

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

### **Contributors**

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SIERRA LEONE

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Annual  
MEDICAL AND SANITARY  
**Report**

FOR THE  
YEAR ENDING 31st DECEMBER, 1921.



FREETOWN:  
Printed at the Government Printing Office,  
SIERRA LEONE

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# THE ANNUAL MEDICAL AND SANITARY REPORT for the year ended 31st December, 1921.

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## I—ADMINISTRATIVE.

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### STAFF.

#### MEDICAL STAFF.

EUROPEAN.—One Principal Medical Officer, one Provincial Medical Officer, two Senior Medical Officers and seven Medical Officers (six vacancies.)

AFRICAN.—Seven Medical Officers.

#### SANITARY STAFF.

EUROPEAN.—One Senior Sanitary Officer, one Sanitary Officer, one Medical Officer of Health, and two Superintendent Sanitary Inspectors.

AFRICAN.—One Second Grade Clerk, six Third Grade Clerks, seven Fifth Grade Sanitary Inspectors, fourteen Sanitary Learners, fourteen Vaccinators.

#### NURSING STAFF.

EUROPEAN.—Three Senior Nursing Sisters (one Matron of Colonial Hospital), and two Nursing Sisters.

AFRICAN.—Twenty-one male nurses and apprentice nurses, four senior female nurses, and seventeen female nurses and probationer nurses.

#### STORE-KEEPING AND DISPENSING STAFF.

EUROPEAN.—Nil.

AFRICAN.—One Store-keeper, one assistant Store-keeper, one Chief Dispenser, one assistant Chief Dispenser, eight First Class Dispensers, eight Second Class Dispensers, and twelve Third Class Dispensers.

## CLERICAL STAFF.

EUROPEAN.—Nil.

AFRICAN.—One First Grade Clerk, one Second Grade Clerk, six Third Grade Clerks, and one temporary Clerk.

Dr. J. Beringer acted as Principal Medical Officer from the beginning of the year to 26th February, the date of arrival in the Colony of Dr. W. I. Taylor, Principal Medical Officer.

Major W. H. Peacock acted as Senior Sanitary Officer from 1st January to 25th February and from 5th May to 11th November.

## TEMPORARY ASSISTANT.

Dr. T. C. Maxwell, African Medical Practitioner, was temporarily employed from 4th April to 10th May in the Sanitary Branch during an outbreak of Small-pox, and from 4th to 10th August in the Colonial Hospital.

## THE EUROPEAN NURSING SISTERS.

Miss I. Stevens acted as Matron of Colonial Hospital from 5th May to 14th October.

## FINANCIAL.

## REVENUE.

			£	s.	d.
Hospital receipts	...	...	77	11	6
Nursing Home receipts	...	...	806	10	10
Sale of medicines	...	...	258	12	2
Druggists' fees	...	...	1	0	0
Maintenance of lunatics	...	...	212	14	2
Sale of Government stores	...	...	—		
Departmental fines	...	...	7	5	0
TOTAL	...	...	£1,363	13	8

## EXPENDITURE.

			£	s.	d.
Personal Emoluments	...	...	28,772	11	10
Other Charges	...	...	19,018	14	10
TOTAL	...	...	£47,791	6	8



## II—PUBLIC HEALTH.

### (a) GENERAL REMARKS.

The general health of both European and African officials compares rather unfavourably with the previous year. While the death-rates are lower the invaliding and general sick-rate and ineffectiveness are higher.

There was a decrease of 5,837 in the total number of cases treated as compared to 1920. This is no doubt due, to some extent but not entirely, to the closing of certain dispensaries which were not under the supervision of a Medical Officer.

(1.) *General Diseases*.—Rare as usual. Two cases of Exophthalmic Goitre, and two of Gout, were observed.

(2.) *Communicable Diseases*.—(Insect-borne Diseases). There was no Yellow Fever and only one case of Trypanosomiasis was observed. Another fatal case of Trypanosomiasis occurred at Mabang near Freetown. The Senior Sanitary Officer has reported on this under III., Sanitation.

There was an increase of two hundred and eighteen in the number of cases of Malaria and of one in the number of Blackwater Fever cases treated. One case of Blackwater was in a native. One European official and one European non-official died of Blackwater Fever. Two European non-officials died of Malaria.

### INFECTIOUS AND EPIDEMIC.

There was a mild outbreak of Smallpox between April and June, during which period thirty-one cases were reported with one death. Seventy-eight cases of Chicken-pox were reported. Only two cases of Influenza, in Europeans, were reported. Dysentery showed a marked decrease, viz., from 404 in 1920 to 185 in 1921.

It is satisfactory to report that Dysentery has almost disappeared from the Freetown Prison.

*HELMINTHIC DISEASES*.—Are almost universally prevalent, the most important being Ankylostomiasis. One hundred and eighteen cases were recorded from various stations. A special investigation into the prevalence and best methods of treatment of this disease is being conducted, but the facilities for a comprehensive investigation in this Colony are meagre.

The method of treatment adopted in the Colonial Hospital is chiefly that by the administration of oil of eucalyptus and in the prison by thymol or beta-naphthol or both. All the methods appear to be efficacious. Treatment by a concentrated infusion of quassia is being tried and, if it proves a success, will be a safer and less expensive method. It is too early yet, however, to report on results of this method.



## (b) EUROPEAN OFFICIALS.

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

	1919.	1920.	1921.
Total number of officials' resident ... ..	202	233	214
Average number resident ... ..	102	133	144
Total number on sick list ... ..	...	166	217
Total number of days on sick list ... ..	...	1,784	1,815
Average daily number on sick list ... ..	...	4.87	4.97
Percentage of sick to average number of residents	...	3.66	3.45
Average number of days on sick list to each patient ... ..	...	10.74	8.36
Average sick time to each resident ... ..	...	13.4	12.6
Total number invalided ... ..	4	10	15
Percentage of invalidings to total residents ...	1.98	4.29	7.00
Percentage of invalidings to average number resident ... ..	3.92	7.51	10.41
Total deaths ... ..	1	4	2
Percentage of deaths to total residents ...	0.49	0.86	0.93
Percentage of deaths to average number resident	0.98	1.50	1.38

## CAUSES OF INVALIDINGS AND DEATHS OF EUROPEAN OFFICIALS.

Cause.	Invalided.	Died.
Appendicitis ... ..	1	...
Blackwater fever ... ..	3	1
Gunshot wound ... ..	...	1
Arterio-sclerosis ... ..	1	...
Renal colic ... ..	1	...
Neurasthenia ... ..	1	...
Alcoholism ... ..	1	...
Pneumonia ... ..	1	...
Disease of the eye ... ..	1	...
Injury of eye ... ..	1	...
Syphilis ... ..	1	...
Pyorrhoea ... ..	1	...
Pulmonary tuberculosis ... ..	1	...
Typhoid ... ..	1	...
<b>TOTAL</b> ... ..	<b>15</b>	<b>2</b>

## (c) NATIVE OFFICIALS.

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

—	1919	1920.	1921.
Total number of officials resident ... ..	650	850	850
Average number resident ... ..	350	750	750
Total number on sick list ... ..	?	1,862	1,248
Total number of days on sick list ... ..	...	5,742	7,780
Average daily number on sick list ... ..	...	15.68	21.31
Percentage of sick to average number resident ...	...	2.09	2.84
Average number of days on sick list to each patient ... ..	...	3.08	6.23
Average sick time to each resident ... ..	...	7.6	10.37
Total number invalided ... ..	6	23	24
Percentage of invalidings to total resident ...	0.91	2.70	2.82
Percentage of invalidings to average number resident ... ..	1.09	3.06	3.20
Total deaths ... ..	4	9	6
Percentage of deaths to total residents ...	0.61	1.05	0.70
Percentage of deaths to average number resident	0.72	1.20	0.80

## CAUSES OF INVALIDINGS AND DEATHS OF NATIVE OFFICIALS.

Cause.	Invalided.	Died.
Anæmia ... ..	2	...
Hemiplegia ... ..	1	...
Valvular disease of the heart ... ..	5	...
Chronic asthma ... ..	1	...
Debility ... ..	2	...
Lacerated wound of hand ... ..	1	...
Injury to eye ... ..	1	...
Tuberculosis ... ..	4	1
Meningitis following ulcer of antrum ... ..	...	1
Malaria ... ..	...	1
Arthritis ... ..	1	...
Malignant growth of liver ... ..	...	1
Neurasthenia and cardiac debility ... ..	2	1
Defective vision ... ..	1	...
Cirrhosis of liver and ascites ... ..	1	1
Arteriosclerosis ... ..	1	...
Excessive obesity and fatty heart ... ..	1	...
TOTAL ... ..	24	6

## (d) PRISONERS (FREETOWN PRISON).

—	1919.	1920.	1921.
Total number of prisoners admitted ... ..	1,183	1,386	1,035
Average strength ... ..	348	435	318
Total deaths ... ..	8	12	25
Total number of prisoners on sick list ... ..	278	464	186
Daily average number on sick list ... ..	...	22	21
Sick rate per 1,000 of average strength ... ..	...	50.6	66.03
Death-rate per 1,000 of average strength ... ..	...	27.6	78.66



## CAUSES OF DEATHS AMONG THE PRISONERS.

Fatty degeneration of the liver	...	...	...	1
Paralysis	...	...	...	1
Heart failure	...	...	...	2
Chronic gastritis	...	...	...	1
Chronic nephritis	...	...	...	1
Ascites—heart failure	...	...	...	1
Chronic dysentery	...	...	...	1
Chronic malaria	...	...	...	1
Anæmia	...	...	...	1
Beri-beri	...	...	...	3
Valvular disease of heart	...	...	...	6
Peritonitis	...	...	...	1
Broncho-pneumonia	...	...	...	1
Cardio-vas. amyloid liver—ankylostomiasis	...	...	...	1
Debility—heart failure	...	...	...	2
Enteritis	...	...	...	1
TOTAL				<u>25</u>

The health of the prisoners was, for part of the year, most unsatisfactory.

There was an outbreak of Beri-beri which caused three deaths out of a total of forty-one cases. Active measures were taken to suppress this outbreak with success (the Prison now being free from the disease) by providing a special diet scale and every effort made to supply the vitamins which, apparently, were lacking, while a number of cases were transferred to Kissy for a time with great benefit. A point of interest was the fact that the water in which the prisoners' rice was boiled used to be thrown away. This practice was stopped and the rice water used to make their soup. Unpolished rice is used exclusively. The cooking is done by steam under pressure, and it was thought that, possibly, the food was being cooked at too high a temperature for the vitamins to remain active. Cooking at a lower pressure was therefore practised. Whether both these factors or one were responsible it is difficult to say, but the disease soon disappeared from the Prison.

