinity, in other to drive and keep back the tsetse fly from the village.

Dr. Gordon of the Sir Alfred Jones Laboratory was requested to undertake a survey of Aberdeen village and its vicinity with a view to—

(a) carrying out a thorough medical examination of as many of the inhabitants of Aberdeen as possible

(b) examining the cattle, sheep and goats available

(c) investigating the proportion of fly existing in the cleared and uncleared areas and what proportion of infected flies existed in the same areas.

This work was carried out by Dr. Gordon and Dr. Aidin between June and September and the Report, with a map of the area and several photographs, is shown as Appendix C.

Dr. Gordon's recommendations as to clearing were carried out during the year and Areas III and IV were cleared. Clearing was still going on in Area II to the end of the year.

A game drive was organized during November, but in spite of the fact that over 200 beaters were employed only one deer was seen and that escaped.

The game must have taken shelter in the dense bush at the summit of Aberdeen Hill where it was quite impossible to get at them, for, undoubtedly, there is plenty of game in the vicinity of the village. It is hoped that another survey will be undertaken during 1929 in order to ascertain whether fly are breeding on the completely cleared area and to examine a larger proportion of the inhabitants of Aberdeen for the presence of trypanosomes. A furthur game drive will also be held and domestic stock re-examined.

Yellow Fever.—There was no case of yellow fever reported during the year.

The measures taken against insect-borne disease in Freetown are extracted from the Medical Officer of Health's report and summarized as follows :—

House to House Inspection.—134,408 compounds were inspected during the year and 555 breeding-places of mosquitos were discovered therein. The occupiers of the compounds were summoned. 501 were fined, nine cases were dismissed and 45 persons were cautioned and discharged. The fines resulting from these prosecutions amounted to £124 8*s.* 6*d.*

4,532 notices were served for the cleaning of insanitary compounds. In 74 cases the notice was not complied with and the occupiers were summoned. 52 persons were fined, 7 were cautioned and discharged and 15 were withdrawn. Fines in this connexion amounted to £13.

2,516 notices were served for the cleaning and repair of cesspits. 221 owners or occupiers were summoned for non-compliance. 171 were fined, 15 were cautioned and discharged and 35 cases were withdrawn. Fines amounted to £42 17*s.* 6*d.*

There were 14 convictions for other offences, the fines imposed amounting to £4 15*s.*

Oiling.—75,482 pools and gutters were oiled by sanitary inspectors and oiling gangs. The gangs worked from 1st June to 30th November. Breeding places found in rock pools were either chipped or filled. During the dry season the gutters leading from public standpipes were regularly swept and oiled.

Trees Inspection.—From the 1st June to 30th November four tree inspection gangs were employed. 18,461 trees were inspected and 176 holes were found containing water in which were mosquito larvæ. All holes capable of containing water were either chipped or filled with a mixture of sand, cement and tar. It has been found that this mixture does not set hard and become brittle and may be knocked out with a mallet in later years to conform to the shape of the hole.

Mosquito Larvæ Index.—A mosquito larvæ index was taken at the end of each quarter, 350 compounds being inspected on each occasion. The results were as follows :—

First quarter	·003
Second „	·03
Third „	Nil
Fourth „	1·3

Cesspools.—Many cesspools in Freetown tap the sub-soil water for the greater part of the year, while others are watery for only two or three months. All watery cesspits are oiled weekly by the Inspector in whose area they are situated and during the dry season they are disinfected. 7,568 cesspits were oiled during the year.

Canalization of Streams.—The rains had stopped sufficiently by the end of November for canalization to commence early in December. Four streams—Alligator Brook, Sanders Brook, Nichol's Brook and Moore's Brook were channelled and the work was completed at the end of the year.

Inspection of Boats and Canoes.—A weekly inspection of all boats and canoes on the foreshore for larvæ was carried on throughout the year. All those found to contain water were oiled.

Number of boats and canoes inspected	3,775
Number in which mosquito larvæ were found ...	10

(*b*) *Epidemic Diseases.*

Plague.—No case was reported during the year.

55,948 rats were brought to the department during the year and destroyed.

The system of buying rats at one penny each has been continued. Periodical examinations of rats were made at the Connaught Hospital but no evidence of plague infection was found.

Smallpox.—No case of smallpox was reported in Freetown during the year. One case was found at Bonthe, which had been imported from Mattru, Gbangbama District.

The following table shows the vaccinations performed in the Colony and Protectorate.

Place.	Total Number Vaccinated.	Successful.	Unsuccessful.	Not seen.
Freetown	3,441	2,060	586	795
Kent	69	62	7	—
Regent	79	63	14	2
York	—	—	—	—
Waterloo	221	177	21	23
Batkanu	158	110	46	2
Kenema	420	292	93	35
Njala	702	554	21	127
Panguma	222	175	18	29
Pendembu, Segbwema and Daru ...	617	408	149	60
Sembehun	193	126	29	38
Sumbuya	522	328	80	114
Bo	560	345	112	103
Bonthe	252	162	26	64
Makeni	1,260	691	236	333
Moyamba	1,113	661	288	164
Port Loko	1,105	707	160	238
Pujehun	1,137	598	330	209
Kabala	480	144	36	300
Kaiyima	705	376	215	114
Mano Salija	234	166	65	3
Kissy	—	—	—	—
Kailahun	248	104	22	122
Goderich	215	108	55	52
Total	13,953	8,417	2,609	2,927

It will be seen, therefore, from the above totals that, out of 11,026 vaccinations inspected, over 76 per cent. were successful.

Dysentery.—No cases of bacillary dysentery were reported. Again there was an increase in the number of cases of amœbic dysentery treated, 145, as compared with 110 during 1927.

The Enteric Group.—One case of paratyphoid B was admitted to the European Hospital.

Tuberculosis.—There was a considerable decrease in the number of cases reported, the decrease amounting to nearly 35 per cent. There were eleven deaths as compared with thirteen in 1927 and twenty-seven in 1926.

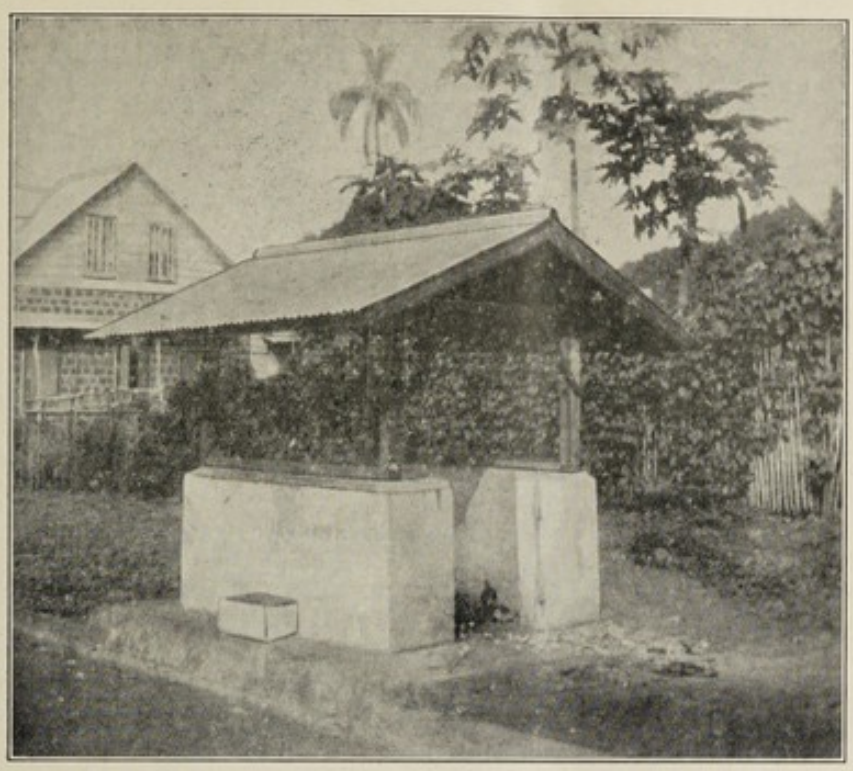
When a case is notified the house is visited by the Medical Officer of Health or one of his staff, disinfection is carried out and advice is given to parents and relatives.

Leprosy.—129 cases were under treatment during the year, as against eighty during 1927 and forty-three during 1926.

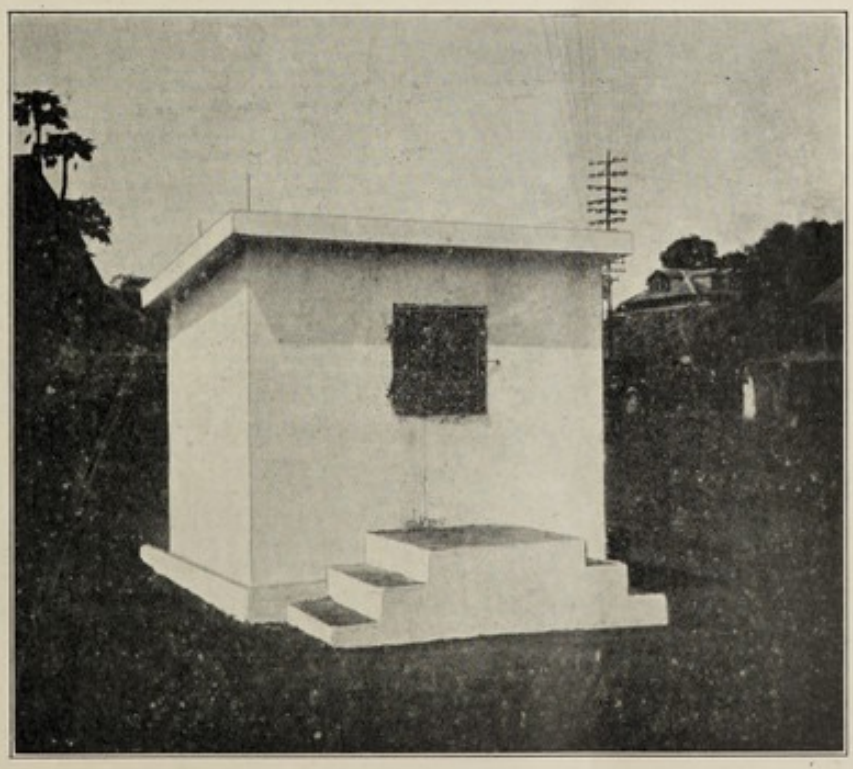
News is gradually spreading that modern methods of treatment are successful and patients are coming forward in larger numbers to benefit by this treatment.

During the year Professor Blacklock completed a survey of diseases in the Northern Province of the Protectorate. He reported that 183 cases of leprosy were seen, the age and sex incidence of the disease being as follows:—

Age-period.	Males.	Females.
0–10	5	3
11–20	20	8
21–30	31	39
31–40	22	28
41–50	11	10
51–60	1	3
Over 60	—	2



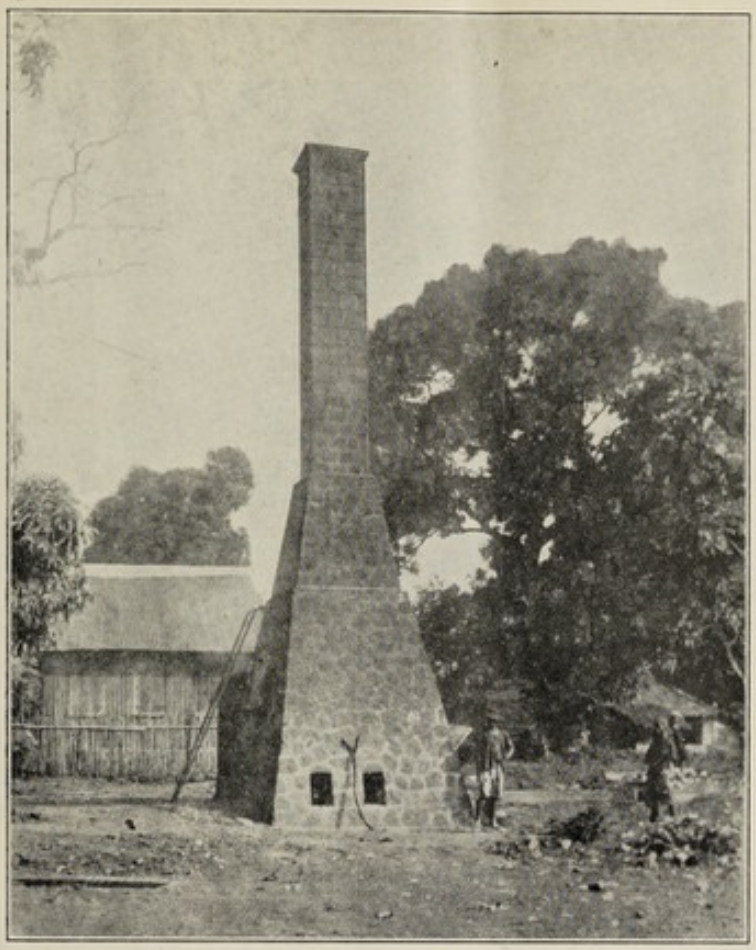
OLD TYPE PUBLIC DUST-BIN.



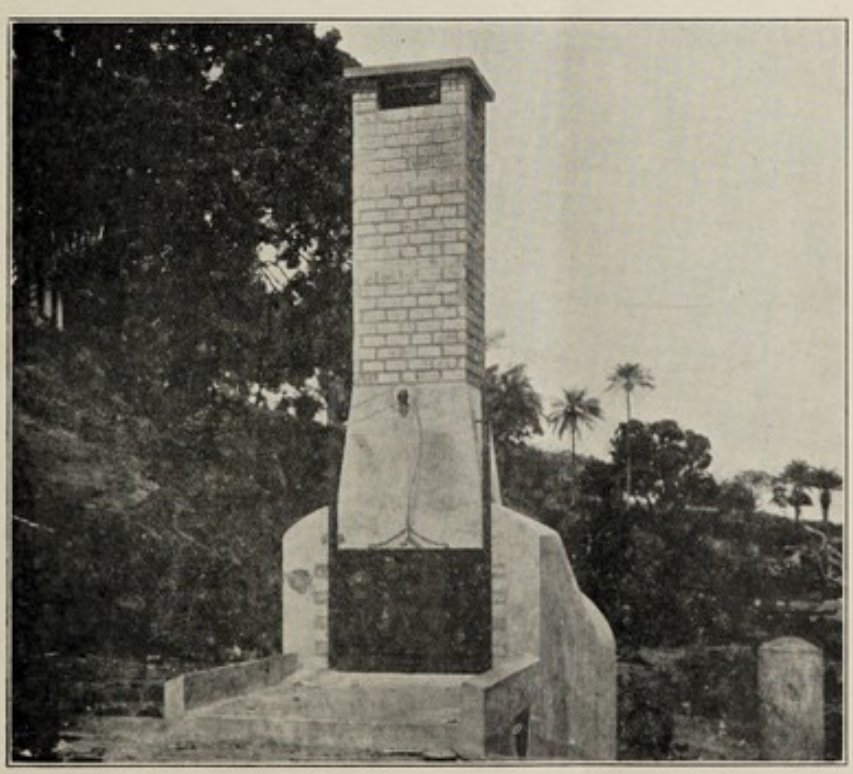
NEW TYPE RAT-PROOF PUBLIC DUST-BIN.

COLLECTION OF REFUSE BY ANIMAL TRANSPORT (OBSOLETE).

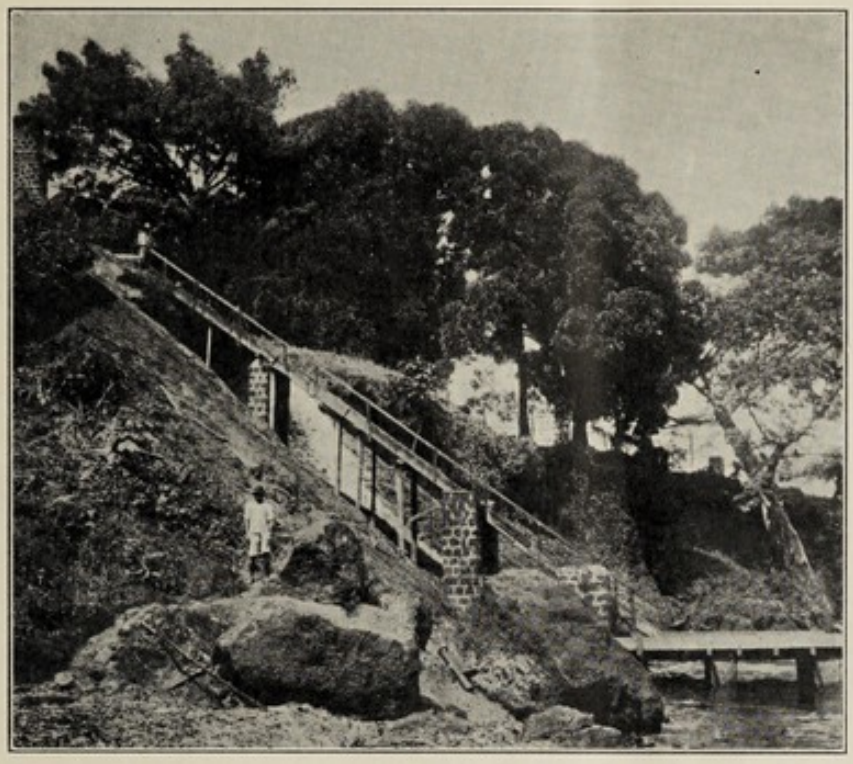
FLEET OF LORRIES NOW USED FOR COLLECTION OF REFUSE.



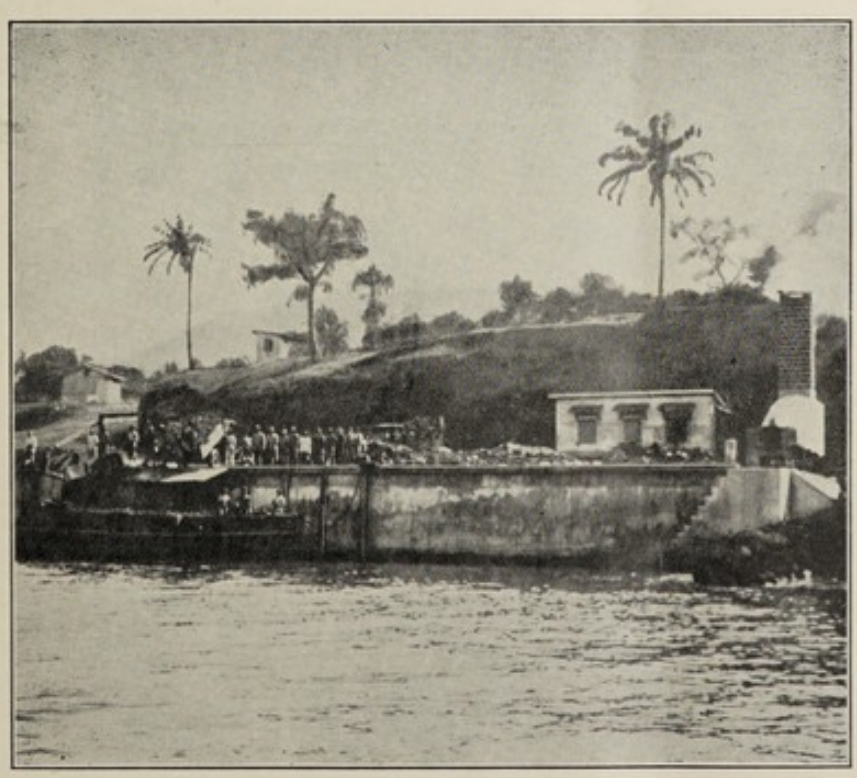
TYPE OF INCINERATOR FORMERLY USED.



NEW TYPE DRYING-HEARTH INCINERATOR.
(LORRIES DISCHARGED ON TO PLATFORM
IN FRONT OF FEEDING DOOR.)



OLD REFUSE CHUTE (NOW DEMOLISHED).



NEW REFUSE DISPOSAL WHARF SHOWING INCINERATOR.
AND LORRY UNLOADING REFUSE INTO LIGHTER.

CANOE TAKING TINS AND BOTTLES TO SEA (OBSOLETE).

TUG "VULTURE" TOWING LOADED LIGHTERS TO SEA.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Up to the present information as to the prevalence of leprosy in Sierra Leone has been limited, but, in view of Professor Blacklock's report, it must now be considered to be a disease of great importance involving a problem which will have to be dealt with.

As Professor Blacklock says in his report—"although it would be premature to endeavour to assess the total amount of leprosy existing, it is clear that the number of lepers must be very large."

Cerebro-spinal Fever.—Two cases of cerebro-spinal fever with one death were notified from Musumbu near Makeni. The last time this disease was reported in Sierra Leone was a single case from Pujehun in 1923.

(c) *Helminthic Diseases.*

Tænia Saginata.—Two hundred and thirty cases were treated during the year.

Ankylostomiasis.—Ankylostomiasis is exceedingly common throughout the Protectorate, but the infection does not, as a rule, give rise to severe symptoms.

Schistosomiasis (*S. Hæmatobium*).—Sixty-nine cases in all were reported from the Protectorate, mostly from the Kono District, and a few from Bo School.

Anti-physopsis measures continue to be undertaken in the chief towns in the Kono District and progress in this direction was satisfactory.

2—General Measures of Sanitation.

Sewage Disposal.—The methods of sewage disposal remain the same as described in the Annual Report for 1927.

Two new public latrines were erected during the year, the pail system being used in each case.

Scavenging and Refuse Disposal.—As in 1927, household refuse is deposited in public dust-bins, which are emptied daily by means of motor-lorries. The refuse is dumped at the Refuse Disposal Wharf at the east end of the town and thence conveyed by tug and lighters to a point out at sea, where there is no likelihood of it being washed ashore.

The readily combustible refuse is first incinerated in a large new "drying-hearth" incinerator which deals with 1–2 tons at one filling.

The new tug "Vulture" and two hopper lighters were put into commission early in the year and the scheme has worked smoothly and well. 10,327 lorry loads of refuse, including tins and bottles, etc., were taken to the disposal wharf and 499 lighter loads were dumped out at sea at a spot chosen by the Harbour-master.

The erection of a second new incinerator with drying hearth and lined with fire brick was commenced during the last quarter of the year and it is hoped that it will be ready for use early in 1929. This incinerator will deal with 5–6 tons of refuse at one filling.

Eighteen new type rat-proof refuse bins were erected during the year, bringing the total up to thirty.

It is proposed to continue the erection of these refuse bins until all the old ones are replaced.

A series of photographs will be found in the report illustrating the old and new methods of refuse collection and disposal.

Drainage.—The following drainage work was carried out in Freetown by the Public Health Engineer :—

(1) New Concrete Drains.—Fourah Bay Road to Kennedy Street to Savage Square, Lower Walpole Street, eastern side.

Wilberforce Street to Westmoreland Street to Water Street.

Oxford Street to Percival Street to Waterloo Street.

Little East Street including 14-inch culverts.

Oxford Street to Charlotte Street to George Street, with 18-inch culverts.

The outfall drains at Upper Waterloo Street and Nichol's Brook were extended.

(2) Reconstruction of Drains.—Bombay Street Market drain with egg-shaped culverts.

Wilberforce Street with 18-inch culverts. Replacement of concrete inverts with glazed earthernware at Oxford Street, Water Street, Kissy Road, Joaque Bridge and at Portuguese Town Spring.

The underground drainage at Walpole Street and Oxford Street was obliterated.

(3) Minor Repairs and Alteratons.—Adalaide Street, Howe Street, Hagan Street, Priscilla Street, Soldier Street, Dundas Street, Campbell Street, Bathurst Street, Dillet Street, Upper Brook Street, Magazine Street, Fort Thornton Road, Pademba Road, Kissy Road and Water Street.

(4) The following earth gutters were regraded—Wellington Street, Pademba Road, James Street, Circular Road and Regent Road. Alligator Brook at King Tom Bridge was regraded.

Other Sanitary Improvements.—A fly-proof meat storage room was erected adjoining the Slaughterhouse. This structure is extremely well designed and well built and meets a long felt want.

Two new public latrines were erected one on Government Wharf and the other at Horton Street.

The old outfall of Sander's Brook running into Kru Bay was filled in. This abates a long standing nuisance.

Hill Station Sanitation.

Hill Station was maintained in the same excellent sanitary condition as in previous years. The areas under grass were cleared five times during the year.

Water Supply.—The water supply continues to be good and the erection of the new 280,000-gallon storage reservoir was completed very early in the year. It is hoped that this new storage accommodation will obviate the usual dry season shortage of water.

Conservancy.—The same method as last year was in use—contents of latrine buckets being emptied into an "Otway" pit, which method continues to be extremely satisfactory.

Anti-Mosquito Measures.—All drains and ditches were kept free from stagnant water and all mosquito breeding-places in trees and rock pools which were found were dealt with by chipping or filling in with the cement, tar and sand mixture.

The following samples of mosquito larvæ were discovered:—

Anopheles—one in the base of the stump of a tree.

Culex—46–31 in tins and bottles, 9 in trees and 6 in rock pools.

Stegomyia—47–33 in tins and bottles, 7 in trees and 7 in rock pools.

Disposal of Refuse.—All combustible refuse was incinerated and incombustible refuse, such as tins and bottles, was removed by lorry to Freetown for disposal at sea.

Clearing of bush and undergrowth.—During the year a belt of thick bush about twenty yards wide surrounding Governor's Lodge was cleared and a belt twenty yards wide and about 200 yards long opposite the bungalows at Hill Cot was similarly dealt with.

Sanitation of Military Areas.

On 1st September the Sanitary Department took over the sanitation of the Imperial Government military areas comprising Tower Hill Barracks, Murray Town Battery area, Signal Hill, King Tom Cemetery and Wilberforce Barracks. An African Fifth Grade Sanitary Inspector was placed in charge of Tower Hill, Murray Town and Signal Hill and in addition an European Superintendent Sanitary Inspector visited once a week.

Wilberforce Barracks was in charge of the Medical Officer attached to the R. W. A. F. F. and in addition the Hill Station Fifth Grade Sanitary Inspector visited twice weekly.

The Medical Officer reports as follows for the period 1st September to 31st December:—

During this period the barracks were in an excellent state of sanitation. A sanitary gang—consisting of ten men under one headman—was provided by the Sanitary Department. Their work consisted of disposing of rubbish in and around barracks, and in keeping the drains clear of all débris.

A latrine gang of the same strength was also employed. Latrine buckets were removed nightly, and excreta disposed of by means of a pit situated on the Freetown side of the barracks. This pit is an Otway pit. It is roofed in and has a fly trap at one end.

One aspect of the bucket system is worthy of mention, and that is the apparent inability of the natives to use them properly. This is probably due to the fact that most of the natives are from the bush and have not yet accustomed themselves to the use of buckets. It is most noticeable among the women of the barracks—who prefer to squat on the concrete floor of the latrine rather than use the buckets. So far the latrine gang has been able to cope with the nuisance so caused, but it entails a considerable amount of extra labour. Strict measures are being taken by the Military authorities, and doubtless the natives will adapt themselves to the system in time.

An Inspector from the Sanitary Department visits the barracks twice a week, and inspects all around the Officers' and B.N.C.Os'. quarters in addition to the native lines.

The swimming pool has been periodically inspected for mosquito larvæ, but none have ever been found, which is rather strange—for although there is a constant flow of water to and from the pool, in the corners of the bath the water is more or less stationary, and should provide excellent breeding places.

Vaccination is carried out on the recruits every two or three months, all the regular soldiers having already been done.

On the whole the sanitation is very satisfactory.

Water Supplies.

The Superintendent of the Freetown Waterworks reports as follows :—

All sections of work were efficiently maintained during the year.

Public Stand-Posts.—Two public stand-posts were erected during the year—one at Dougan Street and the other at Blackhall Road.

New Mains.—About 430 yards of 4-inch C. I. Mains with six fire hydrants were laid along Priscilla Street and about 100 yards along Wellington Street during the year.

Private Services.—Nineteen private services and two Government services were laid during the year. There were at the end of 1928 416 private services with 829 taps in connexion with the Waterworks and eighty-two Government services with about 410 taps.

Consumption.—The total quantity of water consumed during the year was 166,664,000 gallons, of which 4,539,000 gallons were supplied to shipping; 7,069,000 were supplied for trade and other non-domestic purposes and 155,056,000 for domestic consumption.

The maximum daily consumption was 610,000 gallons on the 16th of May and the minimum 261,000 gallons on the 4th of September.

There was a shortage of water from the 24th to the 30th April, during which period the supply to the town was restricted.

Pumping Operations.—Pumping operations were carried on for thirty-four days :—from the 23rd March to the 3rd May and on the 16th and 17th May exclusive of Sundays.

In the Protectorate, the following works in connexion with water supplies were done :—

Installation of a hydraulic ram and erection of storage tanks at Kambia.

Construction of a well at Sembehun.

Commencement of erection of nine water storage tanks at Makeni.

Offensive Trades.

There is nothing to add to the description of offensive trades given in the Annual Report for 1927. All tan-yards and dyeing-yards were periodically inspected during the year.

3—School Hygiene.

The Report of the School Medical Officer will be found as Appendix G (*a*).

The total number of school children examined during the year was 1,194—646 in Freetown and the Colony and 324 in the Protectorate.