There was a total of twenty-five deaths during the year and eleven of these occurred during June, July and August, viz: at the height of the rains. This alarming increase in the death-rate cannot be put down to prison influences entirely, but to an accumulation of old, chronic and debilitated cases.

Towards the end of the year the health of the prisoners was very satisfactory and, as stated previously, Dysentery had become so reduced as to be almost negligible. In 1916 there were 175 cases, in 1917 137, in 1918 169, in 1919 119, in 1920 58, and this year only 24.

There was also an epidemic of Mumps during the year, forty-eight cases having been treated.

## COMPARATIVE RETURN, SIERRA LEONE PRISONS.

Prison.	Daily Average Number in Custody in 1921.	Sick Rate per 1,000.	Death-rate per 1,000.
Freetown	318	66.03	78.66
Bonthe	15	.133	.066
Batkanu	34	.088	Nil
Kaballa	27	.037	"
Kennema	73	.027	"
Moyamba	25	.200	"
Pujehun	23	.043	.087



## (e) EUROPEAN NON-OFFICIALS.

## CAUSES OF INVALIDINGS AND DEATHS OF EUROPEAN NON-OFFICIALS.

Cause.	Invalided.	Died.
Malaria ... ..	4	2
Blackwater Fever ... ..	6	1
Malaria and Abscess ... ..	1	...
Anæmia ... ..	1	1
Boils ... ..	1	...
Enlarged spleen and inflammation of liver ... ..	1	...
Fracture of thigh ... ..	1	...
Fracture of tibia ... ..	1	...
Dysentery ... ..	...	1
Accidental intestinal injury ... ..	...	1
Hernia ... ..	1	...
<b>TOTAL ...</b>	<b>17</b>	<b>6</b>

## (f) HEALTH OF TROOPS AND POLICE.

## (i.) IMPERIAL TROOPS.

## EUROPEAN.

Invalided ... ..	16
Deaths ... ..	Nil

## TABLE SHOWING CAUSES OF ILLNESS.

Disease.	No.
Dysentery ... ..	1
Laryngitis ... ..	1
Malaria Fever ... ..	195
Pyrexia of uncertain origin ... ..	15
Syphilis ... ..	3
Soft Chancre ... ..	9
Gonorrhœa ... ..	17
Nervous Disease ... ..	4
Disease of the Eye ... ..	2
Disease of the Ear ... ..	1
Disease of the Circulatory System ... ..	5
Disease of the Blood ... ..	27
Disease of Digestive System ... ..	28
Disease of Respiratory System ... ..	10
Disease of Teeth and Gums ... ..	3
Disease of Urinary Organs ... ..	11
Inflammation of Areolar Tissue ... ..	5
Disease of the Skin ... ..	6
Other disease due to Animal Parasites ... ..	7
Fracture—Skull (vault) ... ..	1
Sun-stroke ... ..	3
Local injuries ... ..	22
All other causes ... ..	57
Mumps ... ..	1
<b>TOTAL ...</b>	<b>424</b>

## NON-EUROPEAN.

Invalided	...	...	...	...	...	Nil
Deaths	...	...	...	...	...	11

TABLE SHOWING CAUSES OF ILLNESS.

Disease.	No.
Mumps ...	38
Pneumonia	5
Chicken-pox	19
Malaria	66
Syphilis	20
Soft Chancre	58
Gonorrhœa	101
Other disease due to infection	9
Nervous Disease	2
Mental Disease	1
Disease of the Eye	1
Disease of the Ear	1
Disease of the Circulatory System	3
Disease of Blood	2
Disease of Respiratory System	59
Disease of Teeth and Gums	1
Disease of Digestive System	4
Disease of Urinary Organs	1
Disease of Skin	27
Scabies	1
Other diseases due to Animal Parasites	1
Local injuries	141
All other causes	367
<b>TOTAL</b>	<b>928</b>

## (ii.) SIERRA LEONE BATTALION, W. A. F. F.

Average Strength of Battalion during 1921.	Percentage of Sick per 1,000.	Percentage of Deaths, Natives.	Percentage of Deaths, Europeans.	Remarks.
637	5.47	.3	.1	—

## (iii.) SIERRA LEONE CIVIL POLICE FORCE.

Total Number of Men under Command.	Total Number of Deaths.	Death-rate per 1,000.	Total Number of Men on Sick List.	Daily average Sick per 1,000.	Remarks.
326	4	12.2	185	10.31	—



### III—SANITATION.

#### 1. (a) ADMINISTRATION.

1. Dr. F. J. A. Beringer resumed duty as Senior Sanitary Officer on 26th February, after having acted as Principal Medical Officer, relieving Major Peacock, Sanitary Officer, and went on leave on 5th May returning on 12th November.

2. Major Peacock went on leave on 1st December.

3. Dr. J. M. Mackay, Medical Officer, acted as Medical Officer of Health from the beginning of the year until 15th September, combining his duties as such with those of acting Sanitary Officer during the periods 1st January to 25th February and 5th May to 15th September.

4. Dr. W. Allan, Medical Officer of Health, returned from leave on 17th September and, in addition, acted as Sanitary Officer from 17th September to 11th November.

5. Mr. D. S. Bowen, Superintendent Sanitary Inspector, returned from leave on 15th April.

6. Mr. G. V. Herd, Superintendent Sanitary Inspector, proceeded on leave on 12th March and returned on 17th September.

7. Mr. E. T. E. Nash, Senior Sanitary Inspector, who was invalided in 1920, finally left the Service on 19th January without having returned to the Colony. The post of Senior Sanitary Inspector was then abolished.

8. The re-organization of the African sanitary staff had been sanctioned by the Secretary of State in 1915, but owing to the war was postponed. A beginning was made this year. The following table shows the change.

#### 1920.

One Sanitary Inspector, £90 to £120 by £5 per annum.

Two Assistant Sanitary Inspectors : one, 2s. 9d., and one, 2s. 6d., a day, each.

Sub-Inspectors of nuisances, one first class, 2s. 3d., eight second class, 2s., and seven third class, 1s. 9d., a day, each.

#### 1921.

Sanitary Inspectors, First Grade—£190 to £240 by £10. Second Grade—£140 to 180 by £8. Third Grade—£114 to £132 by £6. Fourth Grade—£90 to £108 by £6. Fifth Grade—£54 to £90 by £6. Sanitary Learners— £50 per annum, each.

9. The total strength of Inspectors and Learners sanctioned was twenty-four. None were capable of filling either of the first four grades. On the 1st January, two of the old Inspectors were appointed Fifth Grade Inspectors and on the 1st July, five more. With these exceptions, and one other referred to later, all the Inspectors of the old grade became Sanitary Learners. One man who had been in the Government Service since 1913, when the Sanitary Service of the Freetown Municipal Corporation was taken over by Government and in the service



of the Corporation for many years before then, and who was in many respects a good practical man, but quite incapable of passing the new qualifying examination, was retained in a special appointment outside the scheme. He died during the year.

10. It was difficult to get suitable men. The service is not popular, duties are for the most part outdoor and arduous, hours are long. The pay is the same as for the African Government clerical services, but the conditions are more strenuous. Naturally, well qualified youths seek the easier and more popular clerical service.

11. The policy has been forced upon the department of taking on the least unsuitable candidates who present themselves, and if after a short trial they are found to be hopelessly unsatisfactory, to give them short notice of termination of appointment, being replaced by others for similar trial. In this way six appointments as Sanitary Learners were made during the year, whilst one resigned and four were given notice.

12. There is provision for sixteen Public Vaccinators for the Colony and Protectorate: three are usually stationed in Freetown the remainder at Bonthe and in the Protectorate. As a class, they are unsatisfactory in that they are for the most part semi-illiterate, unreliable and their methods are crude in spite of attempts at careful training. The attempt was made to train Protectorate natives and station them in the districts from which they came, but the candidates do not possess the standard of education required for carrying out vaccination and supervision of outbreaks of Smallpox. It is hoped that better provision will soon be made for carrying out these important public health functions.

13. The clerical staff was strengthened by the appointment of Mr. Auber, a Second grade Clerk, as Chief Clerk. The total clerical staff now consists of seven clerks, one of whom is posted to the office of the Medical Officer of Health of Freetown and one acts as Store-keeper when not assisting in ordinary clerical duties. It still remains necessary for both the Senior Sanitary Officer and the Junior Sanitary Officer to spend a large proportion of their time in attending to minor and petty clerical duties. It seems an anomaly that comparatively highly paid expert officers should spend time in duties that could be carried out by a much cheaper staff, if only it could be found or appointed, whilst so much that requires urgent attention has to be left undone just because the experts have no time. But the present is not the time to ask for new appointments, even though it would result in greater clerical and administrative efficiency at less cost and in greater attention being paid to those inimical public health conditions which are the cause of piling up a legacy of expenditure sometime to be incurred when their undoing is at last taken in hand.

14. Dr. Beringer inspected the following places during the year:—Batkanu, Bo, Daru, Giema, Kaballa, Kanre Lahun, Kennema, Mabunti, Moyamba, and Pendembu. Major Peacock, the following—Blama, Daru, Kennema, Mano, Moyamba, N'Jala, Panguma, Pendembu, Pujehun and Sumbayah.

15. Dr. E. T. Cummings, African Medical Officer, remained attached to the Sanitary Branch of the Medical Department until the 18th April when he reverted to the medical side of the department. He continued at Mabunti, the village chosen in the Northern Province to be the first model village in the Protectorate under the direct supervision of the Sanitary Department, until the 31st January when he was transferred to Giema, some nine miles south-east of Kennema, the village chosen as the first model in the Central Province. Dr. Cummings continued to train the Vaccinators and lecture them on elementary village sanitation, so long as he remained in the Sanitary Department.

16. Briefly, the Sanitary organization of Sierra Leone is as follows:—

- (a) The nominal head is the Principal Medical Officer, who is constantly consulted and to whom the most important matters are submitted as a matter of course; through him pass all papers between the



Government and the Sanitary Branch of the Medical Department and, in more important matters, between the Sanitary Branch and other departments. It is a pleasure to put on record that throughout the years that I have served as acting Senior Sanitary Officer and Senior Sanitary Officer under a number of Principal Medical Officers in Sierra Leone, Nigeria and the Gold Coast, I cannot remember a single instance of friction having arisen.