It is gratifying to note that there has been a definite improvement in the health of the school children this year and that teachers have shown an increasing interest in health matters.

The usual School Essay Competition in Hygiene was held during Health Week in December. Nine urban schools and five rural schools entered for the competition and the School Medical Officer reported that the standard of knowledge shown by the competitors was, on the whole, good.

There were three classes, class one for children between the ages of ten and twelve in primary schools, class two for children of twelve to fourteen years in primary schools, class three (a) for children of fourteen to sixteen years in primary schools and (b) for children of fourteen to sixteen years in secondary schools.

Prizes were awarded by Government for the best Essays.

Demonstrations were also given to school teachers during Health Week on subjects of health interest.

The Deputy Director of Sanitary Service gave a series of lectures on hygiene at Njala to teachers in Protectorate schools and the Senior Sanitary Officer a similar series at the Model School to teachers in the elementary schools in Freetown and the Colony.

Towards the end of the year the School Medical Officer, on her return from leave, gave bi-weekly lectures to the students in the Men's and Women's Teachers' Training Colleges. This course was supplemented by practical demonstrations given by the staff of the Medical Officer of Health.

The Committee, consisting of the Director of Education, the Deputy Director of Sanitary Service, and the School Medical Officer, which was appointed during 1927 to consider and advise upon school health, school sanitation, and the teaching of hygiene in schools, sat at the beginning of the year and submitted recommendations which will be found as Appendix G (*b*).

Since these recommendations have been published, the teaching of hygiene has been put on a proper basis, special attention being paid to the duties of teachers in connexion with the health of the school child and the cleanliness and general sanitation of school buildings and offices.

It was found impossible to open a School Clinic during 1928, but a scheme is in process of preparation and it is hoped to establish the clinic during 1929. This scheme, of course, includes the keeping of physical records and medical history sheets.

All school buildings are inspected regularly and a few have been reconstructed to conform with the recommendations of the Committee.

Approval was given to include in the 1929 Estimates a sum sufficient to enable the Sanitary Department to deal with the conservancy of the amalgamated schools, and during 1929 it is hoped to establish a standard type of latrine to be adopted by all schools having inadequate accommodation.

4—Labour Conditions.

As was stated in the Annual Report for 1927, the only labour that requires special supervision at present from a health point of view is that employed on ships for the working of cargo at the various ports on the Coast.

During the year 24,947 deck labourers, mostly Krumen, but with a sprinkling of Mendis, were engaged by the various shipping companies at Freetown. These labourers were carefully examined by the Port Health Officer after discharge at Freetown on completion of the voyage in order to prevent importation of infectious disease and to ascertain their general health condition.

No case of infectious disease was discovered amongst them, but in a few instances some of the labourers had baths at the Wharf Disinfecting Station, and their clothing was dealt with by the Washington-Lyon steam disinfector.

The general health also of the labourers was excellent on the whole. Some few years ago, it was quite common to find cases of beri-beri amongst deck labourers, particularly on ships which had spent some months down the Coast. During the last two or three years, however, owing to the correction and supplementing of the diet cases of this disease have been rare.

5—Housing and Town Planning.

In the Annual Report for 1927 the main provisions of the Freetown Improvement (Amendment) Ordinance were given. This Ordinance has been strictly enforced since it was passed in April, 1926, and already there are signs of improvement.

By the Freetown Improvement (Extension) (Amendment) Ordinance, 1928, power was obtained to fix or make provision for fixing the building line in certain streets and roads in the First Urban Area.

By Order in Council No. 27 of 1928 the Governor in Council by virtue of the power vested in him under the Public Health (Protectorate) Ordinance, 1926, appointed Special Sanitary Authorities for various sanitary districts.

6—Food in Relation to Health and Disease.

Sanitary inspectors attended daily at the slaughterhouse in Freetown for inspection of meat and in the Protectorate in stations where there is a medical officer or sanitary inspector, meat was also inspected regularly.

During the year 2,977 bullocks, 827 sheep and 4 pigs were slaughtered in the public slaughterhouses. A few quarters of beef infected with cysticercus bovis were seized by the department and destroyed by order of the Police Magistrate.

Inspections of the stocks of foodstuffs held by the commerical firms were carried out periodically and some cases of biscuits and various cases of tinned foodstuffs were seized and destroyed.

All bake-houses and public markets in the town were inspected regularly as well as cattle-yards and grazing grounds.

Eight cases of anthrax were discovered in cattle, each case being confirmed bacteriologically. Four cases were found within a week in one herd, the herd being isolated and thorough disinfection of the cattle-yard carried out. No more cases occurred.

Soda Water.—One soda water factory was closed during the year, that under the control of the Military Authorities at Tower Hill. This left one run by the Freetown Cold Storage Company, which continues to be managed satisfactorily.

B—MEASURES TAKEN TO SPREAD THE KNOWLEDGE OF HYGIENE AND SANITATION.

As already stated under "School Hygiene," the Deputy Director of Sanitary Service gave a series of lectures to Protectorate teachers at Njala and the Senior Sanitary Officer a similar series to teachers in Freetown.

The School Medical Officer gave a series to the students at Wilberforce and Fura Bay Teachers' Training Colleges.

The courses in Freetown were supplemented by practical demonstrations.

A very successful Health Week was held from the 16th to 22nd December. The programme was as follows :—

(1) Sunday, 16th December, was observed as Health Sunday and special sermons were preached in the majority of Churches.

(2) Leaflets dealing with various health subjects were widely distributed during the week and posters were displayed throughout Freetown and the Colony villages. The subjects dealt with were—Venereal Disease, Consumption, Rats and Plague, Vaccination and Smallpox, Mosquitos, Infant Welfare.

(3) A School Essay Competition was organized by the School Medical Officer. Particulars will be found under "School Hygiene."

(4) A series of demonstrations for school teachers was given during the week by the Medical Officer of Health and his staff.

(5) A Mother Craft and Baby Competition was held throughout the week, preliminary judging being held from the 17th to 21st December and the final judging on the 22nd at the Victoria Park.

Entries were very large and exceeded those of 1927. Prizes were given by Government. A full account of the conditions of this competition was given in Appendix D of the 1927 Annual Report.

C—TRAINING OF SANITARY PERSONNEL.

Mr. G. V. Herd, Sanitary Superintendent and Training Officer, gave a series of lectures and demonstrations to sanitary inspectors and learners on the lines laid down in the syllabus given in the 1926 Annual Report.

One sanitary learner was promoted Fifth Grade Sanitary Inspector during the year and four fifth grade inspectors underwent a course for promotion to the fourth grade.

It is hoped that, by the end of 1929, the only fourth grade inspector at present in the department will be able to sit the examination of the Royal Sanitary Institute for Sanitary Inspectors in West Africa.

D—RECOMMENDATIONS FOR FUTURE WORK.

(1) A further increase year by year in the staff of African sanitary inspectors for service in the Protectorate.

(2) Continuation of surface drainage of Freetown and permanent canalization of the streams running through the City.

(3) Provision for leper settlements for the Colony and Protectorate. These are necessary to cope with the increased number of lepers coming forward for treatment.

As regards the recommendations for future work suggested in the 1927 report, all these recommendations are being carried out.

(1) An increase of two sanitary learners was provisionally approved for inclusion in the 1929 Estimates.

(2) The Governor in Council, by virtue of the powers vested in him by the Public Health (Protectorate) Ordinance, 1926, appointed Special Sanitary Authorities for various Protectorate towns.

(3) The improvement in lay out of growing Protectorate towns will naturally follow (2).

(4) Authority was given for the inclusion of the following water supplies in the 1929 Estimates:—

(*a*) Port Loko, ram supply to D. C's quarters.

(*b*) Sumbuya, ram supply.

(*c*) Sefadu.

(*d*) Kailahun.

(*e*) Bo.

(5) The continuation of surface drainage in Freetown has proceeded slowly but surely (*vide* 2—General Measures of Sanitation—Drainage) and authority has been given for inclusion in the 1929 Estimates of a scheme for anti-malarial drainage in the western area of the City.

J. M. MACKAY,
Acting Deputy Director of Sanitary Service.

IV—Port Health Work and Administration.

At no time during the year was Freetown in quarantine.

Ports both north and south of Freetown were infected practically throughout the year and all ships entering the harbour from ports other than those within the Colony were boarded by the Port Health Officer.

During the year there were 445 entries from the north, 437 from the south and 172 from Colony ports, the latter comprising motor-launches and cutters.

Special attention was paid to the health of deck labourers, and all passengers landing from infected ports were kept under surveillance. 24,947 deck labourers and 1,937 deck passengers were inspected by the Port Health Officer during the year.

V—Maternity and Child Welfare.

Maternity and Child Welfare work continues to make progress as will be seen from the reports of Drs. Blacklock and Wright which appear as Appendices E. and F.

There were 311 patients admitted to the maternity ward of the Connaught Hospital, 190 being labour cases and 121 complicated pregnancies, and 92 admitted to the Princess Christian Mission Hospital.

Ante-natal clinics were held as usual at the Infant Welfare Centre at Campbell Street and at the Princess Christian Mission Hospital. There were 1,831 attendances at the former and 851 at the latter.

Dr. Wright, in his report on the Campbell Street Centre, Appendix E, points out that there were 302 expectant mothers on the Register, which is a good proportion of the number of births registered in Freetown during the year, namely, 907. These figures are most encouraging.

The three Infant Welfare centres at the Princess Christian Mission Hospital, Connaught Hospital, and Campbell Street continue to do excellent work and it is gratifying to record a steady increase in the number of aboriginal children attending all three centres. Unfortunately the aboriginal mothers seem to be still reluctant to enter hospital for their labours.

VI—Hospitals, Dispensaries and Venereal Clinics.

Connaught Hospital.

The accommodation for in-patients at the Connaught Hospital was again overtaxed, but this will be relieved in 1929 when a new ward block containing two wards of fourteen beds each, and four cubicles for better class patients will be opened.

In addition, a children's ward of eight beds and two cubicles will also be provided.

The new administrative offices, out-patient block, and medical store were brought into use early in the year.

The total number of admissions during the year was 1,945 with 156 deaths as compared with 2,046 with 146 deaths in 1927.

The prevailing diseases were as usual malaria, chest complaints, ulcers, injuries, yaws intestinal parasites, and those of the digestive system.

The work of the surgical clinic started in 1927 has steadily increased and over 400 major operations were performed durinig the year.

A full report by Mr. Quintin Stewart appears as Appendix A, page 68. Notes of cases appear in Section IX.

In last year's Report the Surgical Specialist referred to the need for a house surgeon. A newly appointed African Medical Officer, Dr. Margai, was appointed in this capacity towards the end of the year for a period of three months and other junior officers will be so employed when circumstances permit. To the African Medical Officer especially, whose opportunities for resident posts in England are very limited, such experience will be of great value.

The total in-patients and maternity in-patients for the past ten years are given in the following table :—

Year.	Total In-patients.	Maternity In patients.	
1919	1,477	93	
1920	602	133	(Hospital burnt—temporary hospital of one male ward and four maternity beds).
1921	737	142	(New hospital opened—four wards in January including maternity ward of eleven beds. Two more wards in August.)
1922	1,282	169	
1923	1,557	200	
1924	1,862	263	
1925	1,860	214	
1926	1,867	251	
1927	2,046	301	
1928	1,945	311	

Out-patients at the Connaught Hospital during the last ten years have been as follows :—

——	1919.	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.
New cases	Records destroyed in hospital fire, 3rd February, 1920	8,152	5,654	10,573	11,335	10,955	14,106	13,834	14,780	13,864
Subsequent attendances	—	13,270	16,209	10,443	36,985	38,475	22,335	32,176	34,780	47,040
Total ...	—	21,422	21,863	21,016	48,320	49,430	36,441	46,010	49,560	60,904

European Hospital.

No structural alterations or additions were made.

Ninety non-officials and seventy-three officials were treated during the year.

Eight operations were performed by the Surgical Specialist.

Forty-four cases of malaria were treated of whom twenty were Government officials. There was one case of paratyphoid B.

Deaths.—There were two deaths, one from blackwater fever and one from broncho-pneumonia.

	Admissions.	Deaths.
Government officials	73	1
Non-officials (including eight ladies)	90	1
Total	163	2

A new Protectorate type hospital was built at Makeni and will be opened early in 1929. It is well situated on a slight eminence surrounded on three sides by the town.

A new dispensary was completed at Kambia (Northern Province) and opened in August. It is a well-built stone house with iron roof, containing accommodation both for dispensary and dispenser's quarters.

A new dispensary of native construction, built by the Chief, was also opened at Bauya, the railway junction in the Protectorate.

A report on the work of the Venereal Clinic in Freetown appears as Appendix H page 97.

Hospitals and Dispensaries.

Table showing the total number of new cases treated at all hospitals and dispensaries during the past ten years :—

Years.	1919.	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.
Patients ...	44,698	51,287	48,270	51,689	50,260	53,270	64,752	67,975	81,135	87,641

VII—Prisons and Asylums.

KISSY LUNATIC ASYLUM.

Staff.—Medical Officer-in-charge
First Class Dispenser
Chief Attendant
Assistant Chief Attendant
12 male attendants
Matron
3 female attendants
1 cook
4 porters.

The following table gives the statistical details of patients during the year :—

	Males.	Females.	Total
Remaining 31st December, 1927	57	38	95
Admitted during 1928	52	13	65
Discharged after observation (1 to 3 weeks)	21	5	26
Discharged cured	2	2	4
Certified as lunatics	25	8	33
Deaths among certified	14	1	15
„ „ uncertified (under observation)	6	1	7
Absconded	1	—	1
Remaining 31st December, 1928	64	42	106

The health of the inmates was fairly good and there was no outbreak of infectious disease during the year. The number of deaths was fifteen as against eleven for 1927; but all were due to natural causes.

The inmates are employed as far as possible in gardening and mat-making for males and laundry-work and house cleaning, etc., for females.

No mechanical restraint was used during the year. A certain number of cases have to sleep in single rooms, being too noisy and quarrelsome to sleep in the wards. Other cases with recurrent attacks of mania have had to be confined in single rooms for several days at a time. The numbers so confined during the year have been—males thirty-five, females twenty-seven; a total of sixty-two. One patient (male) had to be forcibly fed for several days.

Visits of inspection were made by His Excellency the Governor, the Honourable Colonial Secretary and the Visiting Committee during the year.

REPORT ON THE FREETOWN PRISON FOR THE YEAR 1928.

Dr. Alexander was Medical Officer-in-charge throughout the year.

Health of Prison Officers.

European.—Good.

African.—Good. Twenty-nine reported sick. Six were admitted to Connaught Hospital, one was invalided from the service on account of carotid aneurysm.

Health of Prisoners.

The general health of the prisoners, including those transferred to the Cape Sanitary Station, was good. The number of admissions to hospital was 139 as against 73 during the preceding year.

The daily average number on the sick list was 5·15 on a daily average strength of 258, a rate of 20·1 per 1,000; and the number of deaths was 4, a rate of 15·5 per 1,000. In no case was a prisoner released because death was thought to be impending.

The chief diseases treated were malaria, venereal diseases, skin complaints, helminthic infections and minor injuries.

No epidemic occurred.

Infectious Diseases.

Amœbic Dysentery.—Three cases were treated, the parasite being discovered during routine examination of fæces.

Chicken-pox.—Two cases, one male and one female.

Measles.—One case.

Leprosy.—One case showing advanced anæsthetic lesions. These healed satisfactorily under treatment with Alepol.

Schistosomiasis.—Three cases: cured by means of sodium antimony tartrate.

Beri-beri.—None.

Visit.—His Excellency the Governor, Sir Samuel Wilson and Dr Stanton.

A statistical return is attached.

FREETOWN PRISON.

Statistical Return for the Year 1928.

In hospital at the end of December, 1928 2

	March Quarter.	June Quarter.	September. Quarter.	December Quarter.	Total.
Admitted	24	42	30	43	139
Cured	13	29	11	25	78
Relieved	9	7	15	14	45
Unrelieved	2	3	3	4	12
Died	—	3	1	—	4
Remaining in hospital at end of 1928	—	—	—	—	9
Under observation and treatment ...	5	—	10	3	18

Causes of deaths, confirmed by post-mortem examination :

(1) Pulmonary and abdominal tuberculosis.

(2) Lobar pneumonia and meningitis.

(3) Lobar pneumonia, delayed resolution and heart failure.

(4) Chronic nephritis and myocardial degeneration.

Out-patients.

	New Cases.	Subsequent Attendances.
March quarter	172	1,731
June quarter	153	1,707
September quarter	171	1,790
December quarter	146	1,056
Total	642	6,284

Vaccinations 219 ; successful 150.

Minor operations 17.

Average weight of prisoners 132·5 lb.

Daily average strength : male 256, female 2.

——	New-comers Examined.	Remands and Trials Examined.	Solitary Confinement	Corporal Punishment.	Execution.
March quarter ...	209	27	66	1	2
June quarter	195	37	42	1	1
September quarter ...	146	14	50	—	—
December quarter ...	149	29	58	—	—
Total ...	699	107	216	2	3

GEORGE L. ALEXANDER,
Medical Officer.

VIII—Meteorology.

The rainfall for the year for Freetown, 148·54 inches, was slightly below the average for the period 1882–1921, viz. 152·47 inches, but slightly above the average for the period 1882–1927 which was 145·69 inches.

August had the heaviest rainfall with 37·50 inches and the maximum fall in one day was 5·32 inches on the 2nd September.

Hill Station recorded 191·64 inches for the year, the month of heaviest rainfall being August with 49·07 inches and the maximum fall on one day being 6·33 inches on the 3rd September. 6·32 inches fell on the 1st October.

Records of temperature, humidity, and rainfall at various stations in the Colony and Protectorate will be found in Table IV.

IX—Scientific.

(*a*) Connaught Hospital Laboratory Report.

During the year 1,928 specimens were received for examination.

(1) *Blood Films.*

	European.	African.
Total examined	108	421
Plasmodium falciparum	36	117
Plasmodium vivax	1	4
Plasmodium malariæ	—	—
Trypanosoma gambiense	—	1
Microfilaria bancrofti	—	1

(2) *Fæces.*

Total examined	37	462
Ankylostoma ova	1	122
Ascaris ova	4	62
Tæniidæ ova	2	16
Trichiuris ova	—	25
Oxyuris	1	1
Strongyloides larvæ	—	10
Entamœba histolytica	2	22
Entamœba coli	1	9

(3) *Sputa.*

Total examined	9	99
Tubercle bacilli present	2	26

(4) Two hundred and fifty-four specimens of urine were examined.
Ova of Schistosoma hæmatobium were found in six cases.

(5) Bacillus anthracis was found in six of seven films of cows' blood submitted.

(6) Nineteen of thirty-six Kahn tests for syphilis, etc, were positive.

(7) Smears from suspected cases of venereal diseases	108
Gonococci present in	47
Spirochæta pallida in	5
(8) Smears from suspected cases of leprosy	25
Bacillus lepræ present in	8

Sixty-five post-mortem examinations were performed :

(*a*) Accidental deaths	15
Burns	2
Cerebral concussion and contusion	3
Suicidal hanging	1
Asphyxia (in a professional driver)	1
Multiple injuries (motor-car accident)	1
Decapitation (by railway train)	1
Poisoning (by liquor epispasticus)	1
Cerebral abscess (following decompression for perforating injury of skull)	1
Ruptured spleen	1
Drowning	1
Murder (stab in right axilla)	1
Electric shock	1
(*b*) Death from disease	50
Convulsion	1
Mania	9
Myocardial degeneration (death under spinal anæsthetic)	1
Myocardial degeneration (chronic alcoholism)	2
Ruptured aortic aneurysm	2
Lobar pneumonia and complications	13
Broncho-pneumonia	2
Pulmonary tuberculosis	2
Chronic bronchitis and emphysema	1
Volvulus of intestine	3
Strangulated inguinal hernia	1
Ulcerative colitis	1
Perforation of dysenteric ulcer	1
Gastro-enteritis	3
Malaria	1
Trypanosomiasis	1
Beri-beri	1
Abscess	1
Toxæmia following massive helminthic infection	1
Septicæmia	1
Chronic nephritis	1
Uræmia following chronid cystitis and prostatic hypertrophy	1

In this small series

(1) No case of malignant disease occurred.

(2) No stones were found in gall-bladder, kidney or urinary bladder.

(3) No healed tubercular lesion of lung was found.

(4) Dense pleural adhesions were common.

(5) Virulent and complicated pneumo-coccal infections were frequent.

(6) No macroscopic lesion of the brain was found in lunatics dying at Kissy Asylum.

(10) 229 specimens of fæces were received from Freetown Prison.

Ankylostoma ova were found in	69
Ascaris	41
Trichiuris	14
Tæniidæ	13
Strongyloides	9
Oxyuris	1
Entamœba histolytica	6
Entamœba coli	3

(11) The formation of a small museum for the purpose of illustrating the elementary lectures in medicine was commenced. Owing to the difficulty in obtaining permission to hold a post-mortem examination in ordinary cases, the building up of an adequate collection must be a slow process.

G. L. ALEXANDER,
Medical Officer-in-charge of Laboratory.

(*b*) Notes on Surgical Cases

BY

Q. STEWART, F.R.C.S. (Edin.), *Surgical Specialist.*

1. Carcinoma of the Uterine Cervix.

A married woman, a native of Liberia, twenty-seven years of age, came complaining of pain in the lower abdomen and bleeding from the vagina. These symptoms had been present for some ten months, and had become progressively worse so that she was in a weak state from sleeplessness and loss of blood.

There had been no children but an abortion two years previously.

On examination of the patient loss of flesh was apparent and anæmia marked. Palpation of the lower abdomen gave rise to pain especially prominent in the left iliac region.

On vaginal examination most of the cervix seemed to have disappeared and the remainder was occupied by an ulcerating growth which was extending on to the left fornix, the ulcer had a hard base with a friable edge and bled readily on handling. The surrounding tissues especially in the left fornix were felt to be infiltrated by growth.

Under an anæsthetic a portion of the ulcer margin was removed for section, and a further examination undertaken which disclosed the fact that the condition was quite inoperable.

The section report stated that squamous celled carcinoma of the cervix was present.

2. Adenocarcinoma of the Ileo Cæcal Region.

A Sierra Leonean policeman aged forty-four was referred to me with a tentative diagnosis of tumour of the right kidney.

He complained of a lump in his abdomen, of abdominal pain, and of some difficulty with micturition.

The history he gave was that although previously a healthy man he had begun ten months ago to suffer from an intermittent pain in the abdomen accompanied by vomiting. He said that when these attacks were on he was troubled with constipation and difficulty in passing water. Six months ago he noticed a lump in his abdomen and he affirmed that this lump became bigger at times and that on these occasions he had difficulty in passing water.

Recently he had been losing weight.

On palpation of the abdomem a hard irregular tumour could be felt in the right lumbar region; it had a fairly wide range of movement; on one occasion it was dull to percussion and on another resonant. It was in the position of and felt very like a hydronephrotic kidney, a diagnosis to which some of the symptoms lent themselves. The case occurred shortly after my arrival in Freetown and X-rays and a cystoscope had not yet materialized. I was now faced with the problem of whether to explore the kidney or to open the abdomen, unfortunately I chose the former and discovered an apparently normal kidney, the tumour being situated anteriorly in the abdominal cavity.

The patient refused further operation at this time and did not return till a year later when the umour was much more prominent and the symptoms more severe.

At the second operation on the 27th of October, 1928, under spinal anæsthesia, a growth involving the ileo-cæcal region of the bowel was discovered. Adhesions having been separated and the cæcum mobilized the portion of bowel involved was resected and the ileum anastomosed to the transverse colon by the lateral method. No evidence of dissemination was discovered in the abdomen. Convalescence was placid and the patient has been very well since—the prognosis is of course bad.

On naked eye examination, the resected mass presented the appearance of an irregular globe with projecting bosses—it varied in consistence, the bosses being softer than the remainder. The ileum could be seen entering at one point and the cæcum leaving at another. The mucus membrane was almost completely replaced by ulceration and growth and the lumen much restricted. The main mass of the tumour was made up of lobules composed of a soft friable light yellow substance intersected by white bands; at another places, especially where it encroached on bowel, the new tissue was white, hard, and homogeneous in nature.

Sections showed "the presence of an adenocarcinoma arising from the deeper cells of the intestinal glands and presenting a rather solid alveolar character. There is in part of the tumour considerable gelatinous (colloid) degeneration."

3. Foreign Body in the Bladder.

A man twenty-seven years of age belonging to Freetown consulted me on account of pain on passing water and the appearance of blood at the end of micturition.

From the history he gave I gathered that he had undergone in a neighbouring colony two months previously an internal urethrotomy for stricture.

I passed a bougie and discovered that it grated against some body in the bladder.

A suprapubic cystostomy was thereupon performed and a fine gum elastic bougie covered in parts with phosphatic deposit removed from the bladder—the patient said that he had no idea how it got there!

4. Gastric Ulcer.

This case seems worthy of record as it is the first of its kind I have seen in West Africa.

The patient was a Liberian woman thirty-two years of age. She complained that she had been subject to abdominal pain, eructations, and vomiting for ten months, and that these symptoms had been followed four months later by loss of weight and amenorrhœa.

In taking her history the following facts were elicited: she had come to Freetown from Liberia a year ago, and had been accustomed to eat a lot of tinned food. The pain which was located in the epigastrium had no definite relation to the taking of food, but she usually vomited about one hour after meals.

On examining her she was found to be poorly nourished and had evidently lost weight. She retched up from time to time a quantity of clear fluid.

The upper abdomen where stenosis noises could be heard was slightly distended. A very marked peristaltic wave, apparently arising in the stomach, was to be seen every now and again passing over the abdomen above the umbilicus from left to right. It was evident that pyloric obstruction was present so on the 27th of February, 1928, the abdomen was opened by a paramedian epigastric incision. The stomach was found to be much dilated, and there was a slightly raised area measuring 2½ in. by 1½ in. on the external surface just proximal to the pylorus and implicating the anterior wall and lesser curvature; this area was paler than the rest of the stomach and on palpation was felt to be thick, irregular and hard. A few small hard glands were palpable along the lesser curvature and below the pyloric region. No signs of

secondary growth were discovered in the abdomen. A partial gastric resection was performed by Moynihan's modification of the Polya method, about half the stomach being removed and the remainder anastomosed to the jejunum. The anæsthetic used was spinal stovaine with pre-administration of morphia atropine and hyoscine—it was necessary to add chloroform for the second hour as the spinal which had up till then been excellent began to pass off. Owing to our lack of practice in such procedures, the operation took two and a quarter hours, but the patient left the table in good condition. Convalescence was uneventful. I saw her ten months later, she was looking very fit and said that she had no further trouble.

On naked eye examination the specimen showed a large irregular punched out ulcer with rolled over hard edges which were raised into small papillomatous masses in places. The pylorus had evidently been encroached upon by the surrounding inflammation and also probably reflexly contracted. The appearance of the ulcer gave rise to suspicions of malignant change, but the section report said that chronic ulcer was present with no evidence of tubercle or malignancy.

5. A Cystic Neuroma of the Internal Popliteal Nerve.

A Sierra Leone woman forty-two years of age was admitted complaining of a swelling on the back of her thigh of four years duration. She gave the history of a rheumatic-like pain being present in the area before any swelling appeared.

On examination a smooth rounded tumour was found on the posterior aspect of the distal third of the left thigh. It measured six inches by four inches and was movable in the transverse but not in the long axis of the limb. It was somewhat tender on handling and felt tense.

In the other thigh at a similar spot was a small swelling which came and went, it was easily seen and could be felt as an irregular elongated mass, then on slight movement of the leg it disappeared and could not be felt. It was possibly a small variety of the condition present on the opposite thigh.

At the operation on the left thigh a cystic neuroma of the internal popliteal nerve was discovered, situated deep to the muscles. The external popliteal nerve which was flattened out on its surface required to be dissected off.

It was considered inadmissible to resect the neuroma as the internal popliteal nerve fibres were spread out and apparently incorporated in the wall, so after evacuation of solid jelly-like material which had become liquefied in parts the cyst was invaginated and the walls stitched together.

No disability resulted. This was probably a false neuroma arising from a myxomatous overgrowth of the nerve sheath ; it had become cystic as a result of degeneration or of a hæmorrhage into it.

6. Incurable Vesico Vaginal Fistula.

A Kroo woman aged thirty-six was sent to me with a large vesico-vaginal fistula resulting from child-birth. It was situated high up and obviously any operation from below would have been little likely to result in cure so the repair was attempted by the abdominal route. The operation proved formidable owing to hæmorrhage obscuring the area and to the depth of working ; after separation of bladder and vagina which were bound together by scar tissue, large openings remained in each, these were separately closed with some difficulty, peritoneum stripped off the uterus being interposed. A self-retaining catheter was left in the bladder. Urine began to appear from the vagina a week later and eventually the fistula re-established after small sloughs had come away. I was not enthusiastic about trying again especially as I had just read in one of the journals that only some thirty per cent. of vesico-vaginal fistulæ operated on in India were cured. The only alternative was to transplant the ureters into the colon and this was done in two stages by Coffey's original method (recently he has published a modified technic which requires a trained assistant and special ureteral catheters)[1].

Convalescence was smooth after the transplantations which were done at an interval of a fortnight.

The patient left hospital seventeen days later, at this time she had no incontinence whatever and was holding the urine well in the rectum—only voiding three times daily.

She returned a month later looking very well but complaining of some frequency. She was readmitted to hospital and was found to be passing urine four times daily and three times at night. After two days in hospital she left at her own request to return to Liberia, thus making a follow up difficult. Judging from statistics the procedure of transplanting the ureters appears to be justified in otherwise incurable cases, certainly the immediate result is an immense improvement on complete incontinence of urine.

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[1].Coffey Surgery Gynecology and Obstetrics 1928, XLVII, 593-621.

7. *A Case for Diagnosis.*

A Sierra Leone woman aged forty-one complained of swelling of her abdomen which, beginning five years previously and gradually increasing in size in the interval, had been accompanied for the latter two years by loss of weight and for the last year by irregular and painful menstruation. There had been no children and no miscarriages.

On examination the abdomen was seen to be almost uniformly enlarged to half as much again as a full time pregnancy. A fluid thrill was present.

The diagnosis made was ovarian cyst. At operation a paramedian incision was used and when what was supposed to be the abdominal cavity was opened fluid gushed out; this fluid was dirty yellow and contained shining particles which gave it an opalescent appearance, forty pints were finally evacuated. It was then seen that what had been opened was not the peritoneal cavity but a cyst the thin wall of which was closely attached to the anterior and upper walls of the abdominal cavity and to the various organs posteriorly. The abdomen at first seemed to be empty and it was only on further inspection that small masses here and there behind the posterior wall of the cyst were demonstrated to be organs. There was almost nothing in the right side except the kidney, but what were evidently liver and bowel encroached upon it. The right diaphragmatic dome was quite empty of liver which, displaced downwards and much reduced in size, bulged forward the posterior wall of the cyst. The left diaphragmatic area was also uncovered and the transmitted beat of the heart could be distinctly seen.

The intestines could be felt almost entirely confined to the left side of the abdomen but were not at all prominent even there.

The cyst wall formed a diaphragm across the pelvis at the level of the fundus of the uterus which was more or less normal in size as far as it could be felt. Lateral to the left uterine cornu was what appeared to be an opening with pouting red lips arising apparently from a slightly enlarged cystic ovary.

As much of the left tube and ovary as could be separated from dense adhesions to uterus and bowel were excised.

The cyst was marsupialised.

The opening tended to close and on two occasions it was necessary to draw off fluid. However the secretion of fluid decreased and the patient left hospital with a very flat abdomen.

I saw her some six months later when there appeared to be no fluid present; she complained of slight pain in the lower abdomen but was otherwise fit and had put on weight.

What the diagnosis of this extraordinary case is I do not venture to suggest but it seems that there must be associated congenital abnormalities such as non-rotation of the gut and a small and displaced liver.

8. *Malignant Melanoma of Foot.*

A Sierra Leone woman fifty years of age suffered from a growth on the sole of her foot, the duration of which was vague.

This was a fungating growth with a foul discharge. It measured $2\frac{1}{2}$ ins. by $2\frac{1}{4}$ ins. and was raised $1\frac{1}{2}$ ins. from the surface of the skin. Enlarged glands were present in the groin. Under spinal anæsthesia the tumour was excised with a margin of apparently healthy tissue. She refused removal of the groin glands.

On naked eye examination of the cut specimen it showed a greyish surface homogeneous in nature but broken up by patches and streaks of black tissue.

The section report was "malignant melanoma with abundance of pigment bearing cells."

9. *Carcinoma of Prostate.*

A Sierra Leonean aged sixty-four came complaining of inability to pass water. Although the prostate was somewhat small and hard per rectum, the signs and symptoms pointed to an enlargement of that organ as being the cause of the trouble.

On the 13th of March, 1928, the bladder was opened suprapubically and the prostate found to project slightly into the bladder. It was enucleated with some little difficulty and the bed packed. There was intermittent hæmorrhage for eight days. Micturition was very slow in being re-established. He was discharged on the 27th of April, 1928, with the suprapubic wound healed; urine was being passed by the urethra but there was some lack of control and consequent dribbling. He returned three weeks later with acute retention and a Pezzer's catheter was introduced suprapubically. Since then he has not been heard of. The unsatisfactory result and the small hard condition of the prostate made one suspicious that malignancy was present and this was verified by the section report—"Sections show the presence of an adenocarcinoma."

10. Epithelioma of Eyelid.

A Liberian seaman thirty-four years of age was admitted suffering from a septic eyeball.

He gave the history that five years ago a piece of iron entered his eye and that since then the eye had been discharging and painful.

The right eye appeared completely disorganized and pus was exuding from the shrunken globe. Blindness was present on that side, the left eye being apparently unaffected. There was a raised area of tissue overgrowth on the inner half of the lower lid on the affected side which extended backwards underneath the eyeball—this area was hard to the touch and looked like the growing edge of an epithelioma.

Under chloroform the eyeball was excised and the suspicious growth of the eyelid was found to continue posteriorly, to blend apparently with the sclerotic, and to extend round the under side of the globe to the region of the optic nerve which was not very well defined. The whole of the area of new growth was excised as far as it could be estimated to extend. However, the patient returned in two-and-a-half months with a definite recurrence and infiltration spreading over the infraorbital region. It was obviously inoperable. Radium probably offered the only hope when the case was first seen, the rate of growth being remarkable.

The section report was—"Squamous epithelioma evidently originating from the eyelid and penetrating the eyeball."

Q. STEWART,
Surgical Specialist.

W. H. PEACOCK,
Acting Director of Medical and Sanitary Service.

Tables.

I—STAFF.

Medical Staff.

Office.	Name.	Absent on Leave. From	Absent on Leave. To	Remarks.
Director of Medical and Sanitary Service ...	J. C. S. McDonall ...	—	—	
Surgical Specialist ...	Q. Stewart ...	5 9 28	1 10 28	
Senior Medical Officer	J. Y. Wood	23 5 28	—	Did not return to the Colony. Promoted A. D. M. S., Nigeria 24-4-28.
„ „ ...	D. T. Birt	—	—	Assumed duty as S.M.O., 28-1-28.
„ „ ...	G. H. Gallagher ...	—	—	Promoted S.M.O., Sierra Leone, 24-4-28 in place of Dr. Wood.
Medical Officer ...	J. D. Dimock ...	21 3 28	14 4 28	
		5 9 28	31 12 28	
„	E. S. Walls	1 1 28	22 6 28	
„	J. W. Hartley ...	—	—	
„	W. A. A. Malone ...	—	—	
„	A. W. Lewis ...	29 2 28	10 8 28	
„	C. B. Jennings ...	8 8 28	31 12 28	
„	R. F. Campbell ...	3 10 28	31 12 28	
		15 2 28	9 3 28	
„	F. V. Hill	—	—	
„	G. L. Alexander ...	20 10 28	11 11 28	
„	H. J. Bermingham ...	—	—	
„	D. D. Barker ...	—	—	
„	W. Allan	—	—	Appointed M.O., W.A.M.S. 18-7-28.
Lady Medical Officer	Mrs. M. G. Blacklock	17 4 28	5 10 28	
African Medical Officer	E. J. Wright ...	21 3 28	6 9 28	
„	M. C. F. Easmon ...	12 2 28	31 12 28	
„	E. H. T. Cummings	10 12 28	31 12 28	
„	G. N. Metzger ...	—	—	
„	E. A. Renner ...	—	—	
„	W. B. E. Hughes ...	—	—	
„	J. A. Williams ...	20 4 28	1 9 28	
„	W. F. O. Taylor ...	—	—	
„	M. A. S. Margai ...	—	—	Appointed M.O., 1-12-28 *vice* Dr. J. A. Williams.

Sanitary Staff.

Deputy Director of Sanitary Service ...	Major W. H. Peacock	29 8 28	31 12 28	
Senior Sanitary Officer	J. M. Mackay ...	1 1 28	24 5 28	
Medical Officer of Health	F. V. Hill ...	18 4 28	5 10 28	Reverted to Medical Officer, 6-10-28.
„	—	—	—	Vacant from 6-10-28.
Sanitary Superintendent and Training Officer	G. V. Herd ...	1 1 28	27 1 28	
Superintendent Sanitary Inspector ...	A. E. Wilkinson ...	29 8 28	13 12 28	
„	P. Osment ...	5 12 28	31 12 28	

Nursing Staff.

Senior Nursing Sister	Miss C. Littlewood	4 1 28	24 5 28	
„ „ ...	Miss A. E. MacMaster	1 1 28	24 2 28	
Nursing Sister ...	Miss C. H. B. Goodwin	6 6 28	2 11 28	
„	Miss M. A. Henry ...	7 11 28	31 12 28	
„	Miss L. D. S. McPetrie	—	—	
„	Miss N. M. Brown	—	—	

African Medical Subordinate Staff.

Office.	Name.	Absent on Leave. From	Absent on Leave. To	Remarks.
Chief Dispenser ...	D. T. Betts ...	1 1 28	29 2 28	Retired on pension 31-7-28.
„ ...	I. H. Wright ...	—	—	Promoted Chief Dispenser in place of Mr. Betts, 1-8-28.
Assistant Chief Dispenser	I. H. Wright ...	—	—	do.
„	M. O. Frazer ...	1 1 28	29 2 28	Promoted Assistant Chief Dispenser in place of Mr. Wright, 1-8-28.
Hospital Warden ...	P. Q. A. John ...	—	—	Promoted Warden, 15-6-28.
First Class Dispensers	O. E. Nylander ...	—	—	
„ „	H. E. Frazer ...	—	—	
„ „	P. J. John ...	3 12 28	31 12 28	
„ „	M. O. Frazer ...	1 1 28	29 2 28	Promoted Assistant Chief Dispenser, 1-8 28.
„ „	M. P. Neville ...	19 3 28	18 5 28	
„ „	P. Q. A. John ...	—	—	Appointed Hospital Warden, 15-6-28.
„ „	I. B. Doherty ...	15 3 28	14 5 28	
„ „	T. M. Scott ...	—	—	
„ „	J. C. May ...	—	—	
„ „	S. B. Williams ...	—	—	
„ „	E. W. Cole ...	—	—	Promoted 15-6-28
„ „	G. C. Heroe ...	—	—	Promoted 1-8-28.
Second Class Dispensers	Ten	—	—	
Third Class Dispensers	Fifteen	—	—	
Laboratory Assistant ...	E. J. Cole ...	—	—	
Male Nurses and Apprentices ...	Thirty-three	—	—	
Female Nurses and Probationers ...	Twenty-six	—	—	

African Sanitary Subordinate Staff.

Health Visitors ..	Mrs. V. Macfoy ... Miss B. Johnson ... and one other	—	—	
Public Vaccinator, Freetown ..	S. H. Browne ...	—	—	
Fourth Grade Sanitary Inspector ...	A. E. Nicholson ...	—	—	Died 4-6-28.
„ ...	C. E. King ...	—	—	Died 22-5-28
„ ...	W. E. J Corkson ...	—	—	
Fifth Grade Sanitary Inspectors and Learners	Thirty	—	—	

Medical and Sanitary Clerical Staff.

Chief Clerk ...	S. G. Randall ...	25 5 28	24 7 28	
Second Grade Clerk ...	M. St. George Auber	12 11 28	31 12 28	
„ „ ...	E. O. V. Macauley ...	18 10 28	3 12 28	
Senior Third Grade Clerks	Nine in number	—	—	
Junior Third Grade Clerks	Six in number	—	—	

Medical Store-keeping Staff.

Chief Store-keeper ...	K. A. King ...	—	—	
Assistant Store-keeper	E. J. Beale ...	1 9 28	30 9 28	
„ „	D. G. Kawaley ...	—	—	

II—FINANCE.

1928 Estimates.—Expenditure.

Medical.

Personal Emoluments:

European	£18,116
African	19,387
Allowances, etc.	1,145
Total	£38,648

Other Charges:

Medical supplies and hospital equipment	£8,300
Diets, provisions, etc.	6,000
Contributions to various associations and subsidies to Institutions	3,110
Passage, transport, freight, etc.	4,666
Other items	2,080
Total	£24,156

Sanitary.

Personal Emoluments:

European	£5,454
African	4,925
Labour	9,500
Total	£19,879

Other Charges:

Refuse disposal	£1,550
Preventive measures	1,700
Apparatus, etc.	800
Transport	1,250
Other items	382
Total	£5,682

Receipts.

African hospital fees	£ 169
European hospital fees	596
Lunatic hospital fees	143
Sale of medicines	405
Total	£1,313

III—METEOROLOGICAL RETURNS.

FREETOWN (TOWER HILL).

Latitude 8° 29′ 30″ N. Longitude 13° 13′ 55″ W.

MONTH.	Solar Maximum.	Minimum on Grass.	Shade Maximum.	Shade Minimum.	Range.	Mean.	RAINFALL.		WINDS.	
							Amount in inches.	Degree of Humidity.	General Direction.	Average Force.
January	...	...	88	72	16	80	2·06	65·5	...	...
February	...	...	88	73	15	80·5	...	53	...	...
March	...	...	89	75	14	82	1·68	71·5	...	...
April	...	...	88	75	13	81·5	2.65	74	...	...
May	...	...	87	74	13	80·5	7·60	79·5	...	..
June	...	...	85	73	12	79	11·10	82	...	...
July	...	...	83	72	11	77·5	33·15	88	...	...
August	...	...	80	71	9	75·5	37·50	91	...	...
September	...	...	82	72	10	77	30·43	83	...	...
October	...	...	84	71	13	77·5	16·41	83	...	...
November	...	...	87	73	14	80	3·62	78	...	...
December	...	...	86	73	13	79·5	2·34	76·5	...	...
Year ...	...	...	85	72	13	79·2	148·54	77·9	...	...

Batkanu.

Latitude 9° 4″ N. Longitude 12° 26′ W.

Month.	Solar Maximum.	Minimum on Grass.	Shade Maximum.	Shade Minimum.	Range.	Mean.	Rainfall.		Winds.	
							Amount in inches.	Degree of Humidity.	General Direction.	Average Force.
January	...	...	96	67	29	81·5	·31	54	...	...
February	...	...	98	65	33	81·5	...	47	...	...
March	...	...	102	72	30	87	1·23	56	...	...
April	...	...	99	73	26	86	5·56	67	...	...
May	...	...	96	72	24	84	15·71	73	...	...
June	...	...	94	72	22	83	12·99	77	...	...
July	...	...	90	72	18	81	18·13	82	...	...
August	...	...	84	71	13	77·5	25·35	86	...	...
September	...	...	91	71	20	81	17·46	81	...	...
October	...	...	93	71	22	82	11·14	78	...	...
November	...	...	94	70	24	82	5·27	76	...	...
December	...	...	94	69	25	81·5	·08	68	...	...
Year ...	...	...	94	70	24	82·3	113·23	70·4	...	...

Bonthe (Sherbro).

Latitude 7° 32 N. Longitude 12° 30′ W.

Month.	Solar, Maximum.	Minimum on Grass.	Shade, Maximum.	Shade, Minimum.	Range.	Mean.	Rainfall.		Winds.	
							Amount in inches.	Degree of Humidity.	General Direction.	Average Force.
January	...	...	89	70	19	79·5	·96	76	...	...
February	...	...	91	67	24	79	...	72	...	...
March	...	...	92	72	20	82	·99	75	...	...
April	...	...	91	73	18	82	6·60	75	...	...
May	...	...	90	71	19	80·5	14·32	80	...	...
June	...	...	88	69	19	78·5	23·96	77	...	...
July	...	...	87	71	16	79	35·42	78	...	...
August	...	...	85	69	16	77	34·97	82	...	...
September	...	...	84	68	16	76	31·50	85	...	...
October	...	...	87	66	21	76·5	12·85	75	...	...
November	...	...	89	71	18	80	6·12	72	...	...
December	...	...	88	73	15	80·5	3·18	73	...	...
Year ...	...	...	88	70	18	79·2	170·87	76.6	...	...

Latitude 7° 56′ N. Longitude 11° 47′ W.

Month.	Solar, Maximum.	Minimum on Grass.	Shade, Maximum.	Shade, Minimum.	Range.	Mean.	Rainfall.		Winds.	
							Amount in inches.	Degree of Humidity.	General Direction.	Average Force.
January	...	...	91	70	21	80·5	1·12	93	...	...
February	...	...	92	70	18	81	—	86	...	...
March	...	...	93	70	23	81·5	3·54	87	...	...
April	...	...	93	70	23	81·5	9·24	78	...	...
May	...	...	94	70	24	82	11·80	73	...	...
June	...	...	92	69	23	80·5	13·46	83	...	...
July	...	...	90	68	22	79	20·39	88	...	...
August	...	...	90	70	20	80	33·49	91	...	...
September	...	...	90	70	20	80	24·52	90	...	...
October	...	...	92	68	24	80	12·81	88	...	...
November	...	...	95	65	30	80	4·46	82	...	...
December	...	...	91	70	21	80·5	·49	91	...	...
Year ...	...	...	92	69	23	80·5	135·32	85·8	...	...

KABALA.

Latitude 9° 31′ N. Longitude 11° 31′ W.

MONTH.	Solar, Maximum.	Minimum on Grass.	Shade, Maximum.	Shade, Minimum.	Range.	Mean.	RAINFALL.		WINDS.	
							Amount in Inches.	Degree of Humidity.	General Direction.	Average Force.
January	...	...	89	59	26	72	·35	72	...	...
February	...	...	95	65	30	80	...	56	...	...
March	...	...	98	68	30	83	2·15	67	...	...
April	...	...	96	72	24	84	9·17	73	...	...
May	...	...	94	70	24	82	6·63	80	...	...
June	...	...	88	68	20	78	7·26	83	...	...
July	...	...	88	67	21	77·5	19·55	87	...	. .
August	...	...	83	68	15	75·5	14·41	90	...	...
September	...	...	87	68	19	77·5	15·74	87	...	...
October	...	...	88	67	21	77·5	20·78	86	...	...
November	...	...	89	65	24	77	2·12	69	...	...
December	...	...	89	63	26	76	·66	64	...	...
Year ...	...	...	89	66	23	78·3	98·82	76·1	...	...

Pujehun.

Latitude 7° 20′ N. Longitude 11° 43′ W.

Month.	Solar, Maximum.	Minimum on Grass.	Shade, Maximum.	Shade, Minimum.	Range.	Mean.	Rainfall.		Winds.	
							Amount in Inches.	Degree of Humidity.	General Direction.	Average Force.
January	...	...	92	70	22	81	·70	91	...	...
February	...	...	86	62	24	74	·30	86	...	...
March	...	...	93	72	21	82·5	2·46	92	...	...
April	...	...	93	72	21	82·5	4·80	90	...	...
May	...	...	93	72	21	82·5	9·50	87	...	...
June	...	...	91	71	20	81	17·18	79	...	...
July	..	...	91	72	19	81·5	35·88	84	...	...
August	...	...	91	71	20	81	35·24	85	...	...
September	...	...	91	72	19	81·5	23·61	83	...	...
October	...	...	92	72	20	81·5	13·45	79	...	...
November	...	...	92	71	21	81·5	5·19	75	...	...
December	...	...	92	68	24	80	1·43	73	...	...
Year ...	...	...	91	70	21	80·8	149·74	83·6	...	...

IV—RETURN OF DISEASES AND DEATHS—EUROPEAN.

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances
I—Epidemic, Endemic, and Infectious Diseases							
Enteric Group :							
(*a*) Typhoid fever ...							
(*b*) Paratyphoid A. ...							
(*c*) Paratyphoid B. ...	...	1	1	...	...	...	
(*d*) Type not defined ...							
Typhus							
Relapsing fever ...							
Undulent fever ...							
Malaria :							
(*a*) Tertian ...							
(*b*) Quartan ...	...	...	...	...	...	1	
(*c*) Aestivo-autumnal ...	3	41	44	...	...	87	
(*d*) Cachexia ...							
(*e*) Blackwater ...	...	2	2	1	...	1	
Smallpox :							
Alastrim							
Measles							
Scarlet fever							
Whooping cough ...							
Diphtheria							
Influenza	...	1	1	...	...	11	
Miliary fever							
Mumps							
Cholera							
Epidemic diarrhœa ...							
Dysentery :							
(*a*) Amœbic ...	...	4	4	...	...	2	
(*b*) Bacillary ...							
(*c*) Undefined or due to other causes ...	...	...	...	...	...	2	
Plague :							
(*a*) Bubonic ...							
(*b*) Pneumonic ...							
(*c*) Septicæmic ...							
(*d*) Undefined ...							
Yellow fever							
Spirochætosis ictero-hæmorrhagica							
Leprosy							
Erysipelas							
Acute poliomyelitis ...							
Carried forward ...	3	49	52	1	...	104	

The form shows in the main the arrangement of diseases in the International Nomenclature, 1921 Edition. To save space the unimportant diseases of any class can be grouped in their places as "Other Diseases" of the class.

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	3	49	52	1		104	
I—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES—*continued.*							
Encephalitis lethargica ...							
Epidemic cerebro-spinal fever							
Other Epidemic Diseases :							
(*a*) Rubeola (German measles)							
(*b*) Varicella (chicken-pox)							
(*c*) Kala-azar ...							
(*d*) Phlebotomus fever							
(*e*) Dengue							
(*f*) Epidemic dropsy ...							
(*g*) Yaws							
(*h*) Trypanosomiasis ...							
Glanders							
Anthrax							
Rabies							
Tetanus							
Mycosis							
Tuberculosis, pulmonary and laryngeal	...	3	3	...	...	...	
Tuberculosis of the meninges or central nervous system							
Tuberculosis of the intestines or peritoneum							
Tuberculosis of the vertebral column							
Tuberculosis of bones and joints							
Tuberculosis of other Organs :							
(*a*) Skin or subcutaneous tissue (Lupus) ...							
(*b*) Bones							
(*c*) Lymphatic system							
(*d*) Genito-urinary ...							
(*e*) Other organs ...							
Tuberculosis, Disseminated :							
(*a*) Acute							
(*b*) Chronic							
Carried forward ...	3	52	55	1		104	

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	3	52	55	1		104	
I—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES—*continued.*							
Syphilis :i							
(*a*) Prmary ...							
(*b*) Secondary ...							
(*c*) Tertiary ...							
(*d*) Hereditary ...							
(*e*) Period not indicated							
Soft chancre							
A.—Gonorrhœa and its complications	...	1	1	...	...	5	
B.—Gonorrhœal ophthalmia							
C.—Gonorrhœal arthritis...							
D.—Granuloma venereum ...							
Septicæmia							
Other infectious diseases ...							
II—GENERAL DISEASES NOT MENTIONED ABOVE.							
Cancer or other malignant tumours of the buccal cavity							
Cancer or other malignant tumours of the stomach or liver							
Cancer or other malignant tumours of the peritoneum, intestines, rectum ...							
Cancer or other malignant tumours of the female genital organs							
Cancer or other malignant tumours of the breast ...							
Cancer or other malignant tumours of the skin ...							
Cancer or other malignant tumours of organs not specified							
Tumours, non-malignant ...	...	1	1	...	...	2	
Acute rheumatism ...	...	2	2	...	...	1	
Chronic rheumatism ...	...	...	...	...	...	5	
Scurvy (including Barlow's disease)							
Pellagra							
Beri-beri							
Rickets							
Diabetes (not including insipidus)							
Carried forward ...	3	56	59	1		117	

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	3	56	59	1	...	117	
II—GENERAL DISEASES NOT MENTIONED ABOVE, *continued.*							
Anæmia :							
(*a*) Pernicious ...							
(*b*) Other anæmias and chlorosis ...	...	16	16	...	...	18	
Diseases of the pituitary body							
Diseases of the Thyroid Gland :							
(*a*) Exophthalmic goitre							
(*b*) Other diseases of the thyroid gland, myxœdema ...							
Diseases of the parathyroid glands							
Diseases of the thymus ...							
Diseases of supra-renal glands							
Diseases of the spleen ...							
Leukæmia :							
(*a*) Leukæmia ...							
(*b*) Hodgkin's disease							
Alcoholism	..	1	1	...	...	...	
Chronic poisoning by mineral substances (lead, mercury, etc.) ...							
Chronic poisoning by organic substances (morphia, cocaine, etc.) ...							
Other General Diseases :	...	...	...	...	...	4	
Auto-intoxication ...	...	...	...	...	...	1	
Purpura hæmorrhagica	...	1	1	...	...	...	
Hæmophilia							
Diabetes insipidus ...							
Other general disease							
III—AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES.							
Encephalitis (not including encephalitis lethargica)							
Meningitis (not including tuberculous meningitis or cerebro-spinal meningitis)							
Carried forward ...	3	74	77	1	...	140	

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	3	74	77	1	...	140	
III—AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES, *continued.*							
Locomotor ataxia ...							
Other affections of the spinal cord							
Apoplexy :							
(*a*) Hæmorrhage ...							
(*b*) Embolism ...							
(*c*) Thrombosis ...							
Paralysis :							
(*a*) Hemiplegia ...							
(*b*) Other paralysis ...							
General paralysis of the insane							
Other forms of mental alienation	...	1	1	...	...	...	
Epilepsy							
Eclampsia, convulsions (non-puerperal) 5 years ... or over							
Infantile convulsions ...							
Chorea							
A.—Hysteria							
B.—Neuritis	...	2	2	...	...	5	
C.—Neurasthenia ...	...	6	6	...	...	2	
Cerebral softening ...							
Other affections of the nervous system, such as paralysis agitans ...	...	...	...	...	...	3	
Affections of the Organs of Vision :							
(*a*) Diseases of the eye							
(*b*) Conjunctivitis ...	...	...	...	...	...	5	
(*c*) Trachoma ...							
(*d*) Tumours of the eye							
(*e*) Other affections of the eye	...	1	1	...	...	5	
Affections of the ear or mastoid sinus ...	...	...	...	...	...	8	
Carried forward ...	3	84	87	1	...	168	

EUROPEAN—*continued.*

Diseases	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances
Brought forward ...	3	84	87	1	...	168	
IV—AFFECTIONS OF THE CIRCULATORY SYSTEM.							
Pericarditis							
Acute endocarditis, or myocarditis							
Angina pectoris							
Other Diseases of the Heart							
(*a*) Valvular:							
Mitral							
Aortic							
Tricuspid							
Pulmonary							
(*b*) Myocarditis ...							
Diseases of the Arteries							
(*a*) Aneurism							
(*b*) Arterio-sclerosis ...							
(*c*) Other diseases ...	...	...	...	...	...	1	
Embolism or thrombosis (non-cerebral) ...							
Diseases of the Veins:							
Hæmorrhoids	...	2	2	...	...	5	
Varicose veins							
Phlebitis							
Diseases of the Lymphatic System.							
Lymphangitis	...	...	...	...	...	1	
Lymphadenitis, bubo (non-specific)	...	1	1	...	...	3	
Hæmorrhage of undetermined cause							
Other affections of the circulatory system ...							
V—AFFECTIONS OF THE RESPIRATORY SYSTEM.							
Diseases of the Nasal Passages							
Adenoids							
Polypus							
Rhinitis							
Coryza	...	1	1	...	...	27	
Affections of the Larynx:							
Laryngitis	...	1	1	...	...	1	
Carried forward ...	3	89	92	1	...	206	

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	3	89	92	1		206	
V—AFFECTIONS OF THE RESPIRATORY SYSTEM, *continued.*							
Bronchitis :							
(*a*) Acute	...	3	3	...	...	29	
(*b*) Chronic							
Broncho-pneumonia ...	...	1	1	1	...	...	
Pneumonia :							
(*a*) Lobar							
(*b*) Unclassified ...	...	1	1	...	..	1	
Pleurisy, empyema ...	...	...	...	...	...	2	
Congestion of the lungs ..	...	...	...	...	...	7	
Gangrene of the lungs ...							
Asthma	...	...	...	...	...	1	
Pulmonary emphysema ...							
Other affections of the lungs	...	...	...	...	...	7	
Pulmonary spirochætosis ...							
VI—DISEASES OF THE DIGESTIVE SYSTEM.							
A.—Diseases of the Teeth or Gums.							
Caries, pyorrhœa, etc.	1	3	4	...	...	11	
B.—Other Affections of the Mouth.							
Stomatitis							
Glossitis, etc. ...							
Affections of the Pharynx or Tonsils.							
Tonsillitis	...	1	1	...	...	9	
Pharyngitis	...	..	...	...	...	2	
Affections of the Oesophagus							
A.—Ulcer of the Stomach							
B.—Ulcer of the duodeum	...	1	1	...	...	...	
Other Affections of the Stomach.	...	...	...	...	...	3	
Gastritis	..	2	2	...	...	10	
Dyspepsia, etc. ...	1	7	8	...	...	37	
Diarrhœa and Enteritis.							
Under two years ...							
Two years and over ...	...	3	3	...	...	15	
Colitis	1	1	2	...	...	1	
Ulceration							
Sprue							
Ankylostomiasis							
Carried forward ...	6	112	118	2		341	