- (b) The head of the Sanitary Branch of the Medical Department is the Senior Sanitary Officer who, with a great measure of independence, is responsible for the sanitation of Sierra Leone.
- (c) The Sanitary Officer acts for the Senior Sanitary Officer when he is on leave and sometimes performs the duties of the Medical Officer of Health when the latter is on leave.
- (d) The sanitation of Freetown and immediate neighbourhood is in the hands of the Medical Officer of Health, who has under him two European Superintendent Sanitary Inspectors and a number of African Sanitary Inspectors.
- (e) Everywhere but in Freetown the district Medical Officer is the Medical Officer of Health of the district. In the Colony proper the only place other than Freetown that is well served is Bonthe and the neighbouring York Island, which has a Senior Medical Officer with two African Sanitary Inspectors.
- (f) In the Protectorate there are now only five places at which Medical Officers are usually stationed namely, Makene, Moyamba, Bo, Daru and Pujehun; the first four on the railway. The only place in which there is an African Sanitary Inspector is Bo. (This year, 1922, two others have been stationed on the main railway line, so that seven towns are now regularly inspected by three Inspectors.)
- (g) Waterloo, a town twenty miles by rail from Freetown and in the Colony, has an African Sanitary Inspector, partly paid by the village fund, and partly by Government; but he is not a trained man.
- (h) The rest of the Colony and Protectorate is served by Political Officers who naturally have little time for sanitation, but under whom some excellent work has been done in the laying out of headquarters and villages. African Dispensers are stationed in a certain number of headquarters where there is no Medical Officer and supervise sanitary labour. The influence of Bo School, founded by Government for the education of the sons and nominees of Chiefs, has been considerable. The boys are housed in model villages in the school grounds and take with them habits of tidiness, cleanliness and other attributes of hygiene which many practise in after life to the marked advantage of the health of the Protectorate communities.
- (i) Ceremonial Swords and Certificates are given to Chiefs as rewards for excellent sanitary work done in their towns during the year, but in making the awards the Sanitary Department is not consulted.
- (j) In the greater part of Sierra Leone sanitary work is necessarily unorganized, without continuity and with little regular plan. Things are often done by one man, undone by the next; some are keen on sanitation, others not, but usually, with the best of wills and energy, sanitation shows signs of amateurism. At present it cannot be helped, one must look to a better future, resulting from a larger sanitary staff and better sanitary legislation.
- (k) In the Colony sanitation is subject to the Public Health Ordinance, 1905, its amendments, and Ordinances dealing with quarantine, vaccination and other special matters. It is as well to recall here the remarks of Dr. Laurie, late Senior Sanitary Officer, in paragraph 5



of his first Annual Sanitary Report (page 43 of the Annual Report on the Medical Department for the year ended 31st December, 1916): "The Health Laws of the Colony are so scattered, so complicated and so unsuitable for application that sanitary development is very much hampered at present, and will always be, until laws are simplified, consolidated and brought more into harmony with those of other Colonies."

- (l) Sanitation in the Protectorate is subject to the Public Health (Protectorate) Ordinance, 1915, which makes the Chief the Sanitary Authority of such places as the Governor in Council declares Sanitary Districts. In practice the Chief is the nominal but passive Sanitary Authority; those who activate the Ordinance are the Political Officer, the district Medical Officer and, where there is one, the Sanitary Inspector. It is not an ideal procedure, but it was very carefully thought out and was no doubt an excellent method of introducing sanitary legislation, sanitary ideas and authority where, formerly, there were little or none. The Ordinance to the end of the year had been applied to nine places.
- (m) Mention should also be made of the very great powers that the Tribal Authorities possess, according to Native Law and Custom, of imposing regulations, but these are useless where Europeans, Africans and others, who do not come under the Tribal Authority, are concerned. It often happens that such "strangers" are the worst offenders.

- (n) Minor Colony village sanitation, carried out under the powers of the Headmen Ordinance, 1921, is referred to in paragraphs 27 and 33.

(Note.—It is hoped to take steps—indeed some have been taken—to submit proposals to amend Public Health Laws and to fill voids.)

17. The cost of the Sanitary Department for the year was £19,279, distributed as follows:—

	£
Salaries, allowances and travelling ... ..	9,020
Labour ... ..	8,050
Materials and upkeep ... ..	1,418
Rent ... ..	494
Closing of wells (special anti-malarial) ... ..	221
Miscellaneous ... ..	47
Library and scientific apparatus ... ..	29

These sums do not include Medical Officers who are part time Medical Officers of Health, as they are paid out of the separate Medical Department estimates, nor of course sanitary works carried out by the Public Works Department.

18. The ratio of Medical and Sanitary estimates to total estimated revenue for the last four years, is shown below:—

Year.	Medical Vote.	Sanitary Vote.	Ratio to Estimated Revenue.
	£	£	
1921 ... ..	57,642	25,252	1 : 12·4
1920 ... ..	38,808	18,518	1 : 12·3
1919 ... ..	31,606	15,878	1 : 10·7
1918 ... ..	29,761	14,760	1 : 13·7

Note.—1. In 1919 and 1920 there was special war expenditure on anti-malarial measures under the control of the Senior Sanitary Officer, but not included in the Sanitary Vote. It has, however, been added to it in calculating the ratio of expenditure.

2. In 1921 this anti-malarial measures vote was included in the Sanitary Vote.

3. War bonuses are not included in the Medical and Sanitary votes.

4. In 1921 the salaries were readjusted and war bonus ceased to find place in the Colony Estimates.

5. The sum voted is not necessarily expended in full.



## 1. (b) LEGISLATION.

19. During the year Pujehun and Moyamba were declared Sanitary Districts under the Public Health (Protectorate) Ordinance, 1915, and certain rules made under the same Ordinance were applied to Blama, Kennema, Pendembu, Segbwema, Kanre Lahun and Pujehun.

20. Section 2 of the Public Health (Amendment) Ordinance, 1910, which makes the finding of mosquito larvæ a summary offence, was applied to Waterloo.

21. Cerebro-spinal Meningitis, Influenza and Sleeping Sickness were permanently made notifiable diseases under the Public Health Ordinance, 1905.

22. Vaccination was made compulsory in the Freetown Police District under the Vaccination Ordinance, 1918, when Smallpox became epidemic in the City. The enactment remains in force.

23. The importation of Japanese shaving brushes was prohibited under the Exports and Imports Prohibition Ordinance, 1920.

24. Quarantine (smallpox) Regulations were applied to Freetown on the 4th April, under the Quarantine Ordinance, 1914, on account of Freetown being infected with Smallpox. Its object was to prevent ships being infected. The movements of passengers, crew, ships' labourers and visitors were restricted and supervised, and baggage became liable to fumigation.

25. The table following shows the places that were declared infected under the Quarantine Ordinance, 1914, and subsequently declared free from infection with dates and diseases on account of which action was necessary :—

Place.	Country.	Disease.	Declared Infected.	Declared Free.
Warri ...	Nigeria ...	Smallpox	6th January, 1921	29th Jan., 1921
Calabar ...	"	"	1920	29th Jan., 1921
Monrovia ...	Liberia ...	"	1920	18th Feb., 1921
Monrovia ...	"	"	22nd March, 1921	22nd June, 1921
Freetown ...	Sierra Leone ...	"	1st April, 1921	14th May, 1921
	Portuguese			
Boulama ...	Guinea ...	Plague	4th May, 1921	1922
Bathurst ...	Gambia ...	Smallpox	11th May, 1921	17th Sept., 1921
Grand Bassa ...	Liberia ...	"	11th May, 1921	3rd August, 1921
	Portuguese			
Bissao ...	Guinea ...	Plague	11th June, 1921	1922
Dakar ...	French Guinea	"	14th June, 1921	30th Dec., 1921
Bathurst ...	Gambia ...	Smallpox	3rd Dec., 1921	1922
Grand Bassa ...	Liberia ...	"	10th Dec., 1921	1922

26. Regulations under the Vaccination Ordinance allowed a fee of sixpence to be paid, with certain exceptions, for each successful vaccination to Public Vaccinators who are Medical Officers or qualified medical practitioners.

27. A consolidating Headmen Ordinance was passed during the year. Under it regulations may be made by the elected Headmen and Committees of Colony villages, dealing with such sanitary matters as cleaning and upkeep of cemeteries, roads, bridges and "Other work" of a like character for the benefit of the town."

28. Quarantine regulations, 1921, amend the older regulations which had no legal provision for preventing ships from communicating with the shore or other vessels on arrival before being visited by the Harbour master or Customs officer. They also give greater powers to compel ships to fly the quarantine flag, to prevent other craft approaching too near and the like, when such action is necessary in the interests of the public health.

## II. (1) PREVENTIVE MEASURES AGAINST INSECT-BORNE DISEASES.

### MALARIA.

29. The following is taken from Dr. W. Allan's, Medical Officer of Health, Freetown Report for the year :—

“(a) *House to house Inspection.* During the year 92,378 houses were inspected, resulting in the discovery of 483 breeding places. 483 prosecutions followed with 407 convictions, realising £94 14s. in fines, making an average of, approximately, 4/8d. per case.

“A Mosquito Larvae Index was taken at the end of each quarter, when the following results were obtained :—

“March 1.2 per cent.

“June not taken on account of Smallpox outbreak.

“September 4 per cent.

“December 2.2 per cent.

“Three hundred and fifty compounds were examined on each occasion.

“Altogether 3,500 cases of mosquito larvae were found in Freetown,

“chiefly in trees and mosquito breeding plants.

“(b) *Closing of wells.* Forty-two wells were closed during the year,

“and, so far as can be ascertained, only twelve remain open. These

“will be closed early in 1922.

“(c) *Oiling of Cesspits.* Has been carried out in those which are found

“to contain water. A mixture of kerosene and solido disinfectant

“fluid was found very useful for the purpose. The two fluids mix

“very well and fly breeding is prevented as well as mosquito breeding.

“(d) *Canalisation of streams.* The principal streams in the town were

“canalised and regulated at the end of the rains as in former years.

“Unfortunately this work, although having a certain amount of

“economical value, does not last much after the first tornado of the

“following rainy season.

“(e) *Oiling of pools and gutters.* A total of 22,468 pools and gutters

“were oiled.

“(f) *Permanent anti-malaria work.* The following permanent surface

“drainage was carried out by the Sanitary Engineer :—

“(1) New concrete Drains

“Adelaide Street ... 150 yards

“Victoria „ ... 108 „

“Steward „ ... 104 „

“Edward „ ... 100 „

“(2) Improvements were carried out to drains in Morgan,

“Mannah, Howe, Martin, Bishop, Oxford, Jones, Water,

“Westmoreland, Rush, George, Garrison, Hennessey and

“Wellington Streets, East Brook Lane, Kissy Road, Pademba

“Road, Circular Road and Fourah Bay Road.”

30. Dr. C. H. Allan, Senior Medical Officer at Bonthe, reports—“A large portion of Heddle Swamp was filled in during the rainy season, when the incinerators could not be burnt, with dustbin rubbish and afterwards covered with mangrove turf brought from the nearest unoccupied island, this being finally covered with sand.”