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	6	112	118	2		341	
VI—DISEASES OF THE DIGESTIVE SYSTEM—*contd.*							
Diseases due to intestinal Parasites.							
(*a*) Cestoda (tænia) ...	...			...	...	1	
(*b*) Trematoda (flukes) ...							
(*c*) Nematoda (other than Ankylostoma)—							
Ascaris	...	1	1	...	...	2	
Trichocephalus dispar							
Trichina							
Dracunculus ...							
Strongylus ...							
Oxyuris							
(*d*) Coccidia							
(*e*) Other parasites ...	...	1	1	...	...	...	
(*f*) Unclassified ...							
Appendicitis	...	1	1	...	...	...	
Hernia	...	1	1	...	...	1	
A.—Affections of the Anus, fistula, etc.	1	1	2	...	1	...	
B.—Other Affections of the Intestines— ...	...	1	1	...	...	1	
Enteroptosis ...							
Constipation ...	...	...	...	...	...	10	
Acute yellow atrophy of the liver							
Hydatid of the liver ...							
Cirrhosis of the liver—							
(*a*) Alcoholic							
(*b*) Other forms ...							
Biliary calculus	...	...	...	...	...	1	
Other Affections of the liver :							
Abscess							
Hepatitis	...	...	...	...	...	1	
Cholecystitis							
Jaundice	...	2	2	...	..		
Diseases of the pancreas ...							
Peritonitis (of unknown cause)							
Other Affections of the digestive system	...	...	...	...	...	6	
Carried forward ...	7	120	127	2	1	364	

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	7	120	127	2	1	364	
VII—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL).							
Acute nephritis	...	...	...	...	...	2	
Chronic							
A.—Chyluria							
B.—Schistosomiasis ...							
Other affections of the Kidneys	...	1	1	...	...	1	
Pyelitis, etc. ...							
Urinary calculus	...	...	..	...	...	3	
Diseases of the Bladder—							
Cystitis	...	...	...	...	...	7	
Diseases of the Urethra—							
(*a*) Stricture ...	...	...	...	...	...	3	
(*b*) Other	...	...	...	...	...	6	
Diseases of the Prostate—							
Hypertrophy ...							
Prostatitis	...	...	...	...	...	1	
Diseases (non-venereal) of the Genital Organs of man							
Epididymitis ...							
Orchitis	...	...	...	...	...	1	
Hydrocele							
Ulcer of penis ...							
Other diseases of the male Genital Organs ...	...	...	...	...	...	2	
Cysts or other non-malignant tumours of the ovaries							
Salpingitis :							
Abscess of the pelvis ...							
Uterine tumours (non-malignant)							
Uterine hæmorrhage (non-puerperal)							
A.—Metritis							
B.—Other Affections of the Female Genital Organs—							
Displacements of uterus							
Amenorrhœa							
Dysmenorrhœa ...							
Leucorrhœa							
Diseases of the Breast (non-puerperal.)							
Mastitis							
Abscess of breast ...							
Carried forward ...	7	121	128	2	1	390	

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	7	121	128	2	1	390	
VIII—PUERPERAL STATE.							
A.—Normal labour ...							
B.—Accidents of Pregnancy—							
(*a*) Abortion ...							
(*b*) Ectopic gestation ...							
(*c*) Other accidents of pregnancy ...							
Puerperal hæmorrhage ...							
Other accidents of parturition							
Puerperal septicæmia ...							
Phlegmasia dolens ...							
Puerperal eclampsia ...							
Sequelæ of labour ...							
Puerperal affections of the breast							
IX—AFFECTIONS OF THE SKIN AND CELLULAR TISSUES.							
Gangrene							
Boil	...	2	2	...	...	10	
Carbuncle							
Abscess—	...	2	2	...	...	2	
Whitlow	...	...	...	...	...	4	
Cellulitis	...	1	1	...	...	4	
A.—Tinea	...	...	...	...	...	5	
B.—Scabies	...	...	...	...	...	2	
Other Diseases of the Skin :—	...	2	2	...	...	19	
(*a*) Erythema ...	...	...	...	...	...	1	
(*b*) Urticaria ...	...	1	1	...	...	4	
(*c*) Eczema ...	...	1	1	...	...	8	
(*d*) Herpes ...	...	...	...	...	...	1	
(*e*) Psoriasis ...							
(*f*) Elephantiasis ...							
(*g*) Myiasis ...							
(*h*) Chigoes ...							
(*i*) Cutaneous Leishmaniasis							
(*j*) Ulcer	...	2	2	...	1	3	
X—DISEASES OF BONES AND ORGANS OF LOCOMOTION (OTHER THAN TUBERCULOUS.)							
Diseases of Bones—							
Osteitis							
Carried forward ...	7	132	139	2	2	453	

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	7	132	139	2	2	453	
X—DISEASES OF BONES AND ORGANS OF LOCOMOTION (OTHER THAN TUBERCULOUS)—*contd.*							
Diseases of Bones—							
Osteitis	...	1	1	...	...	1	
Diseases of Joints—							
Arthritis	...	...	...	...	...	1	
Synovitis							
Other diseases of bones or organs of locomotion ...	...	...	...	...	...	10	
XI—MALFORMATIONS.							
Malformations—							
Hydrocephalus ...							
Hypospadias ...							
Spina bifida, etc. ...							
XII—DISEASES OF INFANCY.							
Congenital debility ...							
Premature birth ...							
Other affections of infancy							
Infant neglect (infants of three months or over) ...							
XIII—AFFECTIONS OF OLD AGE.							
Senility—							
Senile dementia ...							
XIV—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.							
Suicide by poisoning ...							
Corrosive poisoning (intentional)							
Suicide by gas poisoning							
XIV—AFFECTIONS PRODUCED BY EXTERNAL CAUSES—*contd.*							
Suicide by hanging or strangulation							
Suicide by drowning ...							
Suicide by firearms ...							
Suicide by cutting or stabbing instruments ...							
Suicide by jumping from a height							
Suicide by crushing ...							
Other suicides							
Carried forward ...	7	133	140	2	2	465	

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	7	133	140	2	2	465	
XIV—AFFECTIONS PRODUCED BY EXTERNAL CAUSES—*contd.*							
Food poisoning :—							
Botulism							
Attacks of poisonous Animals :							
Snake bite	...	...	...	...	..	1	
Insect bite	...	...	...	...	...	1	
Other accidental poisonings							
Burns (by fire)	...	...	...	...	...	1	
Burns (other than by fire)	...	1	1	...	1	2	
Suffocation (accidental) ..							
Poisoning by gas (accidental)							
Drowning (accidental) ...							
Wounds (by firearms, war excepted)							
Wounds (by cutting or stabbing instruments) ...	...	...	...	...	...	2	
Wounds (by fall) ...	...	...	...	...	..	5	
Wounds (in mines or quarries)							
Wounds (by machinery)							
Wounds (crushing, e.g. railway accidents, etc.) ...							
Injuries inflicted by animals, bites, kicks, etc. ...	...	...	...	...	...	1	
Wounds inflicted on active service							
Executions of civilians by belligerents							
A.—Over fatigue ...	...	...	...	...	...	1	
B.—Hunger or thirst ...							
Exposure to cold, frost bite, etc.							
Exposure to Heat :							
Heat stroke							
Sunstroke							
Lightning stroke ...							
Electric shock							
Murder by firearms ...							
Murder by cutting or stabbing instruments ...							
Murder by other means ...							
Infanticide (murder of an infant under one year)							
Carried forward ...	7	134	141	2	3	479	

EUROPEAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	7	134	141	2	3	479	
XIV—AFFECTIONS PRODUCED BY EXTERNAL CAUSES—*contd.*							
A.—Dislocation	...	...	...	...	...	1	
B.—Sprain	...	...	..	...	...	4	
C.—Fracture	...	...	...	...	...	4	
Other external injuries ...	...	16	16	...	...	27	
Deaths by violence of unknown cause							
XV—ILL-DEFINED DISEASES.							
Sudden death (cause unknown)							
A.—Diseases not already specified or ill-defined:							
Ascites							
Œdema	...	...	...	...	...	1	
Asthenia	...	...	...	...	...	15	
Shock							
Hyper-pyrexia ...							
B.—Malingering ...							
Pyrexia of uncertain origin	...	7	7	...	1	1	
Total	7	157	164	2	4	532	

RETURN OF DISEASES AND DEATHS—AFRICAN.

Diseases	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
I—Epidemic, Endemic and Infectious Diseases							
Enteric Group :							
(*a*) Typhoid fever ...							
(*b*) Paratyphoid A. ...							
(*c*) Paratyphoid B. ...							
(*d*) Type not defined ...							
Typhus							
Relapsing fever ...							
Undulant fever ...							
Malaria :							
(*a*) Tertian	...	...	...	...	...	1	
(*b*) Quartan	...	...	...	...	...	2	
(*c*) Aestivo-autumnal ...	4	190	194	3	1	4,915	
(*d*) Cachexia	1	3	4	2	...	6	
(*e*) Blackwater ...	...	4	4	1	...	5	
Smallpox :—	...	1	1	...	...	...	
Alastrim							
Measles	...	1	1	...	1	51	
Scarlet fever							
Whooping cough ...	...	...	...	...	...	84	
Diphtheria							
Influenza	...	20	20	1	...	133	
Miliary fever							
Mumps	...	...	...	...	...	14	
Cholera							
Epidemic diarrhœa ...							
Dysentery:							
(*a*) Amœbic	...	31	31	3	3	108	
(*b*) Bacillary							
(*c*) Undefined or due to other causes ...	...	26	26	4	1	99	
Plague :							
(*a*) Bubonic							
(*b*) Pneumonic ...							
(*c*) Septicæmic ...							
(*d*) Undefined ...							
Yellow fever							
Spirochætosis ictero-hæmorrhagica							
Leprosy	4	17	21	2	12	108	
Erysipelas	...	1	1	...	...	1	
Acute poliomyelitis ...							
Encephalitis lethargica ...							
Epidemic cerebro-spinal fever	...	2	2	1	...	...	
Carried forward ...	9	296	305	17	18	5,527	

The form shows in the main the arrangement of diseases in the International Nomenclature, 1921 Edition To save space the unimportant diseases of any class can be grouped in their places as "Other Diseases" of the class.

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admissions.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	9	296	305	17	18	5,527	
I—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES, *continued.*							
Other Epidemic Diseases :							
(*a*) Rubeola (German measles)							
(*b*) Varicella (chicken-pox)	5	86	91	1	12	44	
(*c*) Kala-azar ...							
(*d*) Phlebotomus fever ...							
(*e*) Dengue							
(*f*) Epidemic dropsy ...							
(*g*) Yaws	...	40	40	1	...	4,048	
(*h*) Trypanosomiasis ...	...	4	4	3	1	...	
Glanders							
Anthrax							
Rabies							
Tetanus	...	19	19	6	...	4	
Mycosis	...	1	1	...	...	2	
Tuberculosis, pulmonary and laryngeal	5	26	31	11	1	47	
Tuberculosis of the meninges or central nervous system							
Tuberculosis of the intestines or peritoneum ...							
Tuberculosis of the vertebral column							
Tuberculosis of bones and joints	...	1	1	...	...	5	
Tuberculosis of other Organs :							
(*a*) Skin or subcutaneous tissue (Lupus) ...	1	...	1	...	...	...	
(*b*) Bones	...	1	1	...	...	...	
(*c*) Lymphatic system ...	1	...	1	...	...	...	
(*d*) Genito-urinary ..	...	..	...	...	...	2	
(*e*) Other organs ...	...	1	1	...	...	3	
Tuberculosis Disseminated :							
(*a*) Acute							
(*b*) Chronic	...	1	1	...	...	...	
Syphilis :							
(*a*) Primary ...	...	6	6	...	...	104	
(*b*) Secondary ...	...	4	4	...	...	91	
(*c*) Tertiary ...	9	46	55	2	3	1,511	
(*d*) Hereditary ...	...	1	1	...	...	24	
(*e*) Period not indicated	...	1	1	...	...	39	
Carried forward ...	30	534	564	41	35	11,451	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	30	534	564	41	35	11,451	
I—EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES, *continued.*							
Soft chancre	...	42	42	1	7	274	
A.—Gonorrhœa and its complications	2	39	41	...	2	2,359	
B.—Gonorrhœal ophthalmia	...	6	6	...	...	20	
C.—Gonorrhœal arthritis	1	20	21	...	...	111	
D.—Granuloma venereum							
Septicæmia	...	14	14	14	...	...	
Other infectious diseases ...	1	3	4	...	1	2	
II—GENERAL DISEASES NOT MENTIONED ABOVE.							
Cancer or other malignant tumours of the buccal cavity	...	1	1	...	1	1	
Cancer or other malignant tumours of the stomach or liver	...	1	1	...	..	...	
Cancer or other malignant tumours of the peritoneum, intestines, rectum	...	2	2	...	1	...	
Cancer or other malignant tumours of the female genital organs	...	1	1	...	...	1	
Cancer or other malignant tumours of the breast ...	...	...	..	...	...	2	
Cancer or other malignant tumours of the skin ...							
Cancer or other malignant tumours of organs not specified	...	6	6	1	1	2	
Tumours, non-malignant ...	...	26	26	1	1	115	
Acute rheumatism ...	1	8	9	...	..	452	
Chronic rheumatism ...	8	55	63	4	3	4,331	
Scurvy (including Barlow's disease)	...	1	1	1	...	. .	
Pellagra							
Beri-beri	..	7	7	3	...	1	
Rickets	...	1	1	...	...	7	
Diabetes (not including insipidus)							
Anæmia :							
(*a*) Pernicious ...	...	...	...	...	...	2	
(*b*) Other anæmias and chlorosis ...	...	14	14	...	1	617	
Carried forward ...	43	781	824	66	53	19,748	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	43	781	824	66	53	19,748	
GENERAL DISEASES NOT MENTIONED ABOVE—*contd.*							
Diseases of the pituitary body							
Diseases of the Thyroid Gland :							
(*a*) Exophthalmic goitre	...	1	1	...	...	2	
(*b*) Other diseases of the thyroid gland, myxœdema	...	...	...	...	...	17	
Diseases of the parathyroid glands	...	...	..	...	...	1	
Diseases of the thymus ..							
Diseases of the supra-renal glands							
Diseases of the spleen ...	...	9	9	...	...	316	
Leukæmia :							
(*a*) Leukæmia	...	1	1	...	...	1	
(*b*) Hodgkin's disease ...							
Alcoholism	...	1	1	...	...	...	
Chronic poisoning by mineral substances (lead, mercury, etc.)	...	1	1	...	...	...	
Chronic poisoning by organic substances (morphia, cocaine, etc.) ...	..	2	2	...	...	...	
Other General Diseases ...	...	2	2	...	1	335	
Auto-intoxication ...	...	2	2	2	...	30	
Purpura hæmorrhagica	...	1	1	...	...	...	
Hæmophilia							
Diabetes insipidus ...							
III—AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES.							
Encephalitis (not including encephalitis lethargica)							
Meningitis (not including tuberculous meningitis or cerebro-spinal meningitis)	...	1	1	...	...	...	
Locomotor ataxia ...	...	4	4	...	...	4	
Other affections of the spinal cord	...	3	3	3	...	3	
Apoplexy :	...	1	1	1	...	...	
(*a*) Hæmorrhage ...	...	3	3	2	...	1	
(*b*) Embolism	...	1	1	...	...	...	
(*c*) Thrombosis ...	...	...	...	...	...	2	
Carried forward ...	43	814	857	74	54	20,460	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	43	814	857	74	54	20,460	
III—AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES—*continued.*							
Paralysis :							
(*a*) Hemiplegia ...	6	23	29	9	7	55	
(*b*) Other paralysis ..	3	26	29	6	5	36	
General paralysis of the insane							
Other forms of mental alienation	9	11	20	5	4	6	
Epilepsy	...	11	11	4	1	27	
Eclampsia, convulsions, (non-puerperal) 5 years or over	...	2	2	1	...	2	
Infantile convulsions ...	...	...	...	...	...	8	
Chorea	...	1	1	...	...	1	
A.—Hysteria	..	1	1	...	...	25	
B.—Neuritis	2	3	5	2	2	231	
C.—Neurasthenia ...	...	...	...	...	...	24	
Cerebral softening ...	...	...	...	...	...	1	
Other affections of the nervous system, such as paralysis agitans	...	3	3	1	1	68	
Affections of the Organs of Vision :							
(*a*) Diseases of the eye	5	4	9	...	2	21	
(*b*) Conjunctivitis ...	1	22	23	...	1	960	
(*c*) Trachoma	...	...	...	...	...	1	
(*d*) Tumours of the eye	...	2	2	...	...	9	
(*e*) Other affections of the eye	6	19	25	...	4	308	
Affections of the ear or mastoid sinus	...	8	8	2	...	771	
IV—AFFECTIONS OF THE CIRCULATORY SYSTEM.							
Pericarditis	...	...	...	...	...	2	
Acute endocarditis, or myocarditis							
Angina pectoris	...	...	...	...	...	1	
Other Diseases of the Heart :	...	6	6	2	1	31	
(*a*) Valvular :	...	6	6	6	...	19	
Mitral	...	33	33	13	...	127	
Aortic	...	15	15	4	...	9	
Tricuspid							
Pulmonary ...							
(*b*) Myocarditis ...	...	...	...	...	...	11	
Carried forward ...	75	1,010	1,085	129	82	23,214	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	75	1,010	1,085	129	82	23,214	
IV—AFFECTIONS OF THE CIRCULATORY SYSTEM, *continued.*							
Diseases of the Arteries :							
(*a*) Aneurism	...	3	3	...	...	7	
(*b*) Arterio-sclerosis ...	...	4	4	...	...	15	
(*c*) Other diseases ...	...	...	...	...	...	10	
Embolism or thrombosis (non-cerebral)							
Diseases of the Veins :							
Hæmorrhoids	...	3	3	...	...	99	
Varicose veins	...	1	1	...	...	12	
Phlebitis	...	1	1	...	...	8	
Diseases of the Lymphatic System :							
Lymphangitis	...	...	...	...	...	57	
Lymphadenitis, bubo (non-specific) ...	2	46	48	...	...	287	
Hæmorrhage of undetermined cause ...	...	1	1	...	...	24	
Other affections of the circulatory system ...	...	12	12	3	2	46	
V—AFFECTIONS OF THE RESPIRATORY SYSTEM.							
Diseases of the Nasal Passages (Other) ...	...	...	...	...	...	7	
Adenoids	...	1	1	...	...	6	
Polypus	...	...	...	...	...	7	
Rhinitis	...	2	2	...	...	28	
Coryza	...	4	4	...	...	1,937	
Affections of the Larynx :							
Laryngitis	...	2	2	...	...	85	
Bronchitis :							
(*a*) Acute	1	60	61	...	2	6,125	
(*b*) Chronic ...	1	25	26	2	1	3,153	
Broncho-pneumonia ...	4	24	28	2	2	8	
Pneumonia :							
(*a*) Lobar	1	44	45	13	...	37	
(*b*) Unclassified ...	7	72	79	14	2	63	
Carried forward ...	91	1,315	1,406	163	91	35,235	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	91	1,315	1,406	163	91	35,235	
V—AFFECTIONS OF THE RESPIRATORY SYSTEM, *continued.*							
Pleurisy, empyema ...	2	30	32	1	2	105	
Congestion of the lungs ...	...	2	2	...	...	5	
Gangrene of the lungs ...	...	1	1	...	...	...	
Asthma	1	9	10	2	1	80	
Pulmonary emphysema ...							
Other affections of the lungs—							
Pulmonary spirochætosis ...	...	1	1	...	...	616	
VI—DISEASES OF THE DIGESTIVE SYSTEM.							
A.—Diseases of Teeth or Gums :							
Caries, pyorrhœa, etc. ...	...	6	6	...	...	1,605	
B.—Other affections of the mouth :							
Stomatitis	...	6	6	...	...	391	
Glossitis, etc. ...	...	1	1	...	...	84	
Affections of the Pharynx or Tonsils :—							
Tonsillitis	...	3	3	...	...	432	
Pharyngitis	...	...	...	...	...	155	
Affections of the œsophagus							
A.—Ulcer of the stomach	...	1	1	..	...	...	
B.—Ulcer of the duodenum	...	...	...	...	...	1	
Other affeetions of the Stomach :							
Gastritis	...	8	8	...	...	346	
Dyspepsia, etc. ...	1	18	19	...	...	3,723	
Diarrhœa and Enteritis :							
Under two years ...	...	5	5	...	...	180	
Diarrhœa and Enteritis :							
Two years and over ...	4	68	72	8	...	1,267	
Colitis	...	7	7	2	1	52	
Ulceration							
Sprue							
Ankylostomiasis	...	14	14	1	1	135	
Carried forward ...	99	1,495	1,594	177	96	44,412	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances
Brought forward ...	99	1,495	1,594	177	96	44,412	
VI—DISEASES OF THE DIGESTIVE SYSTEM, *continued.*							
Diseases due to Intestinal Parasites :							
(*a*) Cestoda (tænia) ...	...	18	18	...	...	211	
(*b*) Trematoda (flukes) ...							
(*c*) Nematoda (other than ankylostoma)—							
Ascaris	...	17	17	...	...	3,233	
Trichocephalus dispar							
Trichina							
Dracunculus ...							
Strongylus							
Oxyuris	...	...	...	...	...	1	
(*d*) Coccidia							
(*e*) Other parasites ...	...	..	...	...	...	18	
(*f*) Unclassified ...	...	...	...	...	...	13	
Appendicitis	...	4	4	...	...	5	
Hernia	2	177	179	6	5	390	
A.—Affections of the anus, fistula, etc.	1	9	10	...	...	24	
B.—Other Affections of the Intestines :	...	1	1	...	...	17	
Enteroptosis ...							
Constipation ...	...	11	11	...	...	8,973	
Acute yellow atrophy of the liver							
Hydatid of the liver ...							
Cirrhosis of the liver :							
(*a*) Alcoholic	...	3	3	...	...	2	
(*b*) Other forms ...	...	...	...	...	...	2	
Biliary calculus							
Other Affections of the Liver :	...	...	...	...	...	1	
Abscess	...	3	3	1	1	1	
Hepatitis	...	8	8	...	...	73	
Cholecystitis	...	2	2	...	...	...	
Jaundice	...	5	5	1	...	78	
Diseases of the pancreas							
Peritonitis (of unknown cause)	...	2	2	1	...	2	
Other affections of the digestive system ...	5	13	18	3	...	358	
Carried forward ...	107	1,768	1,875	189	102	57,814	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	107	1,768	1,875	189	102	57,814	
VII—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL).							
Acute nephritis ...	...	3	3	...	...	42	
Chronic	...	12	12	4	...	38	
A.—Chyluria							
B.—Schistosomiasis ...	...	4	4	...	...	65	
Other Affections of the Kidneys :	...	3	3	1	1	10	
Pyelitis, etc.	...	...	...	...	...	5	
Urinary calculus ...	...	2	2	1	...	1	
Diseases of the Bladder :							
Cystitis	...	8	8	...	...	93	
Diseases of the Urethra :							
(*a*) Stricture	3	55	58	3	...	78	
(*b*) Other	...	20	20	...	...	101	
Diseases of the Prostate :							
Hypertrophy							
Prostatitis	...	6	6	2	...	2	
Diseases (non-venereal) of the Genital Organs of Man :							
Epididymitis	...	...	...	...	...	23	
Orchitis	1	22	23	...	...	376	
Hydrocele	1	43	44	...	2	229	
Ulcer of penis	...	4	4	...	...	105	
Other Diseases of the Male Genital Organs ...	4	37	41	3	1	109	
Cysts or other non-malignant tumours of the ovaries	...	8	8	...	...	3	
Salpingitis	...	4	4	...	...	...	
Abscess of the pelvis ...	...	2	2	...	1	...	
Uterine tumours (non-malignant	...	29	29	1	2	16	
Uterine hæmorrhage (non-puerperal)	...	...	...	...	...	29	
A.—Metritis	...	4	4	...	...	53	
B.—Other affections of the female genital organs :	...	9	9	2	...	71	
Displacements of uterus	...	7	7	...	...	10	
Amenorrhœa	...	...	...	...	...	404	
Carried forward ...	116	2,050	2,166	206	109	59,677	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	116	2,050	2,166	206	109	59,677	
VII—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL), *contd.*							
Dysmenorrhœa ...	...	7	7	...	...	232	
Leucorrhœa	...	1	1	...	...	81	
Diseases of the Breast (Non-puerperal):	...	...	...	...	...	2	
Mastitis	...	4	4	...	...	42	
Abscess of breast ...	...	4	4	...	...	15	
VIII—PUERPERAL STATE.							
A.—Normal labour ...	3	198	201	...	...	25	
B.—Accidents of Pregnancy:							
(*a*) Abortion	...	28	28	...	...	53	
(*b*) Ectopic gestation ...	...	...	...	...	...	1	
(*c*) Other accidents of pregnancy	1	41	42	...	1	63	
Puerperal hæmorrhage ...	...	2	2	...	...	1	
Other accidents of parturition	1	20	21	1	...	5	
Puerperal septicæmia ...	...	5	5	1	1	1	
Phlegmasia dolens ...							
Puerperal eclampsia ...	...	3	3	1	1	1	
Sequelæ of labour ...	...	4	4	...	...	8	
Puerperal affections of the breast	...	...	...	...	...	2	
IX—AFFECTIONS OF THE SKIN AND CELLULAR TISSUES.							
Gangrene	...	...	...	...	...	4	
Boil—	1	14	15	...	...	397	
Carbuncle	...	5	5	...	...	100	
Abscess—	1	96	97	2	3	486	
Whitlow	...	13	13	...	...	422	
Cellulitis	1	50	51	...	3	515	
A.—Tinea	1	4	5	...	...	337	
B.—Scabies	...	12	12	2	...	1,050	
Other Diseases of the Skin—	2	2	4	1	1	157	
(*a*) Erythema	...	...	...	...	...	1	
(*b*) Urticaria	...	2	2	...	...	11	
(*c*) Eczema	...	4	4	...	1	365	
(*d*) Herpes	...	1	1	...	...	28	
(*e*) Psoriasis	...	1	1	...	...	6	
(*f*) Elephantiasis ...	1	30	31	1	3	128	
Carried forward ...	128	2,601	2,729	215	123	64,216	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	128	2,601	2,729	215	123	64,216	
IX—AFFECTIONS OF THE SKIN AND CELLULAR TISSUES—*contd.*							
Other Diseases of the Skin—*continued.*							
(*g*) Myiasis	...	...	...	...	...	114	
(*h*) Chigoes	...	2	2	...	...	54	
(*i*) Cutaneous Leishmaniasis	...	...	...	...	...	2	
(*j*) Ulcer	34	285	319	9	26	6,765	
X—DISEASES OF BONES AND ORGANS OF LOCOMOTION (OTHER THAN TUBERCULOUS.)							
Diseases of Bones:							
Osteitis	...	6	6	...	1	196	
Diseases of Joints:							
Arthritis	2	19	21	...	...	1,330	
Synovitis	...	9	9	...	...	148	
Other diseases of bones or organs of locomotion ...	1	28	29	...	4	2,256	
XI—MALFORMATIONS.							
Malformations:							
Hydrocephalus ...							
Hypospadias							
Spina bifida, etc. ...	...	1	1	...	...	...	
XII—DISEASES OF INFANCY.							
Congenital debility ...							
Premature birth	...	2	2	1	1	...	
Other affections of infancy	...	1	1	...	...	3	
Infant neglect (infants of three months or over) ...	...	...	...	...	...	1	
XIII—AFFECTIONS OF OLD AGE.							
Senility—	1	12	13	7	1	34	
Senile dementia ...	...	...	...	...	...	7	
Carried forward ...	166	2,966	3,132	232	156	75,126	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	166	2,966	3,132	232	156	75,126	
XIV—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.							
Suicide by poisoning ...							
Corrosive poisoning (intentional)							
Suicide by gas poisoning							
Suicide by hanging or strangulation ...							
Suicide by drowning ...							
Suicide by firearms ...							
Suicide by cutting or stabbing instruments ...	...	1	1	1	...	...	
Suicide by jumping from a height							
Suicide by crushing ...							
Other suicides							
Food poisoning:							
Botulism							
Attacks of Poisonous Animals:	...	...	...	...	...	8	
Snake bite	...	1	1	...	...	32	
Insect bite	...	...	...	...	...	27	
Other accidental poisonings	...	1	1	1	...	4	
Burns (by fire) ...	2	26	28	7	2	103	
Burns (other than by fire)	...	9	9	1	...	58	
Suffocation (accidental) ...							
Poisoning by gas (accidental)							
Drowning (accidental) ...	...	...	...	...	...	2	
Wounds (by firearms, war excepted)	1	22	23	1	1	4	
Wounds (by cutting or stabbing instruments) ...	5	54	59	..	3	1,038	
Wounds (by fall) ...	1	27	28	..	1	555	
Wounds (in mines or quarries)	...	...	...	...	...	...	
Wounds (by machinery) ...	3	2	5	...	...	77	
Wounds (crushing, e.g. railway accidents, etc.) ...	1	12	13	3	...	22	
Injuries inflicted by animals, bites, kicks, etc. ...	...	11	11	1	1	51	
Wounds inflicted on active service	...	2	2	...	...	1	
Executions of civilians by belligerents							
A.—Overfatigue ...							
B.—Hunger or thirst ...	1	5	6	5	...	...	
Exposure to cold, frostbite, etc.	...	...	...	...	...	1	
Carried forward ...	180	3,139	3,319	252	164	77,109	

AFRICAN—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1927.	Total Admission.	Total Cases treated.	Deaths.	Remaining in Hospital at end of 1928.	New Cases treated.	Subsequent Attendances.
Brought forward ...	180	3,139	3,319	252	164	77,109	
XIV—AFFECTIONS PRODUCED BY EXTERNAL CAUSES—*contd.*							
Exposure to Heat:							
Heat stroke							
Sunstroke							
Lightning stroke	...	2	2	...	...	2	
Electric shock	...	...	...	...	...	1	
Murder by firearms ...							
Murder by cutting or stabbing instruments ...							
Murder by other means ...							
Infanticide (murder of an infant under one year) ...							
A.—Dislocation	...	8	8	...	...	10	
B.—Sprain	1	14	15	..	...	511	
C.—Fracture	4	54	58	6	1	103	
Other external injuries ...	6	181	187	4	4	4,228	
Deaths by violence of unknown cause							
XV—ILL-DEFINED DISEASES.							
Sudden death (cause unknown)							
A.—Diseases not already specified or ill-defined ...	...	2	2	...	...	426	
Ascites	...	20	20	5	...	13	
Œdema	...	1	1	...	...	84	
Asthenia	9	36	45	10	16	551	
Shock	...	3	3	...	...	204	
Hyper-pyrexia ...	...	3	3	1	...	14	
B.—Malingering	...	1	1	...	...	31	
Pyrexia of uncertain origin	...	16	16	...	...	62	
Goundou	...	1	1	...	...	...	
No appreciable disease ...	...	18	18	...	1	17	
Undiagnosed	..	36	36	...	33	51	
Total ...	200	3,535	3,735	278	219	83,417	

Appendices.