31. At Pujehun, a belt thirty yards wide was cleared of bush and grass round the whole town mainly as an anti-mosquito measure.



32. At the new headquarters station at Pendembu, much good work was done by clearing bush, planting short grass and draining swamp in the neighbourhood, chiefly by straightening out and canalising the streams, at the instance of the energetic District Commissioner, Mr. Hollins.

33. At all stations paid and prison labour carried out anti-mosquito work on the usual lines. In station where there are soldiers and police (Court Messengers), these also do some sanitary work. In the Colony villages the inhabitants themselves must give fourteen days' labour, either personal or by paid substitute, each year on work of a sanitary nature "for the benefit of the town." Owing to the financial state of the Colony strict economy was necessary. £8,050 was spent on sanitary labour, distributed as follows :—

	£
Freetown ... ..	4,174
Wilberforce and Murray Town, suburbs of Freetown, and Cape Sanitary Station, the quarantine Station near Freetown ... ..	441
Hill Station, the residential reservation some 900 ft. above Freetown ... ..	982
Bonthe and York Island ... ..	557
Waterloo ... ..	62
Seventeen Protectorate towns and Government stations in amounts varying from £12 to £356	1,832

#### YELLOW FEVER.

34. No case of this disease was reported during the year.

#### TRYPANOSOMIASIS.

35. A case of Trypanosomiasis in a European, probably contracted in the neighbourhood of Mabang, was reported in the Annual Medical Report for 1918. During the year under review, a European living at Mabang reported what he thought might be a death from Sleeping Sickness and a child sick with what he believed to be the same disease. He said that there had been several cases during the last three years. Professor Blacklock of the Sir Alfred Jones Freetown Research Laboratory found Trypanosomiasis in the child, which appears to have been infected at Ribbi Kenni. The child died before it could be removed to hospital. He subsequently made an extensive search for other cases at Mabang and at Ribbi Kenni, some ten miles down the Ribbi River, but could find only one other case. He came to the conclusion that—"in regard to the districts dealt with, Trypanosomiasis of human beings is a sporadic disease, and that only exceptional persons are affected by it. This condition would be in accordance with the condition of things which prevails in many parts of the West Coast of Africa, where a large proportion of persons appear to enjoy a relative immunity from Trypanosomiasis." I came to a similar conclusion after examining many persons in a number of villages in the neighbourhood of Salaga in the northern territories of the Gold Coast in a report made in 1910.

36. Dr. C. H. Allan of Bonthe reports that he saw "a woman at Mattru who had typical clinical signs of Sleeping Sickness but no Trypanosomes were found in the two slides taken."



## II. (2) PREVENTIVE MEASURES AGAINST INFECTIOUS AND EPIDEMIC DISEASE.

### CEREBRO-SPINAL MENINGITIS. INFLUENZA.

37. There were no cases of the first named disease recorded, and only two of the latter *i.e.*, two Europeans in hospital in Freetown.

### PLAGUE.

38. In Freetown :

- (a) 8,578 rats were brought in and destroyed, being paid for at the rate of 3*d.* per rat.
- (b) Barium Carbonate and Tincture of Squills were used and, so far as could be judged, were satisfactory. The Rat Varnish recommended by the Medical Officer of Health of the City of London continued to be used, but with less satisfactory results as the preparation sent out was evidently not the same as the first sample, which had proved so successful that, as reported in 1920, "once a rat was caught by this varnish it was never known to escape." The Sanitary Department is in correspondence with the manufacturers. Ordinary Bird Lime was useless.

### SMALLPOX. CHICKEN-POX. VACCINATION.

39. There was an outbreak of Smallpox in Freetown, which was reported on as follows by Major Peacock, Sanitary Officer :—

#### I.—OUTBREAK OF APRIL AND MAY.

"1. On 31st March, a Bassa (Liberia) man living at 44, Macdonald Street, "which is in the western area of the town, reported at the Colonial Hospital and "was found to be suffering from Smallpox. Examination of the other inmates "of the house led to the discovery of five more cases.

"2. On 1st April, a woman living at 62, Dundas Street, was found to "have Smallpox. She had been living at 44, Macdonald Street, where the first "cases occurred, until about a week before, and left there about the time she "became ill.

"3. The same day two boys living at 6, Henry Street (west), were found "to have Smallpox. On examining the contacts in this house a woman was "found who had had Smallpox at Grand Bassa, Liberia, several months previously. "She had arrived in Freetown from Grand Bassa fourteen days before the two "boys took ill, and it is almost certain that, though cured herself, she brought the "infection in her baggage. Smallpox was present at Grand Bassa during the "early months of the year, but the first official intimation to that effect reached "this office on 7th May. It is significant that the first nine cases reported were "all Bassa people.

"4. Subsequently, seventeen further cases were discovered, the last "one on 22nd May, making a total of twenty-six.

"5. Three of these cases were imported. One was a Kroo boy who arrived "in Freetown on 5th May from Lagos by the s.s. "Abinsi." He was found on "10th May by Dr. T. C. Maxwell, at 3, Chapel Street, in the course of house to "house inspection, and at that time was practically cured. He gave a history of "onset about 15th April. Another imported case was a man who probably "contracted the disease at Daru and came to Freetown almost cured. A third "imported case came from a village near Waterloo, but investigation there disclosed "no further cases or history of recent Smallpox. Apart from the imported cases "all, except two, were living in the western area of the town at the time they were "taken ill.

"6. It is impossible to be quite certain of the origin of the outbreak, but "it is at least probable that the greater part of the infection was introduced from "Grand Bassa by natives from that place arriving in Freetown as deck passengers "on steamers."

"7. Measures for dealing with the outbreak may be summarised as follows :—

"(a) Legislation :

"(1) By Governor's Order No. 11 of 1st April, 1921, Freetown "was declared an infected port and remained so until this Order was "rescinded by Order No. 16 of the 14th May.

"(2) Quarantine (Smallpox) Regulations, No. 2 of 1921. Gazetted "9th April, 1921.

"(3) Vaccination Order (No. 16, Gazetted 30th April, 1921) making "vaccination compulsory throughout the Freetown Police District.

"(4) Appointment by the Governor of house to house visitors "(Public Health Ordinance, 1905, section 45).

"(b) The usual measures as regards cases and contacts were carried out.

"Patients were removed to the Infectious Diseases Hospital at Kissy.  
"Houses were disinfected together with furniture, clothing and all  
"articles likely to harbour infection. Contacts were examined,  
"registered and vaccinated, and were inspected each morning at the  
"Medical Officer of Health's Office for a period of sixteen days.

"(c) A house to house inspection of the whole of the western area was

"carried out by the Medical Officers specially appointed for this purpose,  
"each Medical Officer being accompanied by a vaccinator.

"(d) Between 31st March and 12th May 5,800 vaccinations were

"performed in Freetown.

"(e) Measures taken to prevent the exportation of the disease were in

"accordance with Quarantine (Smallpox) Regulations.

## II. LATER CASES.

"(a) On 28th July a policeman living at 22, Henry Street, West, reported

"at the Colonial Hospital and was found to have Smallpox in a mild  
"form. He had been employed on steamers lying in the harbour and  
"may possibly have contracted the disease in that way, but the fact  
"that he was living in a street where previous cases had occurred in  
"April should not be overlooked. The usual precautions were  
"taken, including the inspection and vaccination of practically the  
"whole of the Police Force, and no further cases occurred.

"(b) On 22nd September, a mild case was discovered in Waterloo Street,

"the patient being a Mende labourer. The source of infection could  
"not be traced. There was no spread of infection."

40. Smallpox was also reported at Daru (a slight outbreak amongst labourers painting a railway bridge and a few cases in a neighbouring district), Pujehun District (13 cases in February), Gbangbama District (1 in March, 1 in April), Moyamba District (1 in May), Koinadugu District (1 in March, 1 in October) and in Bombali District (1 in December). These reported cases can only be a small proportion of all cases that occurred: Medical Officers and other officials are few and the natives are reluctant to report cases.



41. Chicken-pox, like Smallpox, is always with us. Twenty-one cases were discovered in Freetown and sent to Kissy for treatment. They were mostly sanitary labourers. It is obvious that many more cases occurred, but were not brought to notice. Chicken-pox is not a notifiable disease.

42. As an instance of the difficulty of coming to a conclusion as to the nature of an outbreak when there is no Medical Officer available to investigate it, the following instance reported by the Senior Medical Officer, Bonthe, is worth recording: "Smallpox was only reported once, the Vaccinator on visiting called it Chicken-pox: these were at a school on x x x x. They were boys between the ages of twelve and sixteen years, and the European in charge, when I next saw him, was convinced that they were cases of Primary Syphilis."

43. The vaccinations done during the year are as follows:—

Place.			Cases Vaccinated.	Successful.	Unsuccessful.	Not seen.
Freetown	...	...	14,708	3,066	1,989	9,653
Suburb of Kissy	...	...	139	63	59	17
Sherbro	...	...	1,822	1,172	188	462
Protectorate	...	...	19,320	6,616	4,558	8,146
TOTAL			35,989	10,917	6,794	18,278

#### DYSENTERY.

44. Dr. J. Y. Wood, Medical Officer, reporting on the hospitals of Freetown remarks: "Dysentery has almost disappeared, only thirty-six cases, including four cases in hospital from 1920, and including both Europeans and natives. No cases of Dysentery were admitted to the European hospital during the year." The thirty-six cases mentioned include seventeen native out-patients in Freetown, but not those from the suburb of Cline Town nor the Prison.

45. The number of cases of Dysentery treated in Government hospitals and dispensaries during the last seven years are shown in the following table, column A. The number of cases given in earlier annual reports (detailed case reports were burnt in the hospital fire) are differently classified and are therefore not comparable. A number of factors must be considered, reduction of medical staff, idiosyncrasy in diagnosis particularly in the case of out-patients where the time at the disposal of the Medical Officer for each case is necessarily very small, fluctuation of population particularly during the war, and others; nevertheless the figures appear significant, and had it not been for the figures in columns B and C credit might have been taken by the Sanitary Department for much of the reduction in Freetown particularly on account of the closing of wells. In 1916 there were over 800 wells in Freetown, at the end of the year under review twelve.

Year.	A. Freetown in-and out-patients. Freetown Prison. Cline Town suburban dispensary.	B. All Government Institutions at which Medical Officers have been stationed throughout the Period.	C. All Government Institutions except those under A. Those under B are included.
1921	82	39	102
1920	149	96	255
1919	Fire at Hospital: records destroyed.	161	—
1918	278	116	296
1917	391	127	242
1916	307	131	321
1915	175	59	277



There is the inevitable fly in the amber: cases of Dysentery elsewhere than in Freetown have decreased in somewhat similar ratio (column C) without any improvement in the water supply! Even if only stations are taken in which there has been a Medical Officer throughout these years (column B)—Bonthe, Kissy, Bo, Moyamba and Daru—a somewhat similar ratio is indicated. The closing of wells and improved sanitary conditions in Freetown, much as one would like to take credit for them, apparently have had little or nothing to do with the decrease of Dysentery.

#### LEPROSY.

46. The same two cases are still in the Kissy leper ward. Other cases under treatment were two prisoners in Freetown, four noted by the Medical Officer, Moyamba, five by the Senior Medical Officer, Bonthe, with one death and two others elsewhere by Dispensers. The last named officer remarks "Leprosy is prevalent."

#### ANKYLOSTOMIASIS.

47. The remarks made by Dr. Laurie, late Senior Sanitary Officer, in the Annual Report on the Medical Department for 1916, still hold good. "Infection by Ankylostomes is a very frequent occurrence and widespread distribution, but for many obvious reasons no means were adopted for its eradication outside prisons and hospitals. By gradually enlightening the native and persuading him to follow a more rigid sanitary existence and dispense with some of his unhealthy institutions, a great deal of good may result . . . , but it will be a long and tedious process."

48. Reports of 50 per cent. of infection of persons examined have been received from Medical Officers; in one case 84 per cent. in a prison. Infection appears to be slight and for the most part with little or no obvious symptoms.

### II. (3) PORT SANITARY WORK—FREETOWN.

49. Freetown was in quarantine on account of Smallpox from 1st April to 14th May, and precautions were taken as already indicated. (Paragraphs 24 and 39.)

50. All ships arriving from infected places (detailed in paragraph 25) were medically inspected by the Medical Officer of Health. No case of a notifiable infectious disease was discovered.

### III. (a) GENERAL MEASURES.

51. *Freetown.*—The following is from the report of Dr. W. Allan, Medical Officer of Health. A summary of routine sanitary work forms Appendix C to this report:—

#### A.—GENERAL SANITARY WORK.

- "(a) *Disposal of Refuse.*—The methods of disposal remain as before.
  - "During the dry season it is burned, and during the wet season the
  - "bulk of it is dumped into the sea. About 30—35 tons of combustible
  - "and incombustible refuse was removed from the streets daily, and
  - "an average of 12 canoe loads (each canoe load holding about 36
  - "baskets) were taken out and dumped in mid-stream.
- "(b) *Sanitary inspections.*—Four thousand five hundred and thirty-two
  - "notices were served to remove insanitary conditions of premises, and
  - "142 persons were fined for not removing insanitary conditions after
  - "notice. The fines amounted to £42.
- "(c) *Meat inspections.*—Two thousand four hundred and sixty-seven
  - "bullocks and six sheep were slaughtered in the public slaughter house
  - "by native butchers for public sale; 711 bullocks, 156 sheep and
  - "11 goats in the Imperial slaughter house for the Imperial Government



“and 511 bullocks, 212 sheep and 1 goat by the European butchery  
 “for public sale, making a total of 3,689 bullocks, 374 sheep and  
 “12 goats slaughtered for food. Twenty-two bullocks and three-  
 “quarters of beef were condemned and destroyed during the year,  
 “by order of the Police Magistrate, on account of infection with  
 “*Cysticercus bovis*.

- “(d) *Inspection of food-stuffs*.—In consideration of the amount of  
 “intestinal disorders in Freetown, an examination on a large scale  
 “of tinned food-stuffs was made in the different stores and shops.  
 “As a result the following were seized and destroyed by order of the  
 “Police Magistrate:—4 bags sugar, 24 bags and 4 barrels onions,  
 “132 barrels biscuits, 11 tins breakfast cocoa, 319 tins Pearl barley,  
 “82 tins salmon, 8 tins bacon, 5 tins baked beans, 5,764 tins sardines,  
 “10 tins peaches, 10 tins milk, 137 tins sausages, 48 tins margarine,  
 “2 tins pears, 89 tins meat paste, 85 tins camp-pie, 1 tin quaker oats,  
 “1 tin cheese, 24 tins pine-apples, 807 tins herrings, 20 tins cabbages,  
 “7 tins raspberries, 2 tins plums, 1 tin mixed vegetables, 3 tins red  
 “cherries, 37 tins green grapes, 46 tins army rations, 12 tins fruit  
 “pudding, 1 tin balibut, 46 tins sardines, 2 tins pork and beans, 3 tins  
 “biscuits, 6 tins sprats, 3 tins fruits, 15 tins soup and 2 tins vegetables.

#### B.—SANITARY BUILDINGS.

- “(1) *Incinerators*.—The following were repaired during the year :—At  
 “Lower Bombay Street, West Brook Street, Sanders Street and  
 “Campbell Street.  
 “(2) *Chutes*.—The chutes at Falconbridge and Lombard Street, were  
 “repaired.  
 “(3) *Latrines*.—One new latrine was erected at King Jimmy, and the  
 “following latrines were repaired during the year:—At Bomlay  
 “Street, Kroo Bay, Hagan Street, Falconbridge, Garrison Street and  
 “Government Wharf.

#### C.—WATER-WORKS.

- “The Superintendent of Waterworks reports as follows for the year  
 “1921 :—All sections of the Waterworks were kept in proper repair.  
 “The Venturi Meters ordered from England and installed during the  
 “year 1920 have been working very satisfactorily, and have enabled  
 “the department to obtain accurate and permanent records of the  
 “consumption of water in the city.  
 “There have been four new public stand-pipes erected during the year  
 “under review, making a total of 210. There were also thirty-eight  
 “private services installed during the year, making a total of 360 (not  
 “including fifty-seven services to the Government and Municipal  
 “establishment and bungalows).  
 “About 1,000 yards of distributing mains at Soldier, Sackville, Meheux  
 “and Fisher Streets, originally laid near the surface of the street, were  
 “lowered to an average depth of about 3ft. 6in., below the street level.  
 “There was a shortage of water for nearly two months this year,  
 “from the middle of March to the middle of May, during which  
 “period the city was placed on a restricted supply, and on two or  
 “three occasions the Malamah extension was pumped dry.  
 “The problem of further increasing the water supply will sooner or later  
 “have to be faced and seriously grappled with.  
 “The total consumption of water in the city for the year was 132,919,000  
 “gallons. The average daily consumption for January was 463,700  
 “gallons—the highest, and for July 313,630 gallons—the lowest.  
 “The average daily consumption for the whole year was 364,160  
 “gallons.”



52. Included in the sanitary work done at Sherbro during the year are :—

- (a) Erection of two latrines at Bonthe and one in the centre of the village at York Island. "All these three latrines were made, unlike the older ones, with separate compartments for males and females. However, it will be some time, dealing with so many illiterates, before the people are taught which are the right compartments."
- (b) Repairs to four old type latrines.
- (c) One hundred and ninety-one prosecutions for nuisances with 187 convictions bringing in a total of £82 6s. in fines at Bonthe and £1 5s. at York Island.
- (d) At the slaughter house seventy-five bullocks, twenty-six sheep, fifty-eight pigs and seven goats were killed : three bullocks were slightly infected with *Cysticercus bovis*.
- (e) There were sixty-nine burials, including fourteen infants under one year of age at Bonthe, the lowest on record.

53. When Giema, the first model village under the scheme referred to in paragraph 15 was visited by the Senior Sanitary Officer he found a well laid-out and clean village situated on a small plateau and its slopes. The Chief, who was responsible for its building and was much to be congratulated on the result, had been to the Government school for the sons and nominees of Chiefs. Some of the usual errors had been made in this primitive type of town planning undertaken by amateurs ; roads were without camber, slopes were denuded of all vegetation and gutters were dug in the gravelly soil at the sides of roads with the result that the torrential rains soon wore out irregular and deep channels threatening both roads and houses. Nevertheless Giema is one of the best laid-out and cleanest villages the Senior Sanitary Officer had seen in Sierra Leone.

54. A further instance indicating the gradual infiltration of improved ideas of sanitation throughout the Protectorate occur in the report of Dr. M. Jackson, Medical Officer, Daru : "Although the native town of Daru does not come within the Public Health (Protectorate) Ordinance, it is worth recording that the Chief of Daru has carefully renewed his town which has now some very good and wide roads. The houses are all evenly spaced and laid out in a rectangular pattern similar to the barracks of the West African Frontier Force." The Senior Sanitary Officer visited this town and found conditions as described. But again the result was partially spoilt by traces of amateurism : a whole row of houses was put in the wrong place. Nevertheless, enormous advance is shown in this and other places recently visited. One curious feature is that the best laid out of these Protectorate towns are almost solely inhabited by the aborigines in marked contrast with those that have Europeans, Syrian and Creole traders amongst their inhabitants. The latter have been allowed to grow up irregularly, just "anyhow." A reason is that there is no difficulty in razing and rebuilding a purely native town, there are no vested rights, no expensive buildings, no leased plots, all of which necessitate large expenditure in compensation if there is alteration or removal.

55. At Bo one incinerator was completed.

56. At Waterloo there were forty-seven convictions with £16 5s. 6d. in fines for nuisances.

57. Kennema is an instance of some of the difficulties the Sanitary Department has to contend with in its endeavour to improve the health of the African. The native town is served with three stand-pipes, water being pipe-borne from a dam in the hills. The taps are constantly stolen with the result that water has to be turned off, leaving the inhabitants no alternative but to go back to the dirty water-holes and polluted wells.

58. At Hill Station the circumferential cleared area was somewhat increased ; the levelling and planting with short grass was continued.



(b) MEASURES TAKEN TO SPREAD THE KNOWLEDGE OF  
HYGIENE AND SANITATION.

59. Dr. W. Allan, Medical Officer of Health, reports that "A series of Lectures on Tropical Sanitation for Sanitary Learners, in accordance with Regulation 3 of 1915, were given during the year by the Medical Officer of Health. The series embraced lectures on mosquitoes and anti-mosquito measures, water and water supplies, purification of water, disposal of refuse, disposal of night soil and public health law treated in an elementary way. Six Learners were promoted to Fifth Grade Sanitary Inspectors as the result of examination held during the year."

60. Dr. W. Allan, Medical Officer of Health, wrote a small pocket pamphlet being a "Manual of Instructions for Sanitary Inspectors and others" which has since been locally printed. To some extent it is a revision of his "Law and Regulations for the guidance of Sanitary Constables" printed in 1914.

61. As a result of the findings of the local committee appointed in 1920 (Annual Medical and Sanitary Report, 1920) to investigate the causes of the high death-rate in many of the gaols of East and West Africa, "sanitary rules for prisons in Sierra Leone" were framed. A copy is attached.