A—REPORT OF THE SURGICAL SPECIALIST, CONNAUGHT HOSPITAL.

The surgical clinic at the Connaught Hospital has been taxed somewhat beyond its capabilities during the period under review. Statistics given below show the increase in operative work.

I have not found the year an easy one for two main reasons: the first of these being that workmen have been busy most of the time in the vicinity of the theatre and the noise and dust have been extremely trying; time will however remedy this. The second is of more consequence, it concerns the theatre personnel. This, composed of female nurses, has been so lacking in efficiency as to make the proper running of the theatre quite impossible. It would appear that in this country female nurses are unsuitable in this particular sphere, and they much prefer to be posted to the ward where the work is lighter and evidently more congenial. To find a remedy for this unsatisfactory state of affairs is not easy, but I am of opinion that the appointment of a male theatre staff, two of whom should be permanent, would go some way to solve the difficulty; they would require to be capable of undertaking responsibility, to be mentally alert, and manually dexterous; the post of senior theatre nurse is, I think, almost the most important on the surgical nursing staff. In order to achieve the atmosphere proper to an operating theatre the first essential is that the staff should be keen and efficient; failing this desideratum major operative work becomes a great source of anxiety to the surgeon and sooner or later the patients suffer.

My experience as surgical consultant to the European Hospital leads me to advocate the establishment of a small number of beds for European surgical cases at the Connaught Hospital. The European Hospital, while advantageously situated for convalescence, is to my mind quite unsuitable for the diagnosis and treatment of major surgical cases. The necessary facilities do not exist there, and it is impossible for the surgeon who is busily occupied six miles away to give these cases the attention they require. The surgical service of the main hospital with its X-ray plant, its pathological laboratory, and its trained staff accustomed to operative technique should, I am convinced, be available for Europeans.

Several improvements in equipment and methods have been effected. The X-ray plant was put into working order in September with the aid of a technician kindly lent by the Royal Army Medical Corps; it has been of immense assistance and one wonders how the hospital got on without it. Sixty radiograms have been taken and twelve screen examinations made. A shadowless lamp of the latest type has been erected in the theatre facilitating greatly operative work at night and in dull weather. A new steam sterilizer has been connected up to the main supply and is proving efficient. Ethyl chloride has been introduced as an anæsthetic for short operations, such as the opening of abscesses, and has been very successful. Spinal continues to the mainstay in anæsthetics, and I consider it to be unsurpassed for most types of surgical procedure required in West Africa. Inguinal hernia remains the chief condition requiring treatment, drainage of septic conditions coming second, urethral stricture third. Twenty-five excisions of scrotal elephantiasis (some of them of large size) and twenty-two hysterectomies for fibroids of the uterus have been carried out without any mortality. Surgical tuberculosis has again been rarely met with, the only authentic cases being one of tuberculous testicle and two of spinal caries. I have only had to deal with one case of appendicitis and one gastric ulcer and have not had a case of gall bladder disease or of duodenal ulcer. In this connection it is interesting to record that in almost seven years in West Africa I have not seen a definite case of duodenal ulcer, only one cholelithiasis, one simple gastric ulcer, one malignant gastric ulcer, one cancer of the bowel, and very few pathological appendices; this remarkable contrast to European practice requires explanation, difference of environment does not seem to account entirely for it, although in my opinion diet must be a leading factor, and apparently the answer to the secret should be sought also in the make-up of the individual. Details of cases of cancer with photographs of microscopical sections and notes on cases of interest met with during the year are appended.

I am indebted for the section reports and microphotographs to the kindness of Mr. D. M Greig, F.R.C.S.E., Conservator of the Royal College of Surgeons' Museum, Edinburgh.

QUINTIN STEWART,
Surgical Specialist.

Operations at the Connaught Hospital in 1928.

	Cured.	Relieved.	Unrelieved.	Died.
(1) Abdominal:				
Herniotomy inguinal	142	...	...	1
Herniotomy for umbilical hernia ...	1	...	...	...
Herniotomy for strangulated inguinal hernia	8	...	...	3
Herniotomy for strangulated intra abdominal hernia	...	...	...	1
Partial resection of stomach for gastric ulcer and modified Polya-anastomosis	1	...	...	...
Exploratory laparotomy for sarcoma of liver	...	...	1	...
Aspiration of liver for liver abscess	...	...	...	1
Exploratory aspiration of liver ...	...	...	1	...
Talma-Morrison operation for cirrhosis of liver	...	1	...	...
Appendicectomy for sub-acute appendicitis	1	...	...	...
Enterostomy for megalocolon with obstruction	...	...	...	1
Drainage for perforated ulcer of cæcum	...	...	...	1
Resection of intestine and ileo-cæcostomy in irreducible hernia	1	...	...	...
Resection of ileocæcal carcinoma and ileo-transverse colostomy ...	1 (provisional)	...	...	...
Excision of mesenteric cyst ...	1	...	...	...
(2) Ano-Rectal:				
Excision of fistula in ano ...	...	2	...	...
Excision of hæmorrhoids ..	1	...	...	...
Dilatation of rectal stricture ...	...	2	...	...
Sigmoidoscopy	...	...	4	...
(3) Blood Vessels:				
Ligature of femoral artery for femoral aneurism	1	...	...	..
Sympathectomy of femoral artery for ulcer of leg	1	...	...	...
Excision of varicose veins ...	1	...	...	...
Injection of varicose veins ...	2	...	...	...
(4) Ear, Nose and Throat:				
Conchotomy	1	...	...	...
Removal of foreign bodies ...	1	...	...	...
Enucleation of tonsils	7	...	...	...
Incision of furuncle	1	...	...	...
(5) Eyes:				
Needling of cataract	...	1	...	...
Extraction of cataract	4	...	...	...
Curette evacuation for traumatic cataract	2	...	...	...
Optical iridectomy	1	...	...	...
Excision of eyeball and eyelid for epithelioma	...	1 (temporary)	...	...
Excision of eyeball for panophthalmitis	1	...	...	...
Excision of cyst of eyelid ...	2	...	...	...
Extraction of foreign bodies ...	1	...	...	...
(6) Genito-Urinary (Male):				
Cystoscopy	...	...	6	...
Excision of scrotum for elephantiasis	25	...	...	...
Radical cure of hydrocele ...	63	...	...	...

	Cured.	Relieved.	Unrelieved	Died.
Nephrectomy for calculous pyonephrosis	...	...	...	1
Excision of inguinal glands ...	2	...	...	...
Removal of prostatic stone by suprapubic route	...	...	...	1
Catheter drainage for hypertrophied prostate	...	...	...	1
Suprapubic prostatectomy for hypertrophy	1	...		1
Suprapubic prostatectomy for carcinoma	...	1	...	...
Plastic operation for penile fistula	...	1	...	...
Plastic operation for deformity of penis	...	2	...	...
Suprapubic cystostomy for drainage of bladder	10	7	2	...
Excision of diverticula of bladder	1	...	...	...
Dilatation of stricture	...	91	...	...
Perineal urethrotomy	1	...	...	...
Excision of urethral sinuses ...	2	2	1	1
Drainage for extravasation of urine	...	...	...	1
Vasostomy	...	1	...	...
Circumcision	10	...	...	...
Orchidectomy :—				
(*a*) for tuberculosis ...	1	...	...	...
(*b*) for painful enlargement and fibrosis	5	...	...	...
(7) *Gynæcological:*				
Hysterectomy for fibroids ...	22	...	...	...
Myomectomy	1	...	...	...
Curettage for endometritis ..	2	2	...	...
Trachelorrhaphy	1	...	...	...
Excision of portion of carcinoma of cervix for diagnosis ...	...	...	1	...
Gilliam's operation	3	...	...	...
Ventro-fixation	1	...	...	...
Excision of broad ligament cyst ...	3	...	..	...
Ovariotomy for ovarian cyst ...	4	...	...	...
Marsupialisation of ovarian cyst ...	...	1	...	...
Salpingo-oophorectomy ...	3	...	...	...
Plastic operation for vesico-vaginal fistula	...	...	2	...
Transplantation of ureters into colon for vesico-vaginal fistula	1	...	...	1
Colostomy for recto-vaginal fistula	...	1	...	...
(8) *Head and Neck:*				
Trephining of skull for removal of foreign body	1	...	...	...
Drainage of cerebral abscess ...	...	...	...	1
Elephantiasis of face	...	...	1	...
Excision of fistula of chin ...	...	...	1	...
Excision of sarcoma of maxillary antrum	...	3	...	...
(9) *Miscellaneous:*				
Drainage of septic conditions ...	112	...	...	2
Suture of wounds	6	...	...	...
Extraction of teeth	10	...	...	1
Examination under anæsthesia ...	...	...	4	...
(10) *Obstetrical:*				
Cæsarean section for contracted pelvis	2	...	...	...
Hysterectomy for ruptured lower uterine segment	...	...	...	1

	Cured.	Relieved.	Unrelieved.	Died.
(11) Orthopædics:				
Reduction of fractures and separated epiphysis	23	...	...	...
Reduction of dislocations ...	4	...	...	...
Open operations for fractures and dislocations:—				
(*a*) Suturing of fractured patella	1	...	...	...
(*b*) Reduction of Colle's fracture	1	...	...	...
(*c*) Excision of dislocated head of radius ...	1	...	...	...
Extension of fractured femur by means of Steinman's pin or calliper tongs	2	...	...	...
Excision of hypertrophied bone	...	1	...	...
Excision of cystic neuroma of internal popliteal nerve ...	1	...	...	...
Drainage and sequestrectomy for osteomyelitis	10	4	...	...
Drainage of arthritis	5	...	...	1
Breaking down of adhesions in joint	...	2	...	...
Suture of cut tendons ...	3	...	...	...
Transplantation of forearm tendons—				
(*a*) for musculo-spiral paralysis	...	1	...	...
(*b*) for birth palsy ...	...	1	...	...
Amputation of leg	1	...	...	2
„ foot	1	...	...	...
„ toes	9	...	...	...
„ fingers	1	...	..	...
Reamputation for painful stump	1	...	...	...
(12) Skin and Subcutaneous Tissues:				
Excision of melanoma of foot ...	1 (provisional)	...	...	...
Excision of ulcers	4	...	...	...
Skin grafting	10	...	...	...
Removal of foreign bodies ...	3	...	...	...
Excision of sebaceous cysts ...	2	...	...	...
Excision of corns	2	...	...	...
(13) Tumours—Malignant classified above:				
Benign:—				
Lipoma	5	...	...	...
Fibroma	4	...	. .	...
Epithelial odontome ...	1	...	...	...
Leiomyoma	1	...	...	...
Mixed salivary gland ...	2	...	...	...
Goundou	1	...	...	...
Granuloma	1	...	...	...
Adenoma	1	...	...	...
Dermoid	1	...	...	...
Total ...	579	128	25	23

Of the 25 operations marked unrelieved 16 were diagnostic procedures.

OPERATIONS PERFORMED AT THE EUROPEAN HOSPITAL IN 1928.

	Cured.	Relieved.	Unrelieved.	Died.
Herniotomy inguinal	2	...	...	...
Removal of part of sacrum for compound fracture	1	..	...	...
Excision of sebaceous cyst ...	1	..	...	...
Suture of wounds	2	...	...	. .
Removal of foreign body in foot	1	...	...	...
Curetting of septic mandible ...	1	...	...	...
Total ...	8			

Major Operations.	Minor Operations.	Percentage of Deaths.
407	348	3

Number of Operations in 1926	29
„ „ 1927	257
„ „ 1928	755

Anæsthetics.

Spinal	385
Ethyl chloride	132
Chloroform	59
Local	42
Colonic ether	5
Total ...	623

Intravenous injections given in wards	142
Fractures treated in wards	43

LIST OF SURGICAL OPERATIONS PERFORMED ELSEWHERE REPORTED BY MEDICAL OFFICERS.

STATIONS.	Number.	Cured.	Relieved.	Unrelieved.	Died.
Kissy	41 minor operations were performed.				
Bonthe	9 operations were performed.				
Daru	8	5	2	...	1
Moyamba	Several minor operations (not detailed) were done.				
Makeni	23	14	6	1	2
Kabala	5	5	...	...	...
Kaiyima	5	4	...	...	1
Sumbuya	6	5	1	...	...
Pujehun	2	2	...	...	...
Total	99	35	9	1	4

ANALYSIS OF CANCER CASES SEEN FROM 14TH OCTOBER, 1927 WHEN I ASSUMED DUTY UNTIL 31ST DECEMBER, 1928.

Case.	Native of.	Europeanised.[2]	Sex.	Date.	Clinical Diagnosis.	Operation.	Confirmed microscopically.	
Growth from sole of foot ...	Sierra Leone Freetown.	To some extent.	M.	14 10 27	Chronic ulcer with suspicious edges.	Yes.	Yes.	Squamous epithelioma.
Growth in breast and glands ...	Sierra Leone Up country.	No.	F.	7 11 27	Carcinoma.	Yes.	Yes.	Alveolar carcinoma of usual scirrhus type Gland shows secondary invasion.
Growth from eyeball and lower lid	Liberia Kroo seaman.	To some extent	M.	12 1 28	Panophthalmitis with suspicious ulcer of lower lid.	Yes.	Yes.[1]	Squamous epithelioma probably originating in eyelid and penetrating the eyeball.
Growth of uterine cervix ...	Liberia.	To a large extent.	F.	28 1 28	Carcinoma.	Inoperable.	Yes.	Squamous celled carcinoma.
Enlarged prostate	Sierra Leone Up country.	To a large extent.	M.	7 3 28	Prostate of hard fibrous type.	Yes.	Yes.	Adeno-carcinoma.
Growth in breast and glands ...	Sierra Leone Freetown.	To a large extent.	F.	30 3 28	Carcinoma.	Inoperable.	No.	But very typical clinically with a mass of supraclavicular glands. Died three months later—no post-mortem.
Black growth from sole of foot with glands in groin[1]	Sierra Leone Up country.	To some extent.	F.	1 6 28	Melanoma.	Yes.	Yes.	Melanoma.
Ileo-caecal growth	Sierra Leone Up country.	To some extent.	M.	27 10 28	Intestinal tumour.	Yes.	Yes.	Colloid adeno-carcinoma.

1. It is doubtful whether this new growth should be included under carcinoma or sarcoma.
2. The information in this column is not of much value—its accuracy is only approximate.

B—MATERNITY WARD—CONNAUGHT HOSPITAL.

Dr. E. A. Renner was in charge of the ward from 20th March until 10th September and Dr. Wright the remainder of the year.

There were 311 patients admitted of which number 190 were labour cases and 121 complicated pregnancies. Of the labour cases eighty-three were primiparæ, and 107 multiparæ and gave birth to 198 children— there being eight twin labours. Thirty of the abnormal cases were due to torn perinæum—twelve of this number required suturing.

The result of the eight twin labours as regards the children was as follows:—Fifteen living children and one dead born; one child died an hour after birth, so that fourteen twin children were discharged from hospital alive. The following table shows the presentation in each case:—

One Forceps Delivery, Vertex and Breech		... ...	Both alive.
One Vertex and Breech,		... ...	Both alive.
Two Vertex and Vertex,		... ...	All alive.
One Breech and Vertex,		... ...	Both alive.
One Vertex and Vertex	(*a*)	Dead-born	
	(*b*)	Died one hour after birth.	
One Transverse and Vertex	(*a*)	Shoulder presentation, Podalic version ...	Both alive.
One Vertex and Footling ...		... ...	Both alive.

The 190 labour cases consisted of the following peoples:—

	1927.	1928.
Creoles	131	148
Krus	35	36
Timines	5	2
Mendes	4	1
Mandingos	1	3
Fulah	1	0

The figures for 1927 are given by way of contrast and it will be seen that the proportion of country people to creoles is much the same as last year.

The average stay in hospital of each patient was 6·3 days. Last year it was 7·8 days and the year before 6·2 days.

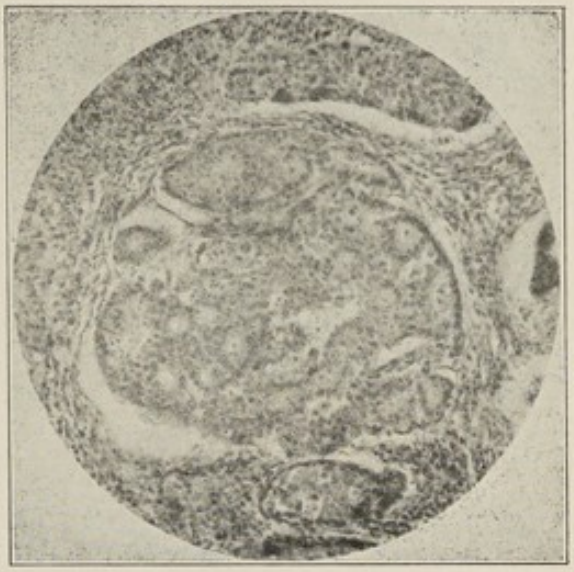
The following table in which each case is designated under its most salient abnormality, gives details of the seventy-eight abnormal cases:—

Designation.	Number.	Remarks.
Ante and post-partem Eclampsia	1	Living child.
Breech	7	One still-born. One extended legs, died 40 minutes after birth. one died 25 minutes after birth.
Dead-born	3	One premature.
Face	1	Alive.
Forceps	8	Six alive; one died 15 minutes after birth. one died 2 days 9 hours after birth (Flat pelvis).
Persistent occipito post	3	All alive.
Placenta prævia	2	Children alive; one breech, central placenta prævia, Podalic version; one Face e marginal placenta prævia.
Premature	9	Six alive; one died 4 hours after birth; one died 9½ hours after birth; one macerated.
Carried forward	34	

ADENOCARCINOMA OF CÆCUM.

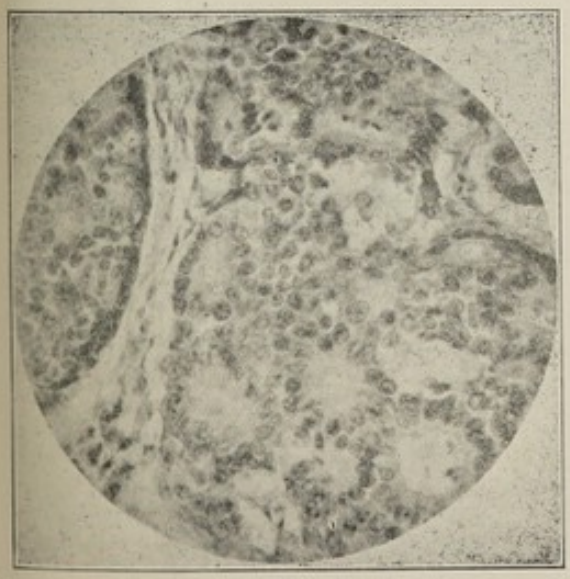
X 110

O THE RIGHT SIDE IS AN INVADING ACINOUS OF HE ADENOCARCINOMA AND A LITTLE NEARER THE CENTRE A TYPICAL HEALTHY ACINOUS OF A LIEBERKUHN'S GLAND.



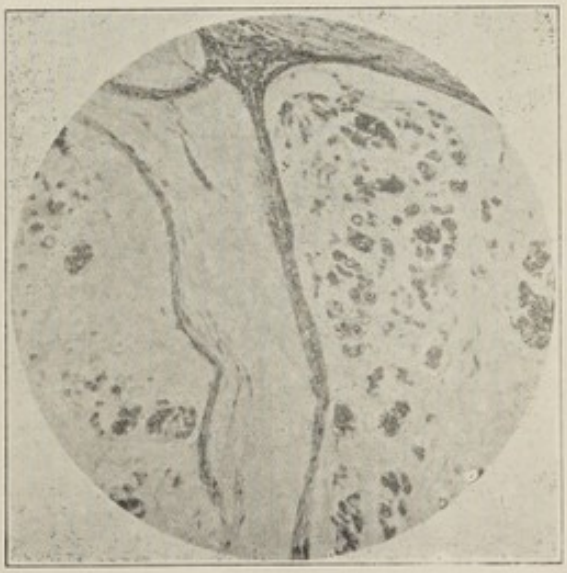
X 120

SHOWS THE INFILTRATING MASS OF ADENOCARCINOMA UNDER A HIGHER MAGNIFICATION.



X 300

SHOWS THE ACINI OF THE ADENOCARCINOMA WITH A LUMEN IN THE CENTRE, EACH NUCLEUS BEING PLACED AT THE BASE OF ITS CELL. THE CELLS ARE CLEAR, THE PROTOPLASM BEING LESS GRANULAR THAN NORMAL.

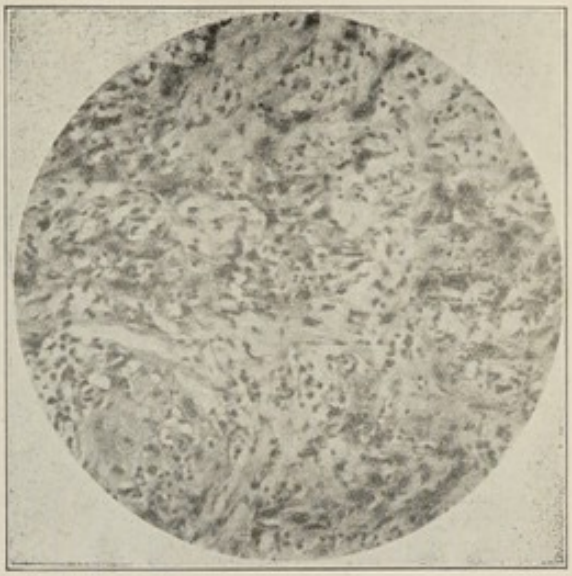


X 110

AN AREA OF COLLOID DEGENERATION SHOWING THE LOSS OF DIFFERENTIATION OF THE DIFFERENT STRUCTURES.

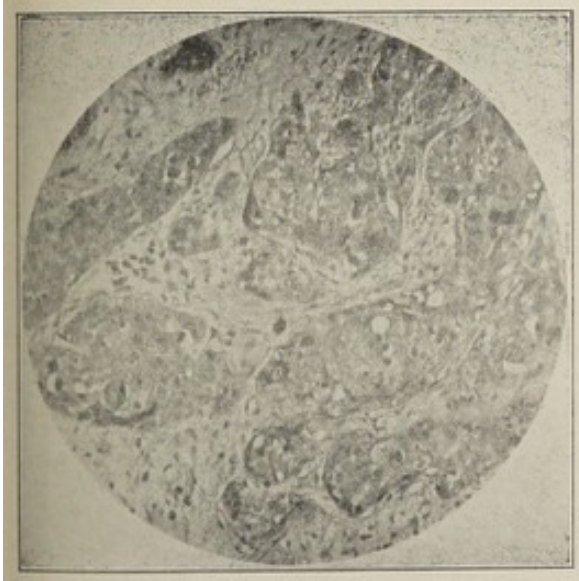
X 70

SQUAMOUS EPITHELIOMA OF FOOT CELL NESTS PROMINENT IN CORIUM.



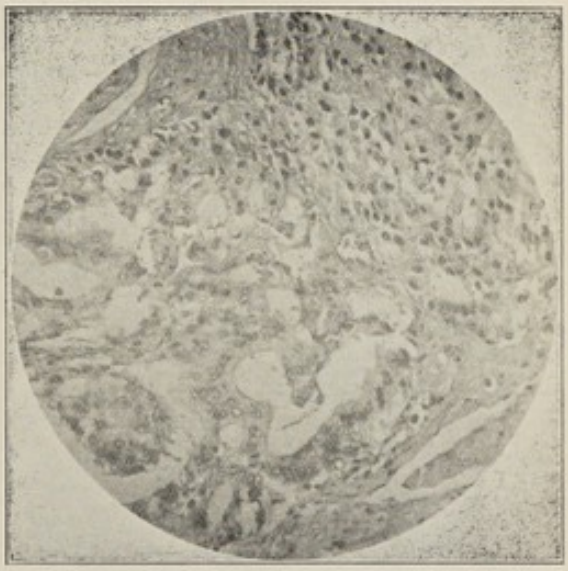
X 150

SQUAMOUS EPITHELIOMA INFILTRATING TISSUES OF EYELID.



X 150

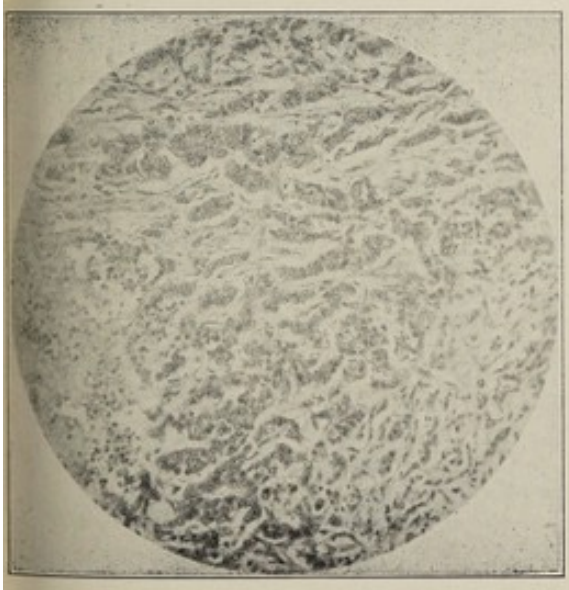
SQUAMOUS EPITHELIOMA OF UTERINE CERVIX.



X 150

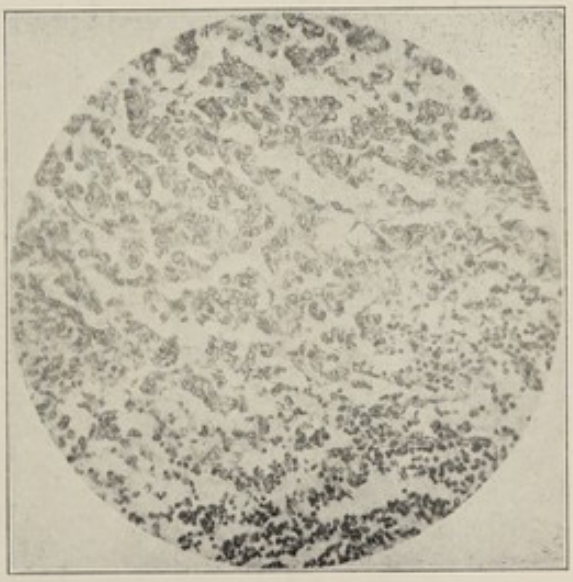
ADENOCARCINOMA OF PROSTATE.

CARCINOMA OF BREAST.



X 150.

CARCINOMATOUS CELLS
FORMING IRREGULAR ALVEOLAR FORMATION.



X 150

AXILLARY GLAND SHOWING INVASION

Designation	Number.	Remarks.
Brought forward	34	
Torn perinæum	30	One, Impacted head, Craniotomy Extraction c Cranioclast. Eight sutured primigravidæ. Four sutured multiparæ.
Twins	8	One, Forceps delivery, vertex and breech, both alive. One vertex and breech, both alive. Two vertex and vertex, all alive. One breech and vertex, both alive. One vertex and vertex : (*a*) Dead-born (*b*) Died 1 hour after delivery. One transverse and vertex (*a*) shoulder presentation, podalic version, both alive. One vertex and footling, both alive
Transverse presentation	1	Cæsarian hysterectomy. Transferred to surgical ward after operation.
Still-births	2	One breech, footling—primigravida.
Prolapsus fundis	1	Vertex presentation—still-birth.
Cæsarian section	1	Achondroplasic dwarf. Flat pelvis. Baby died 3½ hours after delivery.
Dystocia	1	Rigid cervix—Cæsarian section.
Total ...	78	

There were two deaths among labour cases:—

(1) Post-partum eclampsia.