62. In practice the taking of meteorological observations falls for the most part upon African Dispensers acting under the Medical Officer of the station except in Freetown which is a Meteorological Station of the Second Order of the International Classification and where observations are taken by a British Non-Commissioned Officer of the R.A.M.C. placed at the disposal of the Civil Government by the Military Authorities for the purpose. "The Directions for Meteorological Observers," a copy of which is attached, were distributed during the year in the hope that errors sometimes observed by Sanitary Officers when inspecting out-stations might be eliminated. As an instance, one observer was found to be trying to shake *up* what he called a bubble in the column of the minimum thermometer instead of shaking *down* the disconnected portion of the alcohol. In another case an observer thought that .02 of an inch of rain meant 2 inches! In one station—there was no Medical Officer there—the wet bulb thermometer was inside the water bottle! The life of a Sanitary Officer in West Africa is at times trying.

63. Mention should be made of the great asset which has accrued to this Colony in the establishment at Freetown during the year of the Sir A. L. Jones Research Laboratory and the appointment as Director of Professor Blacklock.

(c) MISCELLANEOUS VITAL STATISTICS.

64. There has always been a greater amount of sickness, as is to be expected, amongst Railway European officials than amongst European officials generally, as is shown below.

TABLE SHOWING PERCENTAGE OF SICK TO AVERAGE NUMBER RESIDENT.

Year.	All Official Europeans.	Railway Europeans.
1921	3.45	6.10
1920	3.66	7.17
1919	Records destroyed in fire	6.52
1918	4.30	6.25
1917	4.16	4.76
1916	2.05	3.56
1915	2.44	3.27
1914	1.96	2.47
1913	1.98	3.50
1912	.68	1.89



An endeavour has been made to trace the causes of the increased sickness but no outstanding features which might account for it have been discovered. The war years have no doubt had a great influence.

65. The following figures are of interest :—

	Population.	Births.		Deaths.		Infantile Mortality.
		Males.	Females.	Males.	Females.	
Freetown ...	44,142	395	325	528	398	333
Colony other than Freetown ...	41,021	439	403	553	515	261

Freetown had 24,830 males and 19,312 females, the rest of the Colony 22,734 males and 18,287 females. The males exceed the females by 28·5 per cent. and 23·2 per cent. in Freetown and the rest of the Colony respectively. The infantile mortality is taken as the number of deaths of infants under one year of age per 1,000 births during the year.

#### IV.—RECOMMENDATIONS FOR FUTURE WORK.

66. (1) The financial condition of the Colony is so bad that it is useless recommending anything that will cost money unless it is absolutely necessary. There is however one necessity. Freetown has no proper Infectious Disease Hospital. The old two-storied stone Infectious Diseases Hospital in the suburb of Kissy with a high wall round it, with additional emergency huts within the same enclosure and which was self-contained was converted into a Male Infirmary during the year because the old Male Infirmary building was too dangerous and had to be pulled down. The only accommodation for infectious cases now available consists of an old building within the old Infirmary compound but which is not properly enclosed and has another building near it used for other cases and some temporary "bush" huts within a broad wire fence. The result has been that the majority of cases have run away! So far it has not mattered much as the cases have been Chicken-pox. But had they been Smallpox or plague \_ x \_ x \_ x \_ x!

(2) Legislation is wanted in several directions amongst others.

- (a) A Town Planning Ordinance
- (b) Building Regulations
- (c) A new Public Health Ordinance.

As has been remarked before, it is hoped that something along these lines will shortly be put before the Government.

(3) In the 1915 Annual Report of the Medical Department under the head of "Some Difficulties" I mentioned "Divided control of public health problems between the Senior Sanitary Officer of the Medical Department and the Sanitary Engineer of the Public Works Department" and "Indefinite or undefined relationship between the Sanitary and some other departments." Since then the relationship between the departments has been defined yet the disability resulting from imperfect routine co-ordination still exists but it is hoped that this difficulty which is as old as the Sanitary Department—11 years of age—will shortly be overcome.

J. BERINGER,  
*Senior Sanitary Officer.*

Freetown,  
22nd June, 1922.



#### IV.—METEOROLOGICAL.

The rainy season of 1921 in Freetown was characterized by exceptionally heavy rainfall in August, the total for that month being 48·56 inches, the highest reading since 1903.

This was in marked contrast to August, 1920, when the rainfall was 11·52 inches, the lowest ever recorded in Freetown.

The highest rainfall recorded on any one day was 6·65 inches, on 22nd, August.

November, with a rainfall of 9·35 inches, was also an abnormally wet month.

Rainfall records for Freetown, taken at Tower Hill Observatory, are now available for a period of forty years.

The average annual rainfall for this period was 152·46 inches.

For the period 1882—1901 the average was 165·60 inches, while for the period 1902—1921, it was 139·74 inches. From 1908—1921, the rainfall was much below the average for the previous twenty-six years, and did not in any of these years reach 150 inches.

## V.—HOSPITALS AND DISPENSARIES.

The total destruction by fire of the old Colonial Hospital has already been mentioned in previous years' reports.

The old Law Courts buildings, affording the accommodation as mentioned in the report for 1920, are still being used as a temporary native hospital.

During the year under review the total number treated as in-patients was practically the same as in 1920; 737 being admitted, which, with the sixteen remaining from 1920, made the full total 753 as against 710 for 1920, with fifty-four deaths as compared with fifty-three for 1920. Prevailing diseases:—Malaria, Pneumonia and Bronchitis, Digestive disturbances, Ulcers and Venereal Disease.

In the Dispensary, new cases dropped from 8,152 to 5,654, with 16,209 subsequent attendances, making a total of 21,863.

Forty surgical operations were performed with one death.

In the Maternity Ward 142 cases were admitted. Of this number, 118 were purely labour cases, an increase of one over the previous year. Fifty were primiparae, ninety were normal and twenty-eight abnormal.

Of the births, ten were twins, three both male, three both female, and four mixed. Of single births sixty-four were males and forty-four females. There were twelve still-births.

Two blocks of the new Freetown Colonial Hospital have been completed and will be occupied early next year, and it is anticipated that a third block and the operating theatre will be opened during the year.

The Nursing Home (European Hospital) remains as last year in the building which was formerly the Government Rest House.

Total number of in-patients treated, including four remaining from 1920, was 175 as against 209 in 1920, while deaths also dropped from five to two. There were only four operations, two being fatal.

The number and status of those receiving treatment as in-patients in this institution are as follows:—

Government officials	...	...	...	...	67
Members of mercantile firms	...	...	...	...	30
Shipping	...	...	...	...	72
Miscellaneous	...	...	...	...	3
Ladies	...	...	...	...	3

## THE KISSY INSTITUTIONS.

At the Lunatic Asylum there were 150 lunatics cared for, with nineteen deaths.

At the Kissy Infirmary there were 405 inmates, of whom seventy-six died.

Twenty-nine cases of Smallpox and twenty-one of Chicken-pox were isolated and treated at the Infectious Diseases Hospitals. Only one case of Smallpox died.



TABLE SHOWING NUMBER OF CASES TREATED AT THE VARIOUS  
HOSPITALS AND DISPENSARIES FOR FIVE YEARS.

—	1917.	1918.	1919.	1920.	1921.	REMARKS.
European and Native }	57,765	55,562	44,698	51,287	48,270	<i>Vide</i> Page 7. (a) Second Paragraph.

The figure for 1919 is unduly low as the figures for Freetown are not included: they were destroyed in the fire early in 1920: had they been included the total cases treated in 1919 would have been shown in all probability as somewhere between those for 1918 and 1920.

Thus there has been a gradual and steady decline during the five years shown due, in all probability, to a gradual return to pre-war conditions as is further indicated by the following table showing number of cases treated at the various Hospitals and Dispensaries:— •

Year.	1916.	1915.	1914.	1913.	1912.	1911.
Patients ...	49,368	50,513	49,419	31,536	41,946	39,405

  

Year.	1910.	1909.	1908.	1907.	1906.	1905.
Patients ...	36,052	33,401	36,468	33,027	32,635	31,211

## VI.—SCIENTIFIC.

An attempt at a systematic investigation of the prevalence of and effect of treatment of Ankylostomiasis has been carried out by Medical Officers at various stations. This will become the subject of a special report.

A report by the Medical Officer in charge of the Laboratory is attached as an appendix.

W. I. TAYLOR,  
*Principal Medical Officer.*



TABLE I.

## MEDICAL STAFF ON 31ST DECEMBER, 1921.

Principal Medical Officer	...	...	...	W. I. Taylor
Provincial Medical Officer	...	..	...	J. B. Bate
Senior Medical Officer	...	...	...	C. H. Allan
" " "	...	...	...	E. W. Wood-Mason
Medical Officer	...	...	...	J. C. Murphy
" " "	...	...	...	J. S. Pearson
" " "	...	...	...	J. McConaghy
" " "	...	...	...	J. Y. Wood
" " "	...	...	...	R. Semple
" " "	...	...	...	M. Jackson
" " "	...	...	...	J. M. Mackay, M.C.
" " "	...	...	...	W. F. Campbell
" " "	...	...	...	W. O. Taylor
" " "	...	...	...	M. C. F. Easmon
" " "	...	...	...	E. J. Wright
" " "	...	...	...	G. N. Metzger
" " "	...	...	...	E. H. Cummings
" " "	...	...	...	E. A. Renner
Dental Surgeon	...	...	...	John Carr

## NURSING STAFF ON 31ST DECEMBER, 1921

Matron and Senior Nursing Sister	...	...	Miss L. R. Stevens
Senior Nursing Sister	...	...	" K. G. Appleton
Nursing Sister	...	...	" I. Stevens
" " "	...	...	" C. Littlewood
" " "	...	...	" V. Bell
Male Nurses and Apprentices	...	...	(Twenty-one)
Senior Female Nurses	...	...	(Four)
Female Nurses and Probationer Nurses	...	...	(Seventeen)
Laboratory Assistant	...	...	J. T. Roberts

## PRINCIPAL MEMBERS OF SUBORDINATE STAFF.

First Grade Clerk	...	...	M. W. Frazer
Second Grade Clerk	...	...	S. G. Randall
Third Grade Clerks	...	...	(Seven)

## DISPENSING STAFF.

Chief Dispenser	...	...	O. E. King
Store-keeper	...	...	E. G. Luke
Assistant Chief Dispenser	...	...	D. T. Betts