(2) Exhaustion after craniotomy and extraction.

This case was admitted in a collapsed condition.

This next table gives details of the 121 complicated pregnancies, i.e. cases admitted during pregnancy and the puerperium, but not giving birth in hospital.

False pain and observation	46
Abortion—threatened	9
,, incomplete	6
,, complete	5
Pre-eclampsia	2
Hyperemesis gravidarum	4
Malaria	4
Albuminuria	2
Subinvolution	3
Miscarriage—complete	2
Retained placenta	5
Pseudocyesis	3
Ante-partum hæmorrhage	1
Post-partum hæmorrhage	1
Baby born before admission	7
Bronchitis	3
Abscess vulva	2
Pneumonia	1
Puerperium observation	2
Post-partum eclampsia	1
Ante and post-partum eclampsia	1
Pregnancy, œdema legs	3
Myalgia	1
Dysentery	1
Post-partum debility	1
Splenomegaly	1
Debility after child birth	1
Debility with gestation	1
Pleurisy	1
Total ...	121

There were two deaths among these cases:—

(1) Neglected malaria in 24th week of pregnancy.

(2) Abortion.

Of the 198 babies born in the ward twenty-two were lost; five dead-born, four still-born, and fourteen died after birth.

Still-birth.	Dead-birth.	Died after Birth.
1 Central placenta prævia	1 Premature	3 Twins
1 Prolapse of cord	1 Twin	1 Breech
1 Breech	1 Impacted head craniotomy	1 Footling
1 No feature	1 No feature	3 Premature
		1 Forceps
		1 Flat pelvis
		4 No feature

Last year the Infant Mortality which included still and dead-births, for the Maternity Ward, was 153 per 1,000 and for this year 111 per 1,000.

The maternal mortality was 1·3 against 2·8 per cent. last year.

E. J. WRIGHT,
Medical Officer-in-charge of Maternity Ward.

C—REPORT ON TRYPANOSOMIASIS IN THE CAPE PENINSULA, TOGETHER WITH AN ACCOUNT OF THE PREVALENCE OF INFECTED AND UNINFECTED TSETSE-FLIES IN THE SAME AREA.

By R. M. Gordon, Assistant Director, and R. Aidin, Research Assistant, from the Sir Alfred Jones Research Laboratory, Freetown.

During the early part of the year 1928 this laboratory was asked to examine certain patients from the village of Aberdeen who were suspected to be suffering from trypanosomiasis. In February trypanosomes were demonstrated in the blood or gland juice of two of these cases. This discovery together with previous records showed that sporadic cases of sleeping sickness continued to occur in Aberdeen long after the disease had disappeared from the rest of Freetown, Mabang, some forty miles from Freetown, being the nearest other village from which proved cases had been obtained within recent years. About the same time that these positive cases were discovered Dr. Blacklock (Lady Medical Officer) drew the attention of the medical authorities to the high proportion of enlarged cervical glands occurring amongst the children who were attending school at Aberdeen. In view of these facts it was determined to carry out a thorough medical examination of as many of the inhabitants of Aberdeen as possible, and also to examine the cattle sheep and goats which were available. In addition it was proposed to investigate the proportion of fly existing in the cleared and uncleared areas and what proportion of infected fly existed in the same areas. The work was commenced in June, 1928, and completed in September of the same year.

1—Examination of the Human Population.

This examination was divided into two periods. (1) From 6th June to 19th July clinics were held twice a week in the village of Aberdeen. At these clinics all the children attending school were examined and as soon as the clinic was completed another was held for the examination of adults. Encouragement was given to all persons to attend for medical examination but in practice this clinic, unlike the children's clinic, consisted for the most part of persons requiring medicine or dressings. The result of each individual examination of children and adults was entered on a separate case sheet in the form shown below.

School	Infant	*Sex*	M
Date ...	12th June, 1928	*Age*	12
Name ...	Claudius Sawyerr	*How long Aberdeen*	Born there
Address ...	Johnson Street	*Tribe*	Creole
General Nutrition ...	Fair	*Temperature* 100	*Pulse* 103
Cervical Glands ...	*Ant* + +	*Puncturable* Yes	*Cause* Dirty Scalp ?
„ „ ...	*Post* +	*Puncturable* No	*Cause* „ „
Other glands ...	... Inguinal, a few small glands		

Facies	Dull	*Tallquist* 70	(this was not continued after the first 100.)
Blood	*Fresh film* Neg	*Stained film*	*thin* M. T. rings
	Auto-agglutination Neg		*thick* M. T. rings
Gland Puncture ...	Not done	*Animal Inoculation* ...	Not done

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During this time cases which were suspected of trypanosomiasis had repeated blood examinations performed; but gland puncture was not attempted till a later date, as it was thought that this form of examination might deter others, especially children, from attending the clinic. (2) From the 23rd July to 3rd August inclusive we lived in the rest-house at the Cape Lighthouse Peninsula, the clinics were continued and an attempt was made to re-examine all those cases which had previously aroused suspicions of trypanosomiasis. As many of these persons as permitted the examination had gland puncture performed on them.

The results of these combined examinations were as follows:—

Blood Examination.—A total of 240 persons were examined; of these seventy-one were excluded as being under five years of age and/or not resident on the Cape Peninsula.

The remaining 169 persons were found to consist of sixty-three adults (twenty-five males, thirty-eight females) and 106 children five to fifteen years of age. In each of the 169 cases the peripheral blood was examined by means of (*a*) a fresh film (*b*) a stained thin film and (*c*) a stained thick film; in a number of instances the patient was re-examined on various dates. In one suspicious case 10 cc of blood was taken from the vein and centrifuged. Trypanosomes were never found in the blood of any of the 169 cases examined by the methods enumerated.

General Examination.—Macfie and Gallagher (1914) while at Eket in Nigeria examined 962 natives and found 222 of these infected with trypanosomes. Amongst this large number of positive cases in not a single instance were trypanosomes demonstrated in the peripheral blood, in each they were found in the cervical glands, in the majority of cases by gland puncture and in a few instances by gland excision. Macfie and Gallagher drew attention to the high proportion of children with glandular enlargement in the infected districts and give it as their opinion that many of these cases were suffering from trypanosomiasis, although trypanosomes were not demonstrated in their peripheral blood or gland juice. We have already referred to the Lady Medical Officer's observations of the high proportion of glandular enlargement amongst children attending school at Aberdeen. Our results detailed below are in agreement with her findings.

Table I shows the incidence of glandular enlargement amongst children at Aberdeen as compared with similar examinations made by one of us (R.M.G.) at Mabang, and Macfie and Gallagher's figures for the Eket district. Their figures as originally published dealt with a different age classification and a slightly different glandular enlargement classification from that used by us. As, however, they have published all the necessary data we have been able to remodel their tables so as to make them comparable with our own.

Table I showing the incidence of enlarged cervical glands amongst children and adults. (1) Adapted from Macfie and Gallagher's (1914) figures for Mpok, Nigeria, where trypanosomiasis existed in the past but is now almost unknown. (2) Macfie and Gallagher's figures for Ikot Offong where trypanosomiasis was very prevalent at the time of their observations. (3) at Mabang where trypanosomiasis has occurred in the past but has not been recorded for several years. (4) at Aberdeen.

	Macfie and Gallagher, (1914) Mpok, Nigeria Total adults 528 Total children 297.	Macfie and Gallagher (1914) Ikot Offong Total adults 68 Total children 69.	Gordon (1927) Mabang Total adults 129 Total children 83.	Gordon and Aidin (1928) Aberdeen Total adults 63 Total children 106.
Percentage of adults with enlarged cervical glands + +	0·4	0	1·5	3·2
Percentage of adults with enlarged cervical glands +	65·7	35·3	6·9	20·6
Percentage of adults with no enlargement of the cervical glands	33·9	64·7	91·6	76·2
Percentage of children with enlarged cervical glands + +	2·70	21·8	11·1	19·8
Percentage of children with enlarged cervical glands +	86·5	69·5	19·2	50·9
Percentage of children with no enlargement of the cervical glands ...	10·8	8·7	69·7	29·3

These figures from the Peninsula appear to show that cervical gland enlargement is present amongst an unusually high proportion of the adult and child populations. Certain of these cases also presented other clinical features suggestive of trypanosomiasis. It is difficult to assess the value of such features in writing, but certain cases of glandular enlargement accompanied by complaints of frontal headache and lethargy appeared to us to be suspicious and to warrant further investigation. Unfortunately the inhabitants of Aberdeen while extremely anxious to receive medicine, are very averse to such examination as gland puncture, and we were only able to perform a total of seventeen gland punctures in suspicious cases. In thirteen of these fluid was obtained but in none of them were trypanosomes found.

Some of these negative cases presented such suspicious symptoms that it would appear advisable to keep them under observation and re-examine them at a later date. One of these cases may be quoted as an example:—she was a woman of about nineteen years of age who came to the clinic complaining of constant frontal headache which had persisted now for over a year. The glands in both posterior cervical triangles were enlarged and soft. Her general appearance was heavy and lethargic. Temperature 100·4, pulse 120; she was examined on several occasions with negative results, blood and gland puncture both being

negative, auto-agglutination was noticed on the two occasions it was looked for. It later transpired that this woman was sharing a house with her brother, a carpenter living in Aberdeen village, and that this man had been examined by one of us in February, 1928, while a patient at the Connaught Hospital and trypanosomes (*T. gambiense*) demonstrated in his peripheral blood.

Auto-agglutination.—From the specimen Table already referred to it can be seen that the blood of each individual was examined once or oftener for auto-agglutination. This consisted in examining a drop of fresh peripheral blood, taking care that the slide and cover-slip were thoroughly clean. This technique is liable to certain errors, but it has the advantage of rapidity and this was necessary in order to examine all the natives awaiting attention at the clinic. Amongst sixty-three adults thus examined nine (14 per cent.) gave a positive reaction and amongst 106 children fourteen (13 per cent.) were similarly positive. Four of these cases had their blood re-examined on a later date; all four gave a similar result. These figures are distinctly higher than those obtained by one of us (R.M.G.) at Mabang where 10 per cent. of adults and 4 per cent. of children exhibited auto-agglutination. There appears to be a certain degree of association between positive auto-agglutination, sixteen (70 per cent.) being associated with enlarged cervical glands. The cases of auto-agglutination appeared to be evenly distributed amongst adults and children, so that this figure is well above the average (*see* Table I). The auto-agglutination exhibited by some of the cases was very marked and one of them presented other features suggestive of sleeping sickness. This patient was a woman forty-six years of age who had lived in Aberdeen all her life. She presented herself at the clinic to receive treatment for ulcers on the leg; she also complained of increasing weakness and constant frontal headache. She appeared fairly bright and intelligent when spoken to, but when left alone she became apathetic until again addressed. Both posterior triangles contained enlarged cervical glands. Her temperature was 101·4, pulse 100. Her blood was examined on three occasions, each time for prolonged periods, with negative results. She refused gland puncture and on being pressed to accept, absented herself from the clinic. The auto-agglutination persisted in this woman's blood over the period of sixteen days during which she was under observation; on each occasion the agglutination was very marked, so much so, that a dried thick film from this case could easily be distinguished from similar slides of normal blood.

The results of our examination of the inhabitants of the Cape Peninsula for the presence of trypanosomes were therefore completely negative. On the other hand, prior to the commencement of the investigation, trypanosomes were demonstrated in two individuals living in the village of Aberdeen and as only 169 persons of five years of age and upwards, out of a total population of 590 (1921 Census), presented themselves for examination, it seems probable that had it been possible to examine a larger number of natives more cases would have been detected. Finally, certain cases regarded by us as highly suspicious were probably true cases of trypanosomiasis in whom partial immunity had developed and the trypanosomes had become too scanty for detection by ordinary methods of examination. Other suspicious cases were also observed but further investigation was rendered impossible by the refusal of the patients to submit to proper examination. Blacklock (1922) has already drawn attention to this attitude; he writes : " It would therefore have been very desirable to examine both human beings and domestic stock on the Peninsula but, unfortunately, all attempts to carry out this investigation were frustrated by the reluctance of the people to submit either themselves or their stock to this examination." Since this report of Blacklock's was written the attitude of the natives has greatly improved, but a really thorough investigation of the disease cannot be carried out until the inhabitants of the Peninsula allow themselves to be examined with greater freedom than they do at present.

2—Examination of the Animal Population.

The domestic animals on the Peninsula consist of cattle, sheep, goats, dogs, etc. During the period of our investigation the only cattle resident in the area were two oxen, " Pensioners " from the Sanitary Department. These two animals were fat and appeared to be in excellent condition; their blood was negative for trypanosomes. Three other oxen were kept for some time at a small farm which adjoins the Lumley road where it enters the beach; the blood of these animals was also negative. On some occasions quite large herds (forty or more) of cattle can be seen grazing on the grass adjoining Lumley Beach about midway between the Lighthouse and the farm already referred to. These animals are on their way down from French Africa and are seldom quartered on the beach for more than a few days; during the two months we had the area under observation this herd was only seen on two occasions, and then only during the course of one day. Mr. Momodu Alli corroborates this observation and further informs us that during 1928 he used the beach grazing very little owing to certain legal difficulties. It is possible that when such herds appear the tsetse flies attack them in large numbers but the portion of land on which these cattle were grazed is fairly free from tsetse and we do not think it at all likely that the high rate of infection amongst the fly, which we show later in this report to exist, can be accounted for by the intermittent presence of these cattle.

Sheep and goats are plentiful on the Peninsula but it is impossible to get any exact figure for their numbers, there are probably 150–200. Seventy animals (forty-three sheep and twenty-seven goats) were examined by means of a single fresh blood film; no trypanosomes were found. Dogs are very common in the village of Aberdeen but it was not considered practicable to carry out a proper examination of their blood and the type of infection subsequently found in the flies does not support the view that they obtain their infection from this source. With the exception of monkeys and squirrels, we observed very few wild animals at Aberdeen. A number of deer exist in the uncleared portions of the Peninsula.

Yorke and Blacklock (1915*a*) recorded that 8 per cent. of the fly dissected on the Peninsula contained recognizable blood cells, of these 7 per cent. were mammalian in character and 1 per cent. nucleated. We observed no nucleated red cells amongst the 209 flies dissected, but it is difficult to be certain about this point as the majority of the flies brought for examination had partially fed on their captors.

3—Distribution of Fly.

General observations as regards the distribution of fly were made during June, July and August, but the active collection of flies by trained fly-boys was only carried out during the period we were in residence at the Cape Lighthouse, that is from the 23rd July to the 3rd August inclusive, this particular time of the year being specially selected in order to make the results obtained comparable with Blacklock's work which was carried out from 12th July to 19th August, 1922. For practical purposes our figures can also be legitimately compared with the same writer's later report which covers the period of the 16th August to the 5th September, 1924. The greater part of the fly dissections were also carried out during the period we were living at the Lighthouse.

The only species of tsetse observed by us was *Glossina palpalis*. General observations as to the distribution of the fly show that they are still fairly numerous all over the Peninsula Fly were never observed following the ferry-boat which crosses from the mainland to Aberdeen, but they were often observed to accompany the boat on its return journey. During the period that we were holding twice-weekly clinics at the Aberdeen school houses one fly at least was almost always seen in the schoolroom during the course of the morning's work. After leaving the school house and continuing from Aberdeen village to the Lighthouse we were usually accompanied by fly; these were easily observed during the rains as they have a tendency to alight on the inside of the open umbrella. Fly were consistently less common on the return journey from Aberdeen to the ferry than from Aberdeen to the Lighthouse, and this observation held true for all hours of the day. While searching for mosquito larvæ we frequently had occasion to walk round the coast line from Pirate Bay to the Lighthouse skirting the tide level and keeping to the sea side of the cliffs all the way. Such a site as this would appear very unfavourable for fly, but we usually observed several during the course of the walk, even when this was undertaken in the hottest part of the day; on the other hand, when searching for mosquito larvæ in the small pools inside the cleared area adjoining the mangrove swamps near Aberdeen ferry, we never observed a single fly.

Blacklock (1924) records that even the offer of a reward of one shilling a fly failed to result in the capture of a single fly in the cleared area. At the time of Blacklock's observations the cleared area only included the area of land which lies to the left of the path leading from the beach to the Lighthouse. The entire Cape as far as the narrow isthmus has now been cleared and the rest-house is therefore inside the cleared area. While we were at the rest-house fly were comparatively common; one or two flies were usually captured daily attempting to bite persons working on the verandah. Similarly the telephone operator just inside the Lighthouse usually averaged a fly a day. These general observations are borne out by the more exact figures which follow.

In order to have comparable figures regarding the distribution of fly in different areas, it is of importance that the same collectors should be constantly engaged. This result was achieved by employing six natives belonging to the Sanitary Department; they were under the charge of a Sanitary Inspector and were brought to Aberdeen every morning by motor-lorry and returned to Freetown the same evening. These " Fly boys " were first trained in the technique of catching and " bottling " flies and were then posted, in three lots of two each, in different areas on the Cape and instructed to catch all the flies that alighted upon them. During their hours of work they were kept under more or less constant supervision by visits from ourselves and the Sanitary Inspector. The fly boys rapidly became proficient at the work and, so far as one could judge, showed very little individual differences, that is to say catches made in the same area, under similar conditions as regards weather, etc., but by different lots of boys, were similar. The six boys were employed on ten days for a total period of 153 hours and during this time caught a total of 1·9 fly per boy per hour. It is of interest to compare these figures with those obtained from Blacklock's 1922 and 1924 reports. In the case of the latter report certain collections, in which the exact time taken to collect them is not recorded, have been omitted.

Table II showing the number of flies captured per boy per hour at the Cape Peninsula during the years 1922, 1924 and 1928.

Authority.	Condition of Bush at Time of Observation.	Total Time Spent in Hours.	Total Fly Caught.	Number of Flies Caught per Boy per Hour.
Blacklock (1922)	Before clearing commenced	57	272	4·8
Blacklock (1924)	After clearing commenced	30	83	2·8
Gordon and Aidin (1928)	After considerable clearing had been accomplished	153	298	1·9

These figures appear to furnish conclusive proof that the clearing of bush has resulted in a marked reduction in the number of fly, a fact of very great importance when the high proportion of infected fly is later considered.

For the purpose of comparing the number of fly caught in different situations the Peninsula was divided into four areas as shown on the attached map. No. 1 area inculdes the western portion of the Peninsula and extends eastward as far as the narrowest portion of the isthmus, this point is marked by a telegraph pole beside the road. The whole of this area is now cleared and covered by a rich growth of " Efwatakala grass." No. II area extends from here to a point 100 yards west of Aberdeen village; small portions of this area have been cleared. This area was not examined for more than one hundred yards south of the road joining the Lighthouse to Cockle Bay. No. III area includes Aberdeen village and extends to 100 yards east of the village. No. IV area includes the remainder of the Peninsula as far as Cockle Bay. Next to No. I this is the best cleared area. The distribution of the 298 flies captured in these areas is shown in Table III.

Table III showing the distribution of 298 flies captured in different areas on the Peninsula.

Area.	Condition of Bush at Time of Observation.	Total Time Spent in Hours.	Total Fly Caught.	Number of Flies Caught per Boy per Hour.
I	Cleared	30	62	2·1
II	Partial clearing commenced ...	47	75	1·6
III	Partial clearing commenced ...	62·5	133	2·1
IV	Partial clearing commenced ...	13·5	28	2·1
	Total ...	153	298	—

Blacklock's (1924) actual figures for the number of flies caught per boy per hour in No. 1 area are based on eighty-three flies caught by two boys in ten hours. At the time of Blacklock's observations No. 1 area (then known as the Experimental Area) was completely cleared on the left hand side of the path leading to the Lighthouse, but only partially cleared on the other side, whereas no clearing whatsoever had been done on, what is described in our paper, as " No. II Area."

Blacklock's figures are as follows:—

Section I cleared.	Section II partially cleared.	Outside Area.
0	2·4	5·9

Blacklock's figure of 5·9 for the uncleared area is of interest as compared with our highest figure 2·1 and shows how successful the clearing has been. On the other hand the condition of the completely cleared area is at first sight disappointing, whereas in 1924 it was impossible to obtain a single fly on this area our observations show that flies are now as common there as on the rest of the Peninsula. It is impossible to draw any conclusion from this observation until a proper survey of tsetse-fly breeding places has been carried out. It may be that the fly are again breeding on this piece of land; but what appears more likely is that the cleared area has not yet been sufficiently extended inland and that fly are crossing from the uncleared into the cleared areas. This hypothesis is rendered all the more probable by the fact that the only two cattle on the Peninsula are kept on this particular piece of land and they probably act as a powerful source of attraction for the fly. These cattle were not on the Peninsula at the time of Blacklock's observations but were brought there immediately afterwards.

4—Dissection of Wild Fly.

The majority of the fly dissections were carried out during the period 23rd July to 3rd August. The proboscis and labial cavity, hypopharynx, salivary glands and gut, were examined in each case.

Proportion of Infected Fly.—Two hundred and nine flies were dissected, of these forty (19 per cent.) were found to be infected. Table IV shows this proportion of infected flies as compared with other observers' figures for the same district.

Table IV showing the percentage of infection occurring amongst wild flies collected at the Peninsula during recent years.

Authority and Date.	Number of Fly Dissected.	Total Fly found Infected.	Percentage of Fly found Infected.
Yorke and Blacklock (1915)	400	19	4·7
Blacklock (1922)	471	28	5·9
Gordon and Aidin (1928)	209	40	19·1

This great increase in the percentage of infected flies is most remarkable and calls for some explanation; for a proportion of almost one infected fly to five non-infected indicates that there must be some large reservoir of vertebrate hosts from which the flies are obtaining their infection. We have to acknowledge that up to the present we have completely failed to discover the nature of this host. We have already discussed the apparent absence of trypanosomes from the peripheral blood of the human and domestic animal population which we have had the opportunity of examining and the only remaining likely source is wild animals of all sorts. It is proposed very shortly to examine as many of these as possible, but during residence at Aberdeen we saw very little wild life and the local inhabitants confirm this observation.

Distribution of Infected Fly.—The distribution of the infected fly does not suggest that wild animals are the main source of infection.

Table V showing the distribution of forty infected flies captured in different areas on the Peninsula.

Area.	Condition of Bush at Time of Observation.	Total Fly Captured.	Total Fly found Infected.	Percentage of Fly found Infected.
I	Cleared	64	11	17·2
II	Partial clearing commenced ...	40	6	15·0
III	Partial clearing commenced ...	84	18	21·4
IV	Partial clearing commenced ...	21	5	23·8
	Total ...	209	40	—

It will be seen from Table V that the smallest proportion of infected flies occurred in the least cleared portion of the Peninsula that is in area No. II, whereas if the infection was due to wild game one might reasonably expect this area to yield the highest proportion of infected flies.

Site of Infection.—An examination of the anatomical sites of infection amongst the forty infected flies throws some light on the subject and somewhat narrows the field of enquiry.

Table VI showing the site of infection amongst forty infected flies collected at the Peninsula during July and August, 1928.

Number.	Sex.	Proboscis and Labial Cavity.	Hypo-pharynx.	Gut.	Sali-vary Glands.	Number.	Sex.	Probosis and Labial Cavity.	Hypo-pharynx.	Gut.	Sali-vary Glands.
1	F	+	−	−	−	21	M	+	−	−	−
2	M	+	−	−	−	22	F	+	−	−	−
3	M	+	−	−	−	23	M	++	+	−	−
4	M	−	−	+++	−	24	F	+++	+	−	−
5	M	−	−	++	−	25	M	−	−	+	−
6	M	+	−	−	−	26	F	+	+	−	−
7	M	+++	+	−	−	27	M	+++	+	−	−
8	M	−	++	−	−	28	M	++	−	−	−
9	M	+	+	−	−	29	F	++++	++	−	−
10	F	+++	−	−	−	30	M	+	−	−	−
11	M	+	−	−	−	31	M	+	+	−	−
12	M	++	+++	−	−	32	M	−	+	−	−
13	F	+	++	−	−	33	F	++++	++	−	−
14	F	++	+	−	−	34	F	++	+	−	−
15	M	−	+	−	−	35	M	+	+++	−	−
16	F	+	−	−	−	36	M	++	−	−	−
17	M	++	−	++	−	37	M	+++	+++	+++	−
18	F	++	−	−	−	38	F	−	++	−	−
19	M	++	−	−	−	39	M	+	−	−	−
20	F	+++	+++	−	−	40	M	−	+	−	−

It can be seen from the above table that the great majority (87·5 per cent.) of the infections occur in the proboscis, labial cavity and hypopharynx; such infections are probably due to *T. vivax*, whereas the two flies in which the proboscis infection was combined with a gut infection were probably infected with *T. congolense*. The cause of infection in the remaining three flies is doubtful, but presuming that they were due to *T. congolense* this gives the proportion of 12·5 per cent. infections with *T. congolense*. and 87·5 infecions with *T. vivax*. These figures make it fairly certain that dogs are not responsible for the increased rate of infection amongst the fly, for these animals are not infected with *T. vivax* in nature while the entire absence of salivary infections is sufficient proof that the cause is not of human origin. Suspicion therefore would appear to rest on the domestic stock, especially sheep and goats or else on the wild game, deer, etc., which exist in the bush.

It is of interest to compare these figures of the site of infection with Yorke and Blacklock's (1915*b*) and Blacklock's (1922) figures. The three sets of figures agree very closely except that there appears a decrease in the proportion of gut infections. In 1915 it was 28·5 per cent., while in 1928 it was 12·5 per cent. and a corresponding increase of proboscis and hypopharynx infections. As regards the infection of the fly with the human type of trypanosome Yorke and Blacklock (1915) failed to find any salivary gland infections amongst the 400 tsetse they dissected, Blacklock (1922) found a solitary gland infection amongst 471 dissections while the present writer's figures show no salivary gland infection amongst 209 flies dissected. This gives only one salivary gland infection amongst a total of 1,080 fly dissections. On the other hand the high rate of infection with types other than the human renders the Peninsula quite unsuitable for cattle or cattle breeding experiments.

We have shown that a remarkable increase of infection with the animal strains of trypanosomes has taken place and it must not be forgotten that as long as the tsetse fly persists on the Peninsula and cases of human trypanosomiasis occur in its vicinity, a similar rise with the human type of infection might at any time take place.

Summary.

Two cases of human trypanosomiasis occurred in the village of Aberdeen in the Cape Peninsula at the beginning of 1928. Later in the year a further examination of 169 persons, aged five and upwards, from the same locality failed to reveal any further cases in whose blood or gland juice trypanosomes could be demonstrated. But there was found to exist in this area an abnormally high proportion of natives, especially children, with enlarged cervical glands. Some of these also exhibited other signs and symptoms very suggestive of trypanosomiasis. It appears likely that some of these cases which had aroused suspicion were probably true cases of trypanosomiasis in whom partial immunity had developed and had rendered the number of trypanosomes too scanty for detection, except by repeated examinations.

The partial clearing of the Peninsula has proved highly successful and has resulted in a great reduction in the total number of tsetse flies (*Glossina palpalis*). Blacklock (1924) showed that a small clearing had reduced the average number of flies caught by one boy in one hour to 2·4, as compared with 4·8 in 1922; while our figures show that the continuation of the clearing has further reduced the figure to 1·9. Unfortunately in spite of this great general reduction the fly have returned to the completely cleared area, and are now as numerous there as elsewhere on the Peninsula. It is probable that they are crossing from the uncleared area to the cleared area, rather than that they are breeding in the cleared area.

Two hundred and nine flies were dissected. No certain evidence of infection with the human type of trypanosome was discovered, but the proportion of fly infected with the animal type of trypanosome has undergone a remarkable increase. Yorke and Blacklock (1915*b*) and Blacklock (1922) showed that approximately 5 per cent. of the fly were infected, whereas our figures prove that at the present time over 19 per cent. of the fly are infected. The host or hosts, from which the fly are becoming infected, has not yet been ascertained An examination of seventy sheep and goats and of the few cattle that were living on the Peninsula failed to incriminate these animals as a reservoir of infection.

Recommendations.

1. The clearing on the Peninsula is undoubtedly proving successful and should be continued. We consider that the best results would be obtained by abandoning work on isolated areas and instead concentrating all available labour in a combined effort to continue the complete clearing from the Lighthouse towards the mainland. At present this clearing extends as far as the isthmus at Man-of-War Bay and only represents a total area af about half a square mile. When a sufficiently large area has been cleared further observations could be made as to the number of flies occurring, and from these results it should be possible to reach a conclusion, unobtainable from the present small area, as to the possibility of completely eradicating the tsetse fly from the district.

2. A larger proportion of the inhabitants of Aberdeen should be medically examined for the presence of trypanosomes. Suspicious cases in addition to those we have already recorded, should be kept under observation and re-examined at intervals.

3. An attempt should be made to ascertain whether fly are, or are not, breeding on the completely cleared area.

4. The failure to discover the host responsible for the high proportion of infected fly suggests the advisability of an examination of the wild animals (deer, etc.) occurring in the Peninsula and of a further examination of the domestic stock at Aberdeen.

Acknowledgments.

We desire to acknowledge the assistance of the Medical Department in supplying transport and labour.

We are indebted to Dr. .V B. Wigglesworth for permission to publish the photographs accompanying this paper.

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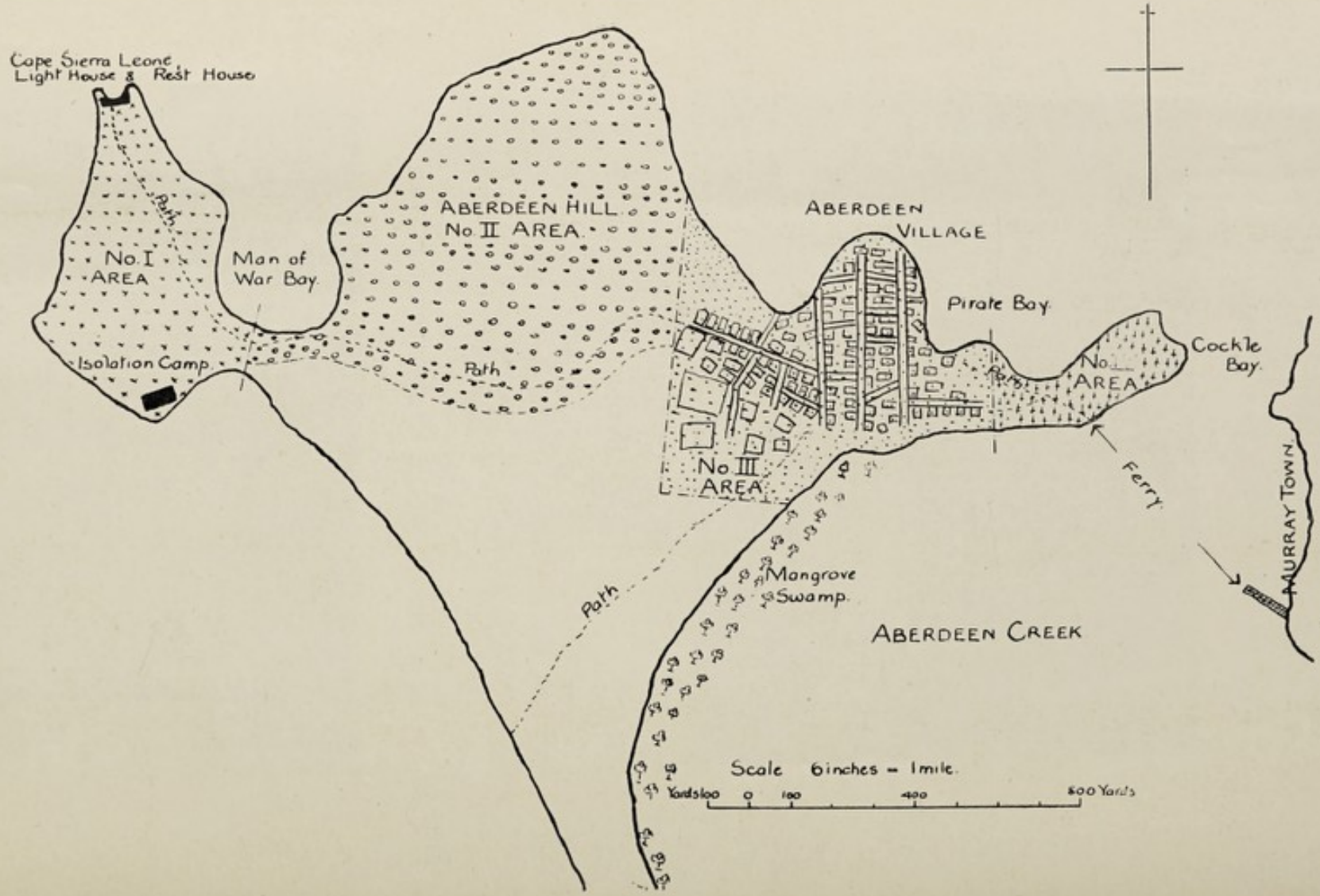
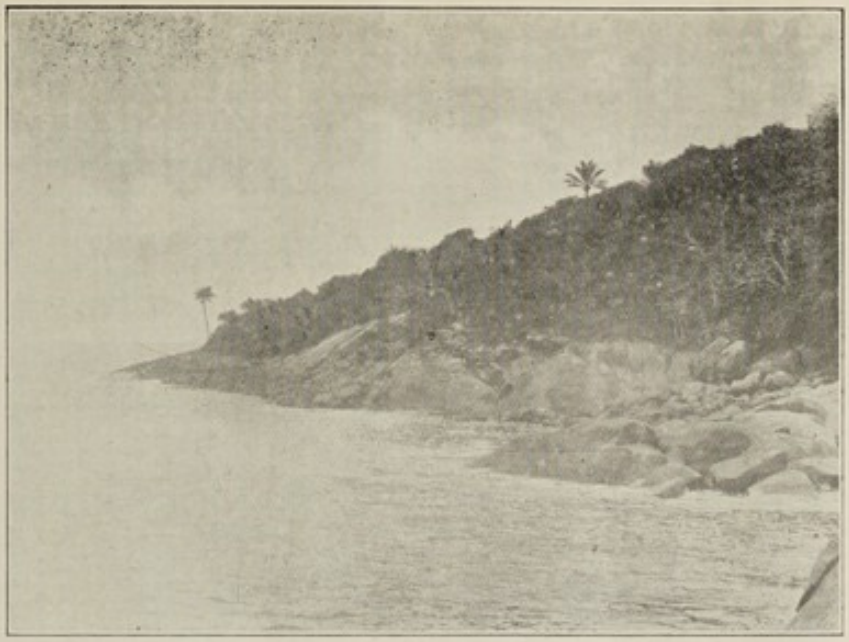

Cape Sierra Leone
Light House & Rest House
Path
No I
AREA
Man of
War Bay
Isolation Camp
ABERDEEN HILL
No II AREA
Path
ABERDEEN
VILLAGE
Pirate Bay
No III
AREA
Path
Mangrove
Swamp
ABERDEEN CREEK
No
AREA
Cockle
Bay
Ferry
MURRAY TOWN
Scale 6 inches = 1 mile.
Yards 100 0 100 400 800 Yards

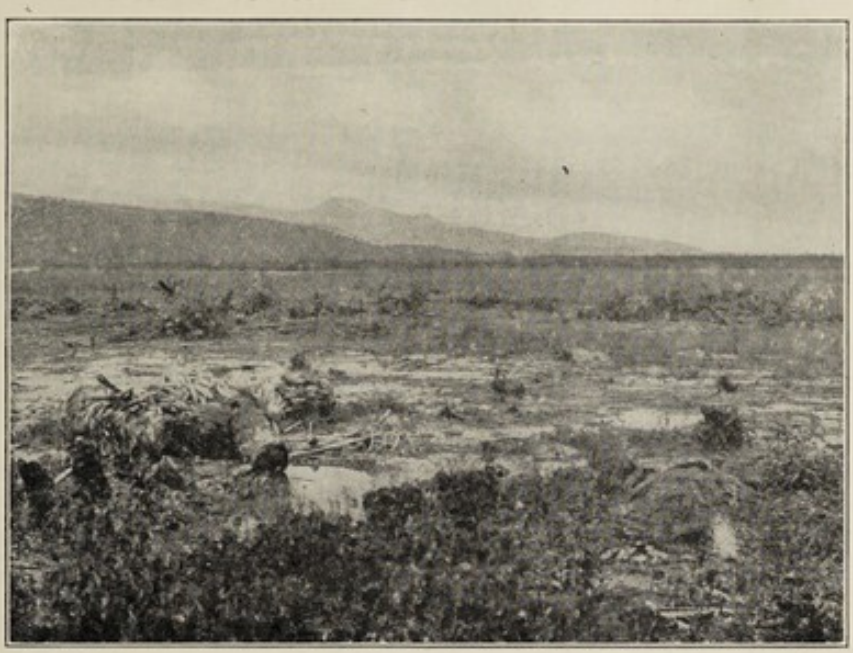
NO. I. AREA. AFTER HAVING BEEN CLEARED.

NO. II AREA.— PARTIALLY CLEARED PORTION.



NO. II AREA. SHOWING DENSE BUSH EXTENDING DOWN TO SHORE.

NO. II AREA. JUNCTION OF CLEARED AND UNCLEARED AREAS.



NO. IV AREA. CLEARING NEAR MANGROVE SWAMPS.

NO. III AREA. OUTSKIRTS OF ABERDEEN VILLAGE.

D—IDENTIFICATION OF BITING FLIES FROM MABANG.

The biting flies collected were forwarded to Liverpool where they were indentified by Miss A. M. Evans, Liverpool School of Tropical Medicine, to whom the writer's thanks are due.

All the mosquitoes recorded below were captured in the Lands and Forests bungalow area. Anopheline larvæ were searched for and found in various places in the oil-palm site, but no attempt was made to rear adults from collections so obtained.

Mosquitoes marked with an asterisk were bred from collections of water found on the Lands and Forests bungalow area. The remainder were adults captured in the Lands and Forests bungalow.

Mosquitoes.

Anopheles mauritianus	Daruty and D'Emmerez
Anopheles squamosus	Theo.
* *Anopheles theileri*	Edw.
* *Anopheles marshalli* (var)	
* *Anopheles marshalli* (var hargreavesi)	Evans
Mansonioides africanus...	Theo.
Mansonioides uniformis...	Theo.
Taeniorhynchus aurites	Theo.
Taeniorhynchus metallicus	Theo.
Culex grahami	Theo.
* *Culex consimilis*	Newst.
* *Culex* (*Culiciomyia*) *nebulosa*	Theo.
* *Uranotaenia sp* near *mashonaensis*	Theo.
*† *Armigeres albomarginata* (var argenteoventralis) ...	Theo.
* *Aedes* (*Stegomyia*) *africana*	Theo.
* *Aedes* (*Stegomyia*) *apicoargentes*	Theo.
* *Aedes* (*Stegomyia*) *fraseri*	Edw
* *Aedes* (*Stegomyia*) sp (*poweri* group)	
* *Aedes* (*Finlaya*) *longipalpis*	Grumb

Biting Flies other than Mosquitoes.

Glossina palpalis	R. D.
Glossina fusca	Walk.
Tabanus besti (*var arbucklei*)	Aust
Tabanus fasciatus	Fab
Tabanus par	Walk
Tabanus taeniola	P. de B.
Haematopota furians	Edw.
Chrysops longicornis	Macg.
Simulium damnosum	Theo.

The absence of A. costalis adults or larvæ from the Lands and Forests bungalow is of interest.

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* This report was accidentally omitted from Appendix C in the 1927 Annual Report.

† First record from Sierra Leone.

E—REPORT ON INFANT WELFARE.

(*a*) Connaught Hospital and Campbell Street.

The Infant Welfare work in connection with these two wards has been carried out at the Connaught Hospital and at No. 99 Campbell Street.

Drs. Blacklock, Barker, and Renner had charge for varying periods from April to 10th September and Dr. Wright during the first quarter and the rest of the year.

Nurse Macfoy has been in charge throughout the year, assisted by a pupil Health Visitor, Nurse Deen. Regular attendance at the clinics depends a good deal on the visits of the Health Visitor, but unfortunately Nurse Macfoy has not sufficient time to do the amount of visiting necessary to keep the attendances as regular as desirable. Three mornings a week and one afternoon she has to be in attendance at the clinics.

Three hundred and two pregnant women attended the Ante-Natal Clinic during the year, so it is apparent that there should be more than enough district work for one whole-time nurse in this department alone.

The total number of Infant Welfare attendances during the year was 6,579, and that of new individuals attending was 698.

The following table shows the number of monthly attendances at each clinic:—

	Connaught Hospital.			Campbell Street.			
Date.	Old Cases.	New. Cases.	Total.	Date.	Old Cases.	New Cases.	Total.
January ...	211	33	244	January ...	277	40	317
February ...	213	31	244	February ...	338	50	388
March ...	202	27	229	March ...	297	27	324
April	134	22	156	April	295	39	334
May	167	22	189	May	217	10	227
June	188	29	217	June	208	28	236
July	167	36	203	July	308	47	355
August ...	197	30	227	August ...	225	21	246
September ...	231	25	256	September ...	252	22	274
October ...	255	26	281	October ...	340	38	378
November ...	396	31	427	November ...	339	26	365
December ...	200	12	212	December ...	224	25	249
	2,561	324	2,885		3,320	373	3,693

The percentage of nationalties of new cases attending the clinics in 1928 are given below with those of the previous two years:—

	Creoles.	Aborigines.	Krus.	Various.
1926	69 per cent.	17 per cent.	13 per cent.	1 per cent.
1927	60 per cent.	27 per cent.	12 per cent.	1 per cent.
1928	52 per cent.	36 per cent.	11 per cent.	1 per cent.

The figures are of interest because they show a steady increase in the attendance of the aborigines.

The following table is a record of the visits paid by the District Nurse month by month during the year.

Date.	Newly Born.	New Cases.	Repeated Visits.
January	48	68	88
February	44	58	100
March	37	47	116
April	29	41	102
May	31	38	116
June	34	40	109
July	49	45	298
August	38	38	320
September	39	53	399
October	48	67	296
November	34	70	352
December	22	35	210
	453	600	2,506

It will be noticed that the District Nurse visited 453 newly born babies out of about 907 births registered for Freetown during the year. Last year she visited 859 out of 881; the falling off during this year is no doubt accounted for by the engagement of a separate District Health Visitor for the East Ward which in previous years was included in this record.

As in former years it is impossible to give any analysis of the diseases treated because the children have usually more than one ailment and are frequently brougth with a fresh complaint at every subsequent attendance. All the usual childish ailments are seen at these clinics, e.g. Eczema, Thrush, Rickets, Sore buttocks, Constipation, Dentitional troubles, Bronchitis, Fever (usually malaria) and umbilical hernia. Whooping cough, broncho-peneumonia yaws and congenital syphilis are occasionally seen in the clinics.

There was a good deal of public disappointment over the infant mortality rate which was considered by some to be abnormally high. Last year this infant mortality rate was worked out for the three principle communities in the town viz:—Creoles Aborigines and Krus. It was found that although the total infant mortality rate was 357 that for the Creoles was only 204. It was shown that this figure probably gave the truest estimate of the infant mortality rate. This year the total infant mortality rate for Freetown is 364, showing 247 for the Creoles against 204 last year; for the Aborigines 632 against 708, and the Krus 337 against 447 last year. It will be seen that the figure for the Aborigines and Krus shows an improvement whereas that for the Creoles does not.

The increase in the figures for the Creoles can, I think, be accounted for by the abnormal climatic conditions during the year which appeared to severely affect infants. These figures have been extracted from the registers of births and deaths, but European and Syrian children have been omitted.

The table on page 88 gives the analysis of deaths under twelve monhs, and from one year to three years, month by month, and for each of the three important communities in Freetown.

The Annual Mother Craft and Baby Competition was held in the Victoria Park on 22nd December. Drs. Pratt, Alexander and Renner acted as Judges and, as in previous years, prizes were given to the most deserving children in each class.

Pamphlets giving advice to expectant mothers, and on Infant Wefare were freely distributed.

E. J. WRIGHT,

Medical Officer-in-charge of Connaught Hospital and Campbell Street Infant Welfare Centres.

ANALYSIS OF DEATHS UNDER TWELVE MONTHS, ETC., IN FREETOWN.

MONTH.	CREOLES.		ABORIGINES.		KRUS.		VARIOUS.		TOTALS.
	Under 12 months.	1 year and up to 3 years.	Under 12 months.	1 year and up to 3 years.	Under 12 months.	1 year and up to 3 years.	Under 12 months.	1 year and up to 3 years.	
January	7	2	11	1	—	—	—	—	21
February	7	2	14	1	—	—	—	—	24
March	9	—	10	—	2	4	—	—	25
April	6	1	12	3	1	—	—	—	23
May	12	6	8	4	3	—	—	—	33
June	20	8	21	14	3	1	1	—	68
July	24	15	22	6	6	1	1	—	75
August	11	8	15	4	5	—	—	—	43
September	5	6	15	11	3	3	—	—	43
October	12	3	6	6	5	1	—	1	34
November	11	7	12	2	4	1	—	—	37
December	4	1	14	4	7	—	—	—	30
Total ...	128	59	160	56	39	11	2	1	456

(*b*) Princess Christian Mission Hospital.

This clinic was held on each Thursday morning at the Princess Christian Mission Hospital. During my absence on leave from May to October, Drs. Beattie, Barker and Allan, successively acted as Medical Officer. The sisters and nurses of the hospital assisted at the clinic and Mrs. Wright when in Freetown very kindly supervised the weighing of the children. Owing to the increase in numbers Dr. Beattie, the Resident Medical Officer of the hospital, has helped me latterly at the clinic. Miss Beatrice Johnson acted as Health Visitor and Miss Olutunu Tuboku-Metzger as clerk.

Table I, showing number of attendances for 1928.

January	534
February	624
March	751
April	619
May	686
June	732
July	530
August	737
September	550
October	664
November	899
December	686
Total	8,012

Table II, showing the yearly attendances since the Welfare started.

Year.		Number.
1925	...	1,983
1926	...	3,976
1927	...	6,463
1928	...	8,012

As will be seen from the accompanying tables the number of children attending the clinic this year shows a marked increase and the increase as in last year has been in great part due to the attendance of children belonging to the Protectorate tribes now resident in Freetown and among whom at first the clinic was regarded with suspicion.

There is also this year an increase in the number of children coming from country districts, e.g. Colony villages, Bullom district, villages along the Rokelle River, and even from the Songo and Kwia districts. From these districts the attendance has been naturally irregular, many of the children being brought originally for injections for yaws; but a certain proportion of mothers bring back their children from time to time. It is indeed surprising the distance a mother will travel on foot or by boat for treatment of a sick child, and at a very early hour in the morning mothers from distant villages will appear at the hospital.

Chiefly for these mothers whose idea of time and day of the week is often vague, I arranged with Dr. Beattie that any sick child of welfare age should receive free treatment on any day at hospital and, if necessary, be admitted to the wards to which I have access. One would think the mothers would bring their children as a matter of course if sick; but until it was definitely explained to them many allowed their children to suffer without medical treatment until the next Infant Clinic. The number of such attendances has not been included in the Welfare figures.

As regards the care of children in town up to three years of age we have now a fairly complete scheme for the supervision of their health. All children registered, and many not registered, who have been born in country districts, are seen by the Health Visitor in house to house visits and advice is given to the mothers, who are also told to bring them to the clinic. Regular supervision of them is continued and if sick they can be treated on any day at the hospital.

The Health Visitor reports having made 4,405 visits, of which 501 were visits to newborn children, and 3,904 return visits. Of these children thirty-eight were either born dead or died within a few weeks of birth, and two mothers died in childbirth. Sixty-eight of the children were born in hospital.

The diseases seen at the clinic are much the same as in previous years. Much enlarged spleens, however, are now seldom seen except in children from country districts. The weekly clinic and facilities for free treatment at the hospital would appear to be causing a distinct improvement in the prevalence of chronic malarial infection.

The problem of the feeding of the up-to-twelve-months child rarely gives difficulty except among the more ignorant mothers who still supplement breast feeding with most unsuitable articles of food. "Country Medicines" would also appear responsible for a number of cases of gastro-enteritis.

The feeding of the one-to-two-year old child is more difficult, but removal of the import tax on milk this year should make this necessary food more easily obtainable for these children; it is still, however, too dear for general use. The clinic has been kept well supplied by the Sanitary Department with cod-liver oil, and with Radio Malt and allied preparations.

Motherless children are kept in hospital until the guardian is taught how to feed the child. There are several such children at present in hospital whose care, under the supervision of the European Sister in charge of the ward, provides a useful training for the nurses and future health visitors.

There was an epidemic of measles during the rainy season and cases of whooping cough appeared from time to time. A larger number of cases of yaws was treated this year, the children coming chiefly from country districts, but there were several cases also in the neighbourhood of Savage Square in Freetown.

M. G. BLACKLOCK,
Lady Medical Officer.

F—ANTE-NATAL CLINIC—CAMPBELL STREET CENTRE.

The Ante-Natal Clinic which was started in 1927 was continued throughout the year at No. 99 Campbell Street. A weekly session was held as usual on Tuesday mornings, and the following table gives a record of the attendance month by month during the year.

Date.	Old Cases.	New Cases.	Totals.
January	163	47	210
February	121	24	145
March	86	19	105
April	97	23	120
May	140	26	166
June	115	22	137
July	145	40	185
August	112	27	139
September	97	28	125
October	183	47	230
November	132	28	160
December	91	18	109
	1,482	349	1,831

There were 349 new individuals on the register and of this number 302 were actually pregnant. For the year there were about 907 births registered in Freetown, so it will be seen that the clinic must have dealt with a goodly proportion of pregnant women.

Of the 302 actually pregnant, 202 were multigravidæ and 100 prima gravidæ. The 202 multigravidæ had given birth to 582 chidren of which number 353 were alive and 229 dead at the time of first attendance at the clinic.

Among them there were thirty-four abortions and eleven still-births. The figure for still-births is in my opinion inaccurate—probably due to a reluctance on the part of the mothers to admit having given birth to a still-born baby.

Of the women attending the clinic, ninety-four gave birth in the Connaught Hospital, and eighty-one were known to have given birth at home.

Measurement of the pelvis was among the routine examinations made, and the average measurements for the normal pelvis as seen at this clinic were estimated in the following manner.

Only those pelves through which an apparently full-time living child has passed were considered normal and included in the list from which the average was to be estimated. There were some ninety-one such pelves, and they gave an average of—

Inter-spinous ... ... 9 ins.
Internal Cristal ... ... 10 ,,
External Conjugate ... ... 7 ,,

It is interesting to note that forty-two of these pelves had only a difference of half-an-inch or less between the Inter-spinous, and the Inter cristal.

The result of another routine examination— that of the teeth is given in the following table :—

Number of Teeth Decayed.	Number of Patients.	Total Number of Decayed Teeth.
0	255	0
1	14	14
2	16	32
3	6	18
4	16	64
5	3	15
6	9	54
7	1	7
8	4	32
9	1	9
10	1	10
12	2	24
	328	279

It will be seen that 328 patients had 279 carious teeth showing an average of ·85 carious teeth per person.

E. J. WRIGHT,

Medical Officer-in-charge of Campbell Street Centre.

G—(*a*)—REPORT ON THE MEDICAL EXAMINATION OF SCHOOL CHILDREN.

Inspection of school children was carried out during the months of January, February and March in the rural districts and in Freetown, and on my return from leave, during October and November in the Protectorate.

TABLE I.

Schools Examined.		Number.	
Rural:			
Goderich		37	
Gloucester		56	
Wilberforce Government		131	
			224
Urban:			
Buxton Amalgamated		218	
Government Model		139	
Cathedral		246	
Cline Town		43	
			646
Protectorate:			
Moyamba	U. B. C. Girls	132	
	St. Joseph's Convent	47	
	Roman Catholic Boys	45	
	U. B. C. Amalgamated	59	
Sembehun	U. B. C.	25	
	Roman Catholic	16	
			324
	Total		1,194

There is undoubtedly in the better class schools a definite improvement in the health of the school children; more attention is, I think, being paid to this matter by the parents; there is also a marked increase in the interest in health questions shown by the teachers, who frequently draw my attention to physical defects among their pupils. The prominence given to health problems by Health Week Propaganda, by Infant Welfare and School Clinics, and by the interest shown in this matter by the Education Department, who put Hygiene in the forefront of the school curriculum, all appear to be making an impression on the minds of the people with resulting benefit to the school children.

There are still, however, several schools, both in the Protectorate and in Freetown itself, where the health of the children and the sanitary condition of the latrines and school compounds are not sufficiently considered by the managers, teachers and parents.

The insanitary condition of school latrines has been mentioned in school medical reports year by year, yet in some schools little improvement has been effected. The expense of building new latrines has been offered as an excuse; but although in some cases new buildings are necessary, in several cases great improvement could be effected by repairing the boarding of floor and seat and by providing seat covers. Most important of all, however, is the necessity for adequate supervision of the sanitary condition of the latrine by the teaching staff.

I would suggest that this matter should be specifically brought to the notice of the school inspectors and of the managers of schools.

Much the same diseases were observed as in previous years; the following points, however, appear noteworthy.

Skin.—The incidence of scabies with resultant ulcers and impetigo is still high. Its infectious nature is shown by its prevalence in one school and its rarity in another. The same holds true of ringworm infection both of scalp and body and of pityriasis versicolor, which latter is very common on face and chest. *Yaws and syphilis*—Children showing a generalized framboesial eruption were only occasionally seen in Freetown. In rural villages and in the Protectorate schools it was more common. Severe cases absent themselves from school, especially in town, but even here one sees children with a few framboesial nodules, though these are often disguised with black pigment. Crab yaws on the feet and pitting

of the soles, or more rarely of the palms, were comparatively common. As stated last year, a common manifestation of this disease is a follicular or papular skin rash. This is frequently associated with framboesial nodules. In the early stages it looks like grey patches of gooseflesh irregularly scattered over the trunk and limbs; at a later stage the papules are larger and the affected skin then resembles a nutmeg-grater. This latter stage of the eruption is more limited in extent and is most seen on the extensor surfaces of the arms and on the buttocks and knees. This skin condition yields to injection of sulpharsenol.

Sabre-tibia and natiform-skull were seen on a few occasions.

Eyes.—Corneal opacities, blepharitis, styes, and conjunctivitis occur. During this year I have noticed a number of cases of follicular conjunctivitis. In most cases this consists of pin-head-sized grey or pink granules on the lower retro-tarsal fold with irritation, some photophobia, and a slight discharge of muco-pus. I have lately, however, seen three cases in which the disease was much more extensive. In one, a girl of eight years, there were numerous granules in the upper retro-tarsal fold, which was considerably swollen, and also under the conjunctiva of the upper lid. She had ptosis of both upper lids and had the heavy sleepy appearance associated with trachoma. I have not yet seen a case of definite trachoma, but the above is suggestive and is being carefully treated and inspected.

Worms.—Worms are almost universal among the younger children and one cannot hope for much improvement in this matter till the condition of the latrines is improved.

Feet.—On visiting a school during drill hour one is struck by the number of children who have to be excused drill due to injured feet. Cuts and resulting septic sores account for some of these; jiggers under and between the toes and under the toe nails and giving rise to sepsis cause a great amount of suffering. One school was so universally infected that the school building had to be disinfected by the Sanitary Department. " Jigger drill " was held for half-an-hour each morning followed by antiseptic foot baths. One boy extracted sixty-two jiggers from one foot. Daily inspection of the feet by the teachers and the exclusion from school of such children as are infected is now being advocated in all schools.

An indolent ulcer in the sodden skin under the fourth and fifth toes is also a fairly common condition.

For these conditions and for the prevention of hook-worm some form of cheap shoe or sandal is much needed.

Treatment.—The arrangement for the treatment of sick school children in Freetown up to the present has been to send letters to the parents advising treatment. While among the more careful and educated parents this plan has been quite satisfactory yet among the careless parents, or more often guardians, no treatment has been provided. The children of such parents or guardians, however, are generally just those who are in most need of treatment. For these cases it has been considered essential to start a school treatment centre, and arrangements are now being made to start such a clinic in 1929. In the Colony villages and also in the Protectorate on the completion of the inspection treatment was given to the children in the schools, the parents being present. In two of the Protectorate girls' boarding schools trained nurses were in residence who have followed up the treatment. The condition of the children in these two schools was very much healthier than in other schools and had much improved since my previous inspection. It would appear almost essential for all Protectorate boarding schools and more especially those for girls to have on their staff someone with training in nursing.

Domestic Science.—Several of the secondary girls' schools have already started domestic science courses. St. Joseph's Convent, the Wesleyan Girls' High School, and the U.B.C. Girls' School in Moyamba have all courses of training in this subject, and arrangement are being made for starting courses in other schools. At the recent Headmistresses' Conference, domestic science, mothercraft, first aid and hygiene were made compulsory subjects for the curriculum of the secondary girls' schools.

St. Joseph's Convent has also started an excellent course in mothercraft and sick nursing which could be taken as a model. It has been organized and run by Mrs. Blackmore, formerly Sister Horsnell of the Princess Christian Mission Hospital.

Teaching of Hygiene.—During November and December lectures were given twice weekly to the students in the men's and in the women's Teachers' Training Colleges, examinations being held subsequently.

M. G. BLACKLOCK,
School Medical Officer.

(*b*) Report of Committee appointed by His Excellency the Governor to consider and advise upon School Health, School Sanitation, and the Teaching of Hygiene in Schools.

Four meetings were held between January and March, 1928.

I—TEACHING OF HYGIENE.

(*a*) Training of existing teachers.

(*b*) Training of new teachers.

(*c*) Teaching of Hygiene to school children.

Last year at the teachers' vacation course a series of lectures in hygiene lasting for four weeks was given by Dr. Blacklock. The teachers were divided into two groups and sixteen lectures were given to each group. An examination was held at the end of the course. We recommend that whenever possible this form of training be continued and that in addition, from time to time, periodic lectures be given during term time to groups of teachers to be collected by the Director of Education. The Director of Education undertook to advise the Deputy Director of Sanitary Service as soon as possible of the re-arrangement of schools under the amalgamation scheme. It is recommended that the Medical Department shall work out a scheme of centres for teachers and, when a lecturer is available, arrange dates with the Director of Education. It is understood that the next course will be given by Dr. Blacklock in October on her return from leave.