DISPENSING STAFF—*continued.*

First Class Dispenser	...	...	...	...	W. A. Macauley
"	"	"	...	...	I. H. Wright
"	"	"	...	...	O. E. Nylander
"	"	"	...	...	H. E. Frazer
"	"	"	...	...	P. J. John
"	"	"	...	...	T. L. Hooke
"	"	"	...	...	M. O. Frazer
"	"	"	...	...	M. P. Neville
Second Class Dispenser	...	...	...	...	E. F. Smith
"	"	"	...	...	P. Q. A. John
"	"	"	...	...	T. M. Taylor-Scott
"	"	"	...	...	S. B. Williams
"	"	"	...	...	J. C. Fewry
"	"	"	...	...	I. B. Doherty
"	"	"	...	...	J. C. May
"	"	"	...	...	W. D. Hedd
Third Class Dispensers	...	...	...	...	(Twelve)
Assistant Store-keeper (Third Class Dispenser)	...	...	...	...	K. A. King

## SANITARY STAFF ON 31ST DECEMBER, 1921.

Senior Sanitary Officer	...	...	...	F. J. A. Beringer
Sanitary Officer	...	...	...	Major W. H. Peacock
Medical Officer of Health	...	...	...	W. Allan
Superintendent Sanitary Inspector	...	...	...	D. S. Bowen
"	"	"	...	G. V. Herd

## PRINCIPAL MEMBERS OF SUBORDINATE STAFF.

Second Grade Clerk	...	...	...	M. St. George Auber
Third Grade Clerks	...	...	...	(Six)
Fifth Grade Sanitary Inspectors	...	...	...	(Seven)
Sanitary Learners	...	...	...	(Fourteen)
Public Vaccinators	...	...	...	(Fourteen)



**TABLE IV.**  
**Appendix C to Sanitary Report.**

**SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.**

**1. NAME OF TOWN: FREETOWN.**

—				Approximate Area.	Number of proclaimed Open Spaces.
1919	...	...	...	2 $\frac{3}{4}$ square miles.	2 Public recreation grounds.
1920	...	...	...		
1921	...	...	...		

**2. POPULATION.**

—				No. of Natives.		No. of Europeans.		Total.
				Males.	Females.	Males.	Females.	
1911 Census	...	...	...	33,532		558		34,090
1921 Census	...	...	...	24,830	19,312	700	71	44,913

**3. HOUSING.**

—				Number occupied by Europeans.	Number occupied by Natives.
Number of houses :					
1919	...	...	...	120	
1920	...	...	...	157	6,241 and 67 unoccupied.
1921	...	...	...	162*	6,321 and 59 unoccupied.

Number of huts :—

1919	...	...	...	} Included in number of native houses.
1920	...	...	...	
1921	...	...	...	

**4 MOSQUITO PROTECTION OF HOUSES.**

—				1919.	1920.	1921.
Number of European houses wholly mosquito-protected	...					
Number of European houses with mosquito room	...					
Number rendered during the year wholly mosquito-protected						
Number rendered during the year partially mosquito-protected						

} One mosquito protected room at the Nursing Home.

**5. ERECTION OF NEW BUILDINGS DURING THE YEAR.**

—				1919.	1920.	1921.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings				...	...	...
Number of houses erected with sanction as to site, construction, and relation to other buildings				79	96	121
Number of huts erected with sanction as to site, construction, and relation to other buildings				...	...	...
Number of houses built without sanction				...	...	...
Number of huts built without sanction				...	...	...

\* Excluding Hill Station and Tower Hill Barracks, including Cline Town Reservation.

## 6. MARKETS.

—				Total Number.	Number Paved and Drained.	Number Unpaved.
1919	...	...	...	10	8	2
1920	...	...	...	10	8	2
1921	...	...	...	10	8	2

## 7. SLAUGHTER-HOUSE.

—				Total Number.	Total Paved and Drained.	Number Unpaved.
1919	...	...	...	2	2	...
1920	...	...	...	2	2	...
1921	...	...	...	2	2	...

## 8. LATRINES.

—				For Males.		For Females.	
				Number.	Number of Seats.	Number.	Number of Seats.
Number of public latrines :—							
1919	...	...	...	11	83	11	50
1920	...	...	...	12	89	12	64
1921	...	...	...	12	98	12	73
Number of new public latrines erected during the year :—							
1919	...	...	...	1	12	1	12
1920	...	...	...	2	17	2	12
1921	...	...	...	1	12	1	12
Number of public latrines repaired during the year :—							
1919	...	...	...	6	...	6	...
1920	...	...	...	3	...	3	...
1921	...	...	...	6	...	6	...
Number of public latrines demolished during the year :—							
1919	...	...	...	1	4	...	...
1920	...	...	...	1	8	...	...
1921	...	...	...	1	4	1	4

—				1919.	1920.	1921.
Number of private latrines ...				269	307	277
Average number of pails of nightsoil removed daily ...				320	343	331
Average number of soiled pails removed and clean pail substituted ...				...	...	...
Number of nightsoil men employed to clean latrines and remove excreta ...				Prisoners employed		
Number of cesspools ...				4,200	4,269	4,423
Number of cesspools cleansed ...				1,921	1,055	1,081
Number of new cesspools constructed during the year ...				422	403	50
Number of old cesspools abolished ...				339	36	43
Number of cesspools oiled regularly by department ...				670	670	644



## 9. REMOVAL OF REFUSE.

	1919.	1920.	1921.
Number of dustbins ... ..	66	73	73
Number of carts (if employed) at work, etc. ... ..	7	5	5
Amount of refuse removed daily from streets ... ..	about 35 tons.		
Number of carts (if employed) at work daily, etc. ... ..	7	5	5
Amount of refuse removed daily, etc. ... ..	...	...	...
Number of men employed for removing refuse ... ..	average 17.5		

## 10. AVERAGE DAILY NUMBER OF CANOE LOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS, AND COMPOUNDS.

1919.	1920.	1921.
12	12	12

## 11. WATER SUPPLY.

Nature of Water Supply.	1919.	1920.	1921.
<b>Pipe-borne water :—</b>			
Source (river, lake or spring) :—			
Number of linear yards ... ..	...	...	...
Number of stand-pipes along roads ... ..	201	206	210
Number of stand-pipes in compounds and houses ... ..	287	378	417
<b>Wells :—</b>			
Public :			
Number ... ..	1	1	1
Number with pumps protected against surface water and mosquito-protected ... ..	...	...	...
Private :			
Number ... ..	183	55	12
Number protected against surface water and mosquito-protected ... ..	50	31	...
<b>Tanks :—</b>			
Public :			
Number underground ... ..	1	1	1
Number mosquito-protected and served by pumps ... ..	1	1	1
Number above ground ... ..	4	4	4
Number mosquito-protected ... ..	...	...	...
Number of 400 gallons capacity or less ... ..	...	...	...
Number above 400 gallons ... ..	5	5	5
<b>Tanks :—</b>			
Private :			
Number underground ... ..	...	...	...
Number mosquito-protected ... ..	...	...	...
Number above ground ... ..	16	31	29
Number mosquito-protected ... ..	8	11	9
Number of 400 gallons capacity or less ... ..	...	...	...
Number above 400 gallons ... ..	...	...	...
<b>Nature of tanks :—</b>			
Wood ... ..	...	...	...
Iron ... ..	9	...	22
Concrete ... ..	7	...	7
<b>Barrels :—</b>			
Number ... ..	945	1,939	1,021
Number mosquito-protected ... ..	125	251	247

## 12. DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry drains :—		
Lineal yards of masonry drains :		
1919 ... ..	9,130 yards	...
1920 ... ..	11,197 "	...
1921 ... ..	11,659 "	...
Lineal yards reconstructed during the year :		
1919 ... ..	...	...
1920 ... ..	...	...
1921 ... ..	...	...
Lineal yards repaired during the year :		
1919 ... ..	...	...
1920 ... ..	...	...
1921 ... ..	...	...
Lineal yards of new drains constructed during the year :		
1919 ... ..	983 yards	...
1920 ... ..	2,067 "	...
1921 ... ..	462 "	...
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :		
1919 ... ..	21,000 "	...
1920 ... ..	43,375 "	...
1921 ... ..	39,473 "	...
Number of linear yards of ditches dug and graded :		
1919 ... ..	44,621 "	...
1920 ... ..	60 "	...
1921 ... ..	400 "	...
Average frequency of clearing ditches of grass :		
1919 ... ..	Twice annually	...
1920 ... ..	Twice annually in centre of town.	...
1921 ... ..	Twice in outskirts.	...

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

	1919.	1920.	1921.
Number of square yards of weeds, grass and vegetation cut and removed ... ..	Twice annually	Thrice annually in centre of town	Twice in outskirts
Average frequency of clearance of rank vegetation on same area ... ..			



## 15. EXCAVATIONS AND LOW LYING LAND.

	1919.	1920.	1921.
Number of pools and excavations ... ..	...	...	...
Number of excavations filled up ... ..	3,815	414	...
Amount of low-lying and marsh land raised and drained ... ..	...	30 compounds	...
Number of pools, marshes, streams, etc., fish-stocked ... ..	...	about 16 acres.	...
Number of cubic yards of material used for filling up pools and excavations ... ..	...	...	...
Number of persons fined for making new excavations ... ..	...	...	...
Average number of men daily employed in filling up pools, etc. ... ..	...	...	...

## 16. OILING.

	1919.	1920.	1921.
Number of drains oiled ... ..	239,642	83,020	22,464
Number of pools and excavations oiled ... ..	...	...	...
Number of tanks and barrels oiled ... ..	...	...	...
Average number of men daily employed for oiling drains, pools, water-tanks or barrels ...	10	2	1

## 17. INSPECTIONS AND PROSECUTIONS.

	1919.	1920.	1921.
Number of Inspectors employed ... ..	31	19	19
Number of houses inspected ... ..	157,258	90,876	92,378
Number of houses where larvæ were found ...	571	438	483
Number of notices served to remove conditions causing the breeding of larvæ ... ..	505	153	...
Number of persons fined for having mosquito larvæ on premises ... ..	524	403	407
Number of notices served to remove insanitary conditions on premises ... ..	7,993	4,642	4,532
Number of persons fined for not removing insanitary conditions after notice ... ..	343	176	142
Number of soda and aerated water factories inspected ... ..	...	...	...

TABLE V.

STATION—FREETOWN (TOWER HILL).  
Latitude 8° 29' N. Longitude 13° 9' W.

Month.	Absolute Shade, Maximum.	Absolute Shade, Minimum.	Average Maximum.	Average Minimum.	Relative Humidity.	Rainfall in Inches.
January	93	65	90	71	66	...
February	97	70	91	73	67	...
March	94	70	91	73	63	0.11
April	94	68	90	72	69.5	1.45
May	92	65	88	70	70.5	6.21
June	89	65	86	69	73	15.31
July	88	64	85	71	79.5	22.36
August	86	69	82	72	84	48.56
September	88	71	84	73	80	23.35
October	91	70	88	74	75	5.31
November	92	70	87	74	77.5	9.35
December	92	70	87	74	73.5	2.16
The Year	97	64	87.4	72.2	73.2	134.17



## STATION—DARU.

Latitude 8° N. Longitude 10° 53' W.