2. The Director of Education stated that a supervising teacher had been appointed for nature study and hygiene and that hygiene is a compulsory subject in the teachers' qualifying examination. It was arranged that the supervising teacher should go to Dr. Blacklock for guidance as to his hygiene work.

3. The committee hope that in the new teachers' colleges at Wilberforce and Fura Bay it will be possible for a certain number of hygiene lectures to be given by a medical officer.

4. We consider that the teaching of hygiene to school children should be on the lines laid down in Dr. Blacklock's book.

II—MEDICAL INSPECTION OF SCHOOL CHILDREN.

5. We consider the establishment of a school clinic to be essential and recommend that the School Medical Officer should, when available, be in charge of the clinic. For the present, attendance at the school clinic should be optional, but teachers should be instructed by the Director of Education to use every effort to see that children recommended by the medical inspector are taken to the clinic. Teachers should also see that all ailing children who have no private doctor attend the clinic. It will probably be found convenient to hold the clinic once a week on Saturdays.

6. It is considered that the question of compulsory powers, both as regards medical inspections and attendance at clinics, should be considered when a new Education Ordinance is being drafted.

7. A beginning should be made with the keeping of physical records (height, weight, etc.) by the head teachers. Every child should have a health card containing the physical record and also a medical history sheet. In each school a book should be kept recording the names of all children asked to attend the clinic.

8. We are of opinion that when the clinic is started it will be necessary to appoint one or more school nurses to assist in the work of the clinic, follow up cases in the homes, and carry out simple treatment in the schools under the direction of the medical officer.

III—SANITATION.

(*a*) School Buildings.

9. Wherever possible walls and floors should be of impermeable materials. Where wooden floors are used they should be tongued and grooved and all crevices filled.

Window area should not be less than one-eighth of the floor space and windows should be made to open.

We wish to emphasize the importance of adequate roof over-hang to minimise glare and provide protection from driving rain.

Height of rooms should be a minimum of 12 feet. Adequate ventilation between ceilings and roof is imperative.

(*b*) Latrines.

10. We consider that in the larger school centres created by the amalgamation scheme the conservancy of the latrines should be dealt with by the Sanitary Department, but adequate provision will be necessary to meet the cost of labour, disinfectants, etc.

11. Latrine accommodation at the rate of 5 per cent., as laid down in regulation 22 of the Code, should certainly be aimed at, and in no case should it be less than a minimum of $2\frac{1}{2}$ per cent.

12. Two types of latrine are possible:

(1) Bucket latrines.

(2) Pit latrines.

It is not possible to lay down general rules as to which of these should be adopted, but before new latrines are constructed the advice of the Sanitary Department should be sought. Whenever possible impermeable materials should be used in the construction of latrines—concrete floors, walls and even seats as in public latrines of Freetown. The Director of Education asked for detachable wooden seats over the concrete and it was agreed to give them a trial. Drainage should be from the front towards the bucket or aperture. Height of seats should vary in order to provide for children of different ages.

In the existing latrines there is a tendency for the seats to be too high. It is essential that seats and covers should be made fly-proof.

13. At present latrine accommodation in the great majority of schools is lamentably inadequate and in some cases actually non-existent. It is considered that after a reasonable period the Medical Officer of Health should take action to deal with insanitary latrines as in the case of ordinary householders.

14. We desire to emphasize the importance of making the cleanliness and general sanitation of all school buildings and offices a definite obligation of the teaching staff.

School Furniture.

15. Individual desks are ideal but expensive. Back rests should always be provided. Care should be taken that the construction of school desks conforms to recognized principles and that the height of the children is taken into consideration in allocating desks. At present it is not unusual to see older children sitting at the same desk beside children many years younger.

Cloak-room Accommodation.

16. It is desirable that adequate cloak-room accommodation should be provided and that each child should have his or her own peg. Separate accommodation should be provided for teachers, who have too often in the past been entirely neglected.

Playground Accommodation.

17. In the majority of Freetown schools, playground accommodation is either entirely lacking or totally inadequate. We would recommend that in the case of any new schools this should be taken into serious consideration.

In view of the extreme deficiency of playground space, we think that a determined effort should be made to provide facilities for sea bathing by means of concrete baths on the foreshore.

Conclusion.

18. We have not attempted in this report to go very much into details, but we think that it forms the framework of a health policy which can be developed as time goes on. We have found it necessary to confine our attention to the schools of the Colony, pending inspection of Protectorate schools by the Director of Education and School Medical Officer.

H. S. KEIGWIN,
Director of Education.

W. H. PEACOCK,
Deputy Director, Sanitary Service

M. G. BLACKLOCK,
School Medical Officer.

H—VENEREAL DISEASES CLINIC.

During the year Drs. Renner, Barker, Allan and Wright were in charge of this clinic for varying periods.

There were 761 individual cases treated during the year with 3,588 subsequent attendances. Of the 761 cases, 208 were women.

The following conditions were diagnosed and treated:—

Urethritis	2
Anterior Urethritis	85
Posterior Urethritis	16
Gonorrhœa	57
Gonorrhœal Arthritis	13
Gonorrhœal Ophthalmia	2
Gonorrhœal Orchitis	3
Leucorrhœa	8
Vaginitis	5
Syphilitic Ulcer	2
Primary Syphilis	6
Secondary Syphilis	2
Tertiary Syphilis	98
O. D. Syphilis	34
Chancre	19
Hard Chancre	5
Soft Chancre	3
Soft Sore	3
Chronic Ulcer	14
Gumma	1
Yaws	116
Ganglion	2
Osteitis	4
Periostitis	2
Arthritis	1
Rheumatism	23
Bubo	6
O. D. Scrotum	1
Orchitis	2
O. D. Glands	1
Undiagnosed	50
New cases not differentiated from subsequent attendances for quarter January to March	175
Total	761

E. J. WRIGHT,
Medical Officer in Charge.

I—SPECIAL REPORT OF A MEDICAL SURVEY OF BO SCHOOL BOYS.

Introduction.—When first taking over medical charge of Bo at the end of last September, among the records found there was a copy of the Annual Report on the Medical Department (Sierra Leone) for the year ended 31st December, 1915, where on page 26, was found the following article:—" SOME OBSERVATIONS ON APPARENTLY HEALTHY BOYS AT THE BO SCHOOL FOR THE SONS OF CHIEFS " by G. G. Butler, examined at the end of the rainy season in November and December, 1915.

Judging it unlikely that anything of greater interest would occur in the few remaining months worthy to include in the present year's Annual Report, I thought it useful to undertake this survey of the same school, with the advantage of larger figures, to discover the comparative rise or fall, if any, in some of the diseases mentioned in the above article, after such intervening period of thirteen years.

It is of interest to say that this survey also was undertaken at the end of the rainy season in November and December in order to conform in time to the previous report, beginning actually on 22nd November and finishing on 10th December.

Method of Survey.—The 155 boys resident at the time of examination were broken up, at the discretion of the Principal,—and to do away with the possibility of any intentional preparation for such test—into batches of ten and were sent towards six o'clock in the evening to be housed for the night in the native hospital.

Each batch was subjected to the following examination (*a*) temperature, both the evening of admission and the next morning (*b*) thick blood smear, both evening and morning (*c*) early morning urine and (*d*) fæces.

It may be stated here that all the boys except one, a suspicious case of pulmonary tuberculosis, were known to be in robust health and entirely devoted to their school's sports and diversions. As the school broke up on the 11th December, 1928, and the accepted groupings required sixteen working days, the survey called for a degree of haste and a necessity for rough rather than accurate tabulation and figuring.

The results of such examination are detailed as under:—

4. *Temperature.*—I have to confess to a finical regard for the value of a thermometer reading, both as an actual index of Toxæmia and as a challenge to our skill to disclose the origin thereof. With such feelings, I may be pardoned for recording here minutiæ which might appear to most as hopeless trivialities but which, to me, contain not only curiosities but some surprises. The first of the latter to be mentioned is that as many as thirty-six of those examined showed no pyrexia either in the morning or evening, though as many as twenty-six of these were proved to harbour parasites in blood, fæces or urine.

The corollary to this, viz.—that out of a remainder of 119 pyrexia as many as fourteen failed to disclose any parasitism in either of the three channels mentioned, is to me somewhat against fixed ideas. The last but greatest surprise to me lies in the record that the highest temperature reading was 99·6 despite not a few malarial infections.

B.—Blood Examination for Parasites.—Was of thick blood smears in preference to the thin draw-slide, both to save time and to ensure success in each of those annoyingly light infections so frequently to be met with in such surveys. Such smear was stained by dropping on through a pipette a freshly diluted Leishman's stain of 1 in 8 of distilled water, staining for twenty minutes and, finally, flushing off with distilled water. I have used this method for some years in such surveys and it has given quite satisfactory results though I acknowledge it has the two disadvantages, (*a*) in the poor differentation of the type of malarial parasite and (*b*) the possible disproportion when counting leucocytes, in comparison with the clearer defined thin draw-slide method. Giving these disadvantages their full value I draw attention to the following points disclosed by my examination of these 310 blood slides:—

(1) Not a single instance of filarial infection, either of nocturna or other variety, was met with though

(2) A persistent impression of almost universal Eosinophilia, ranging from 16 to 48 per cent. was left with me. I purposefully use such vague language owing to the disadvantage acknowledged above and, to leave to some succeeding observer, to disprove or corroborate such observation.

Some corroboration thereto was obtained from the only variation to the general rule discovered in the suspicious tuberculosis case spoken of in paragraph 2 above, which showed instead a marked polymorphonuclear and lymphocyte increase instead.

(3) *Malaria.*—Parasites of this disease were met with in fifty-one of the 155 examined (or practically 33 per cent. of such total). In only seven cases were they so numerous as to be present in every second or third field of the microscope, others mostly ranging from 1 in 10 to 1 in 50 of such fields. For what interest it has, it may be mentioned here that only eleven cases showed a persistence of infection in both evening and morning blood whereas of forty others, twenty-eight were positive in morning blood but only twelve showed parasites in night-blood.

No instance of the Benign Tertian Parasite (P. vivax) was encountered.

Actually P. malariæ was recorded only twice, in two indisputable instances, but the marked variation in size of the ring forms (and of the chromatin therein) in some of the remaining forty-nine cases labelled as P. falieparum met with would cause one to believe that quartan is not as rare as such poor figures would indicate.

The sexual type of the parasite, of more interest to the Sanitarian, was met with in ten cases, only one of which was clearly of the quartan variety—the remainder being all of the malignant tertian.

Only one of the remaining nine "Crescent" cases persisted in both morning and evening specimens. Of the other eight, six were found in night blood only whereas two in morning smears alone. The only quartan microgamete was found in night blood alone.

C. Fæces—A little from each specimen was moistened in a Petri dish (or other workable substitute) with saline, and four or more drops of such diluent was examined for evidence of intestinal parasites.

Only one examination was undertaken in each case to keep to conformity throughout. I suppose it will be agreed that such dilution would only disclose the fairly heavy and persistent of infections, and except that Butler records the fact of repeated examinations (where the first would be negative), I assume that the rationale of investigation would otherwise conform in simplicity of method.

By such method I found as many as seventy-five (or over 48 per cent.) free from parasitism of this kind. Hook-worm alone or in combination was met with in forty-seven of the 155 examinations, giving a percentage of just over 30 of the total. Ascaris, also alone or in combination, was recorded forty-six times, a close race with the former pest. Other parasites in order of frequency read strongyloides larvæ, tænia (including finding of strobilæ of the small "nana" type), and trichuris but only in single figure instance. Lastly, one instance of a large body indistinguishable to me from a coccidial sporocyst possibly deserves special mention, though lacking better identification.

D. Urine..—Examination of this channel was confined only to a search for the eggs of Schistosome, in the centrifuged deposit after prolonged standing. Terminal-spined eggs were found in only ten cases (or 6·4 per cent. of the total and in only one of these was the free swimming miracidium seen, the rest of the cases showing ova lying inert in a mass of agglutinated debris through which it was often difficult to obtain a clear view of the characteristics of the ovum. It was possible to make two other groups of (*a*) strongly suspicious (eight); (*b*) doubtfully suspicious (ten); from eighteen other cases which, by reason of the comparative number of blood cells and other suspicious debris could, a priori, be attributed to Bilharzial infection, despite absence of the parasite, in such endemic area.

There only remains to record under this channel the finding of a living unsheathed nematode which escaped identification.

This concludes the actual account of the survey undertaken.

For purposes of easy comparison, I propose to append here certain extracts and tables:—

(1) Dr. Butler's 1915 Report—(*a*) Malaria 37·3 per cent. of the seventy-five boys showed the presence of malarial parasites."

Present Report—(*a*) Malaria, 33 per cent. of the 155 boys showed the presence of malarial parasites.

(2) *Filariasis.*—Dr. Butler states that "9·3 per cent. were found to harbour miscrofilaria." This 1928 survey does not disclose a single instance of this helminth.

(3) *Ankylostomiasis.*—Dr. Butler's conclusions are (*a*) "in only one case (out of seventy-five) was there a negative results." The present report discloses that as many as seventy-five out of 155 or over 48 per cent. can be accounted negative to a heavy and persistent infection to this or other helminth.

(*b*) Dr. Butler figures that ankylostomiasis were found in 98·6 per cent. of his total. The present survey could find only just over 30 per cent. of the total so infected.

(4) *Schistosomiasis.*—Dr. Butler in 1915 found 26·6 per cent. showing the presence of Bilharzia ova. Findings of this survey disclose only 6·4 per cent. showing the presence of Bilharzia ova.

Conclusions.—If such small figures as are available from these reports would justify any generalizations and more especially, if such rough and hasty work as I have undertaken deserves such consideration as to allow of comparison it would appear that—

(*a*) Malaria has not decreased appreciably in the intervening thirteen years.

(*b*) Filariasis is not nearly as prominent as it was in 1915.

(*c*) Ankylostomiasis has appreciably less hold in 1928 than thirteen years ago.

(*d*) Schistosomiasis has hopefully lessened since 1915 and would appear to be decidedly on the wane.

In resumé, one must acknowledge this to lead to a particularly pleasing outlook and one, if due to sanitary education and measures, must give that department justifiable pride. On the other hand, what influence can be assigned to such theoretical inhibitory factors as gradual unsuitability of soil and equally balanced disappearance of vector or intermediate host?

Finally, I have thought it worth while to condense such findings as are disclosed from this survey in a series of tables and to mark on a map of the Colony and Protectorate the origin of each of the infections due to (*a*) the sexual type of malaria (*b*) schistosome, the two disorders to my mind of the greatest severity mentioned in this survey.

G. H. GALLAGHER,
Senior Medical Officer.

Bo, Central Province,
25th January, 1929.

Notes.—Dr. Walls has very kindly agreed to allow me to extract comparative figures from his Annual Report, 1927, giving statistics of "Examination of 165 Bo Schools pupils" from September, 1926, to September, 1927. His figures are as below :—

"*A. Malaria.*"—34·5 per cent. showed parasites of *P. falciparum*, only one of crescents was seen.

"*Secondary Anæmia*"—Is very common in boys up to puberty.

"*B. Fæces.*"—Ova free	... ...	27
Ankylostoma	... ...	104
Ascaris ...	... ...	85
"*C. Urine*"—Schistosoma	... ...	17

These figures agree somewhat closely with mine under heading "Malaria" and do not very alarmingly differ under head "Schistosome." I have had opportunity of looking up his individual notes on these latter cases and find that only one of my positives is not mentioned by him; the other nine of mine are so clearly mentioned, leaving a residue of eight which are found bracketed together under my suspicious (*a*) table, proving thereby the characteristic of a periodic appearance of the ova.

Intestinal infections both under "Ankylostome" and "Ascaris" show striking disproportion with mine, but no doubt this can be attributed to anthelmintic treatment, given by him to his cases after being proved positive.

I have only to end with a final word of thanks and recognition to Dr. J. N. Leitch, Pathologist, for the useful and willing assistance given me in correcting and polishing this composition before being forwarded to Headquarters for acceptance.

G. H. GALLAGHER.

22nd February, 1929.

		PARASITE FREE.		PARASITIC.		INFECTIONS.			
				Malaria.		Intestinal Parasite.		Schistosomes.	
		Number.	Percentage.	Number.	Percentage.	Number.	Percentage.	Number.	Percentage.
Total Examined 155	Northern Province 68	10	or 14·7	22	32·3	36	53	—	—
				Sexual Type					
				Number	% of total malarial regional infection				
				8	36·1				
	Southern Province 20	—	or —	8	40	12	60	—	—
				Sexual Type					
				Number	% of total malarial regional infection				
				Nil	Nil				
	Central Province 67	4	or nearly 6	21	31·3	32	48	10	14·9
				Sexual Type					
				Number	% of total malarial regional infection				
				2	9·5				
		14		51		80		10	

J—REPORT ON LEPROSY AT KISSY.

Until the survey of diseases of the Colony and Protectorate is completed, one cannot estimate the amount of leprosy in Sierra Leone.

In the series about to be described, the cases were discovered in the out-patient clinic at Kissy, and comprise mainly the Protectorate natives who are flocking here for injection treatment of yaws.

The series contain only twenty-eight cases, although the yearly return of patients gives forty-two as treated. I can find no trace of fourteen patients as having had treatment. The explanation may be that these cases were doubtful leprosy, and the diagnosis not subsequently changed; or the patients were to report on a particular day for treatment and failed to do so. The latter seems the more probable explanation as injections are given twice weekly, and a patient coming from an out-of-the-way village and not receiving treatment at once may be discouraged from returning.

On taking over the station in September only thirteen patients were under treatment, viz:—

	Male.		Female.
In-patients	10	...	—
Out-patients	2	...	1

On the 31st December, the number of lepers under treatment was—

	Male.		Female.
In-patients	12	...	—
Out-patients	6	...	7

This gives a total of twenty-five to which must be added, in order to get the number of our series right, one death and two discharges.

Age and Sex Incidences.—In this series there were twenty-one males and seven females which is in keeping with general observations that leprosy is more common in men than in women. The age of the patients varied from, approximately, one year to fifty years. The average age was 28·1 years. The duration of the disease prior to treatment was three months to thirteen years. The average being 5·1 years. From this the age at the onset of the disease is worked out as follows:—

Age Period.	Number of Cases.	Percentage.
1– 5	1	3·5
6–10	2	7·1
11–15	5	17·8
16–20	9	32·1
21–25	4	14·2
26–30	2	7·1
31–35	2	7·1
36–40	—	—
41–45	3	10·7

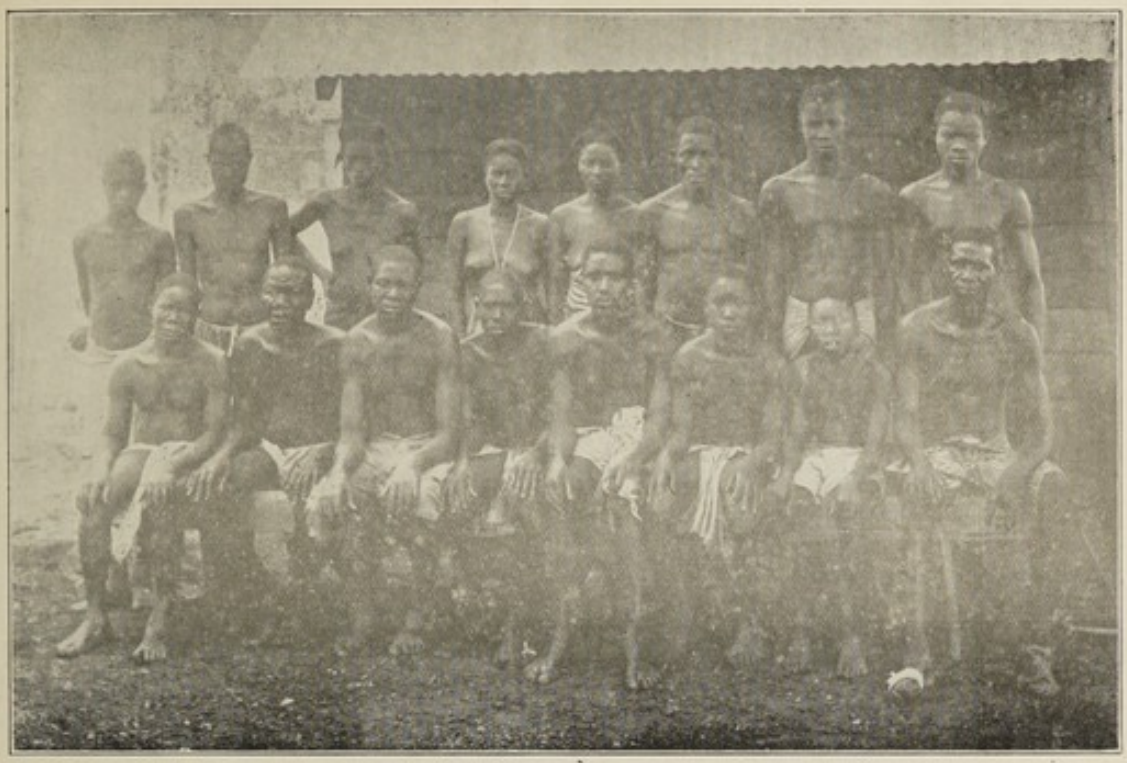
This means that in 64·1 per cent. of the cases the disease began between the ages of eleven and twenty-five. The average age of onset being 20·6 years.

Clinical Forms.—Adopting Muir's classification the lesions have been grouped under the following types:—

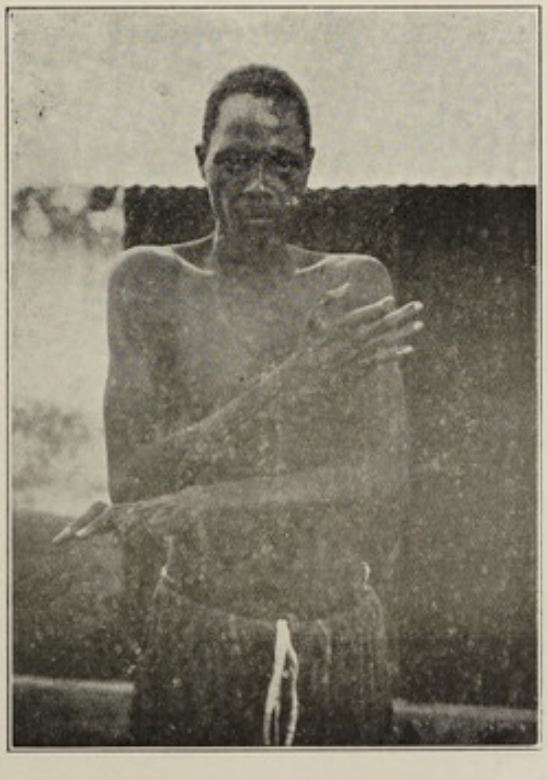
Type "A" (Nerve).—"Those in which bacteriological examination of skin, mucosa, or lymph glands does not show the presence of acid-fast bacilli." In this type there is superficial anæsthesia and thickened nerves.

Type "B" (Skin).—"Those in which such bacilli are found." Here deep analgesia is present but not as a rule superficial anæsthesia. If only "A" lesions are present it is considered an "A" case. If "B" lesions are found whether there are also "A" lesions present or not, it is considered a "B" case.

Muir, further subdivides his "A" type into A^1 and A^2 according as the case is a primary nerve one showing patches and macules, or a secondary nerve one showing glove-stocking anæsthesia, trophic signs such as ulcers of the hand and feet, and deformities of the fingers and toes.



(1) GROUP OF LEPERS—IN AND OUT PATIENTS—KISSY.



(2) Type "A" (NERVE LEPROSY)

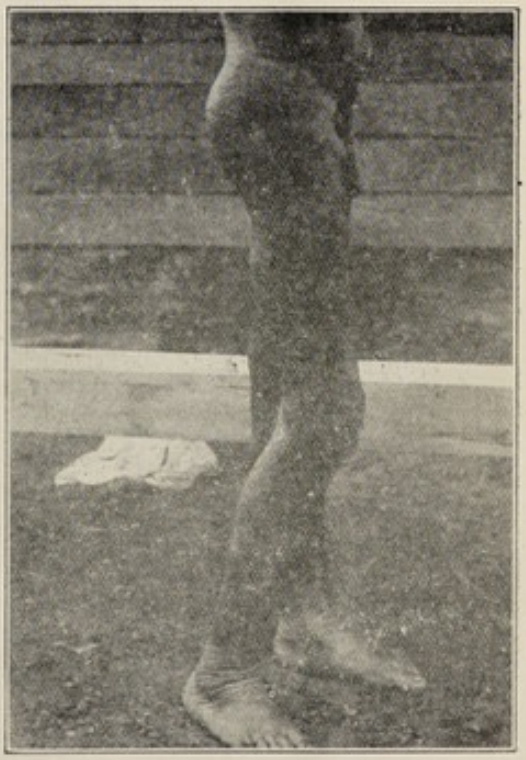
Showing (1) Circinate lesions with well marked depigmented outer spreading margins.

(2) Marked muscular atrophy of the fore-arms and hands.

(3) Contraction of the fingers.

(3) Type "B", SKIN (NODULAR LEPROSY).

(4)



(5)

Type "A" 2 Showing—(1) Thickening of the ear and lips.

(2) Wrinkling of the skin of the thigh and legs (seen better in 5) giving the appearance of crushed tissue paper. This indicates that destruction of the bacilli is taking place.

(3) Enlarged femoral glands.

The " B " type he also subdivides into B^1 and B^2 according to the amount of bacilli found.

In our series we find the following lesions:—

Type.	Number.	Percentage.
A^1	10	35·7
A^2	15	53·5
B^1	3	10·7

It will be seen that the " A " type of nerve leprosy is by far the most common, accounting for 89·2 per cent. of the cases, and in this group twenty were males and five females.

Trophic Ulcers.—Fibotic changes in the hand without contraction was well marked in four cases, all males, while actual contraction was observed in eight cases. The fingers were affected in the following order: right little finger alone, one; left little finger alone, two; both little fingers, three; all the fingers of both hands, two.

Deformity.—In four cases deformity and gross loss of tissue was observed.

Thickened Nerves.—On examination of the ulnar, peroneal and great auricular nerves, two cases only showed thickening of the ulnar nerve. Percussion over the nerves to elicit pain or tingling sensation could not be accurately determined.

Eye Lesions.—No case showed disease of the eye.

Other Skin Lesions.—As many regard scabies, and I venture to add yaws, as important factors in the ætiology of leprosy, special note was taken of these lesions, and it was found that fifteen or 53·5 per cent. of the cases had scabies, and five had had yaws. Of these five, two were quite definite in their statement that the first sign of leprosy started exactly two years after the yaws.

Spleen and Liver—None of the cases showed either the spleen or the liver to be enlarged.

Bacteriological Examinations.—The bacteriological examinations were carried out by Dr. Alexander, and in no case did he report the finding of the acid-fast bacilli from the nasal smears submitted. In one case, however, the bacilli were found in the discharge from the ear.

Deaths.—One patient died from generalized tuberculosis as revealed by post-mortem examination; one from gastro-enteritis.

Treatment.—The twelve in-patients remaining in hospital at the end of the year had been under treatment for an average period of 10·9 months, and among several drugs used prior to " Alepol," Chaulmoogra Mixture was the favourite. This mixture was made up of carbolic acid, chloroform, and ol. Chaumoogra and given in ½ to 2 c.c. doses intravenously. The immediate effects are a spasm of coughing and vomiting, later a rise of temperature.

"Alepol " was introduced in July and I think it too early to say that the general improvement in the physique of the in-patients which is so marked is due to this drug. However, one great point in favour of " Alepol " is that intramuscular injections are painless and the out-patients report fairly frequently for treatment.

Summary.—(1) The disease is more common in men than in women.

(2) The average duration of the disease prior to treatment is 5·1 years, showing that as a whole the cases are of a recent origin.

(3) The average age of onset is 20·6 years.

(4) The nerve type is the most common type.

(5) No eye lesions are found.

(6) No case showed enlargement of spleen or liver.

(7) Scabies was found in 53·5 per cent. of the cases.

(8) All nasal smears were negative, indicating that there were no actively infectious cases in the series.

(9) Generalized tuberculosis was found in one case.

E. A. RENNER,
Medical Officer.

28th January, 1929.

K—REPORT ON THE PRINCESS CHRISTIAN MISSION HOSPITAL.

The accommodation at this hospital consists of forty-four beds and cots arranged as follows:—

(1)	General Ward	16 beds (12 beds and 4 cots).
(2)	Gynæcological Ward	8 beds.
(3)	Maternity Ward	12 beds (6 beds and 6 cots).
(4)	Private rooms for Africans	5 beds (3 beds and 2 cots).
(5)	European Ward	3 beds (2 beds and 1 cot).

There is also a small labour ward, a dressing theatre and an operating theatre.

This hospital is assisted by the Government with a financial grant. There is a lady medical officer engaged by the Mission, and ante-natal and infant welfare clinics are taken weekly by a Government medical officer. This institution is popular among the natives, and excellent work is being done.

—	1927.	1928.
Total number of out-patients	10,207	8,028
Admissions	520	476
Deaths	17	31
Births	78	92
Operations	64	71
Infant welfare clinic	6,459	8,085
Ante-natal clinic	—	851