Month.	Absolute Shade Maximum.	Absolute Shade Minimum.	Average Maximum.	Average Minimum.	Relative Humidity.	Rainfall in Inches.
January	89	52	86.6	59.5	73	...
February	92	62	88.3	67	72.5	3.32
March	90	66	88.7	70	67.1	3.46
April ...	96	67	91.8	70.4	71.8	5.76
May ...	100	68	93.8	71.3	73.1	7.08
June ...	94	67	90.8	70.8	78	14.00
July ...	90	67	87.5	70.3	82.1	7.11
August	90	67	84.4	70.7	87.6	12.26
September	92	68	87.7	70.4	83.9	13.44
October	93	68	90.5	69.9	80.1	12.44
November	94	65	90.1	70.8	80.1	6.11
December	93	54	88.4	68.7	79.7	1.83
The Year	100	52	89	69.1	77.4	86.81

## STATION—KABALLA.

Latitude 8° 29' N. Longitude 11° 35' W.

Month.	Absolute Shade Maximum.	Absolute Shade Minimum.	Average Maximum.	Average Minimum.	Relative Humidity.	Rainfall in Inches.
January	95	52	90.6	57.2	69.3	...
February	98	56	95.3	67.7	77	1.15
March	99	68	95.5	71.3	78.7	0.95
April ...	97	69	94.8	72.2	64.6	4.50
May ...	97	66	91.8	70.3	74.1	6.86
June ...	94	65	91.6	70.7	75.5	10.57
July ...	93	67	89.7	69.8	80.9	14.58
August	89	66	87.6	67.8	90.8	15.65
September	89	64	87.6	67	91.6	17.24
October	94	67	91	70.2	88.5	9.60
November	96	70	93.7	72	86.5	5.10
December	96	70	93	72	68.3	...
The Year	99	52	91.8	69	78.8	86.20



## STATION—BONTHE (SHERBRO).

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

Month.	Absolute Shade Maximum.	Absolute Shade Minimum.	Average Maximum.	Average Minimum.	Relative Humidity.	Rainfall in Inches.
January	93	63	90.2	67.5	78.6	...
February	95	68	91.7	71.2	72.6	1.75
March	95	69	91.9	72.7	70.6	0.95
April	94	70	91.2	73.2	71.1	2.81
May ...	94	70	89.2	73.5	73.3	7.44
June ...	89	68	85.9	72	80.5	13.79
July ...	87	68	83.3	71.7	83.8	23.84
August	87	68	81.5	71.5	87.8	26.51
September	88	68	84	72.1	85.2	19.27
October	90	69	86.8	71.9	83.4	8.51
November	90	70	86.4	72.2	80.9	8.44
December	89	69	87.4	71.9	77.3	2.71
The Year	95	63	87.5	71.8	78.8	116.02

TABLE VI.

RETURN OF DISEASES AND DEATHS (EUROPEAN) FOR THE YEAR 1921.

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1920.	TOTAL.		Totalcases treated.	Remaining in Hospital at end of 1921.	TOTAL	
		Admissions.	Deaths.			Cases treated.	Deaths.
INFECTIVE DISEASES.							
Beri-beri ... ..							
Cerebro-spinal Fever ...							
Chicken-pox ... ..							
Cholera ... ..							
Dengue ... ..							
Diphtheria ... ..							
Dysentery :—							
(a) Amœbic ... ..	2	...	...	2	...	5	
(b) Bacillary ... ..							
(c) Type not deter- mined ... ..	...	...	...	...	...	1	
Endocarditis-infective...							
Enteric ... ..							
Erysipelas ... ..							
Gonorrhœa ... ..	...	1	...	1	...	10	
Influenza ... ..	...	2	...	2	...	...	
Kala-azar ... ..							
Leprosy :—							
(a) Nodula ... ..							
(b) Anæsthetic ... ..							
Malaria :—							
(a) Tertian ... ..	...	...	...	...	...	9	
(b) Quartan ... ..							
(c) Aestivo-autumnal	...	104	...	104	...	94	1
(d) Chronic ... ..							
(e) Type not deter- mined ... ..	...	...	...	...	...	4	
Blackwater Fever ...	...	6		6	...	...	
Measles ... ..							
Papataci Fever ... ..							
Plague ... ..							
Pneumonia ... ..	...	2	...	2	...	..	
Pyrexia of uncertain origin ... ..							
Rabies ... ..							
Relapsing Fever ... ..							
Rheumatic Fever ... ..							
Septicæmia ... ..							
Smallpox ... ..							
Syphilis :—							
(a) Primary ... ..	...	3	...	3	...	2	
(b) Secondary ... ..							
(c) Inherited ... ..							
Tetanus ... ..							
Trypanosomiasis (Sleep- Sickness) ... ..							
Tuberculosis ... ..							
Undulant Fever ... ..							
Carried forward ...	2	118	...	120	...	125	1



TABLE VI—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1920.	TOTAL		Total cases treated.	Remaining in Hospital at end of 1921.	TOTAL	
		Admissions.	Deaths.			Cases treated.	Deaths.
INFECTIVE DISEASES.— <i>continued.</i>							
Brought forward ...	2	118	...	120	...	125	1
Whooping Cough ...							
Yaws ...							
Yellow Fever ...							
Other Diseases ...							
INTOXICATIONS.							
Alcoholism ...	...	2	...	2			
Morphinism ...							
Other Intoxications ...							
GENERAL DISEASES.							
Anæmia ...	...	1	...	1	...	5	1
Anæmia-pernicious ...							
Diabetes ...							
Exophthalmic Goitre ...							
Gout ...							
Leucocythæmia ...							
Lymphadenoma ...							
Myxœdema ...							
Purpura ...							
Rickets ...							
Scurvy ...							
Other Diseases ...							
LOCAL DISEASES.							
<i>Diseases of the Nervous System.</i>							
Sub-section 1.							
Diseases of the Nerves:—							
Neuritis ...							
Meningitis ...							
Myelitis ...							
Hydrocephalus ...							
Encephalitis ...							
Abscess of Brain ...							
Congestion of Brain ...							
Other Diseases ...							
Sub-section 2.							
Nervous Disorders of Un- determined Nature:—							
Apoplexy ...							
Paralysis ...							
Chorea ...							
Epilepsy ...							
Carried forward ...	2	121	...	123	...	130	2

TABLE VI—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1920.	TOTAL.		Total cases treated.	Remaining in Hospital at end of 1921.	TOTAL.	
		Admissions.	Deaths.			Cases treated.	Deaths.
LOCAL DISEASES.— <i>continued.</i>							
Brought forward ...	2	121	...	123	...	130	2
Neuralgia ...	...	1	...	1	...	9	
Hysteria ...	...	...	...	...	...	2	
Other Diseases ...	...	...	...	...	...	...	
Sub-section 3.—Mental Diseases :—							
Idiocy ...	...	...	...	...	...	...	
Mania ...	...	...	...	...	...	...	
Melancholia ...	...	...	...	...	...	...	
Dementia ...	...	...	...	...	...	...	
Delusional Insanity ...	...	1	...	1	...	...	
Other Diseases ...	...	2	...	2	...	...	
<i>Diseases of the Eye.</i>							
Conjunctivitis ...	...	...	...	...	...	8	
Keratitis ...	...	...	...	...	...	...	
Ulceration of Cornea ...	...	...	...	...	...	...	
Iritis ...	...	1	...	1	...	...	
Optic Neuritis ...	...	...	...	...	...	...	
Cataract ...	...	...	...	...	...	...	
Other Diseases ...	...	...	...	...	...	1	
<i>Diseases of the Ear.</i>							
Inflammation ...	...	...	...	...	...	1	
Other Diseases ...	...	...	...	...	...	3	
<i>Diseases of the Nose.</i>							
Inflammation ...	...	1	...	1	...	...	
Other Diseases ...	...	...	...	...	...	13	
<i>Diseases of the Circula- tory System.</i>							
Pericarditis ...	...	...	...	...	...	...	
Endocarditis ...	...	...	...	...	...	...	
Valvular Disease :—							
(1) Mitral ...	...	...	...	...	...	...	
(2) Aortic ...	...	...	...	...	...	...	
(3) Tricuspid ...	...	...	...	...	...	...	
(4) Pulmonary ...	...	...	...	...	...	...	
Arterial Sclerosis ...	...	...	...	...	...	1	
Aneurism ...	...	...	...	...	...	...	
Other Diseases ...	...	9	...	9	...	...	
Carried forward ...	2	136	...	138	...	168	2



TABLE VI—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1920.	TOTAL		Total cases treated.	Remaining in Hospital at end of 1921.	TOTAL	
		Admissions.	Deaths.			Cases treated.	Deaths.
LOCAL DISEASES.—							
<i>continued.</i>							
Brought forward ...	2	136	...	138	...	168	2
<i>Diseases of the Respiratory System.</i>							
Laryngitis ...	...	1	...	1	...	35	
Bronchitis ...	...						
Broncho-pneumonia ...							
Abcess of Lung ...							
Gangrene of Lung ...							
Emphysema ...							
Pleurisy ...							
Empyema ...							
Other Diseases ...	...	1	...	1	...	2	
<i>Diseases of the Digestive System.</i>							
Stomatitis ...	...						
Caries of Teeth ...	...	2	...	2	...	4	
Pyorrhœa alveolaris ...	...	...	...	...	...	1	
Glossitis ...	...						
Sore Throat ...	...	...	...	...	...	10	
Inflammation of Tonsils ...	...	...	...	...	...	6	
Gastritis ...	...	4	...	4	...	13	
Ulceration of Stomach ...	...	1	...	1	...	...	
Hæmatemesis ...							
Dilatation of Stomach ...							
Stricture of Stomach ...							
Dyspepsia ...	1	1	...	2	...	21	
Enteritis ...	...	...	...	...	...	3	
Appendicitis ...	...	1	1	1	...	1	
Colitis ...	...	...	...	...	...	1	
Ulceration of Intestines ...							
Sprue ...							
Hernia ...							
Diarrhœa ...	...	1	...	1	...	17	
Constipation ...	...	...	...	...	...	15	
Colic ...	...	...	...	...	...	3	
Hæmorrhoids ...	...	...	...	...	...	2	
Pancreatitis ...							
Hepatitis—Acute ...	...	1	...	1	...	1	
Abscess ...	...						
Cirrhosis ...	...	...	...	...	...	1	
Juandice ...	...						
Peritonitis ...	...						
Ascites ...	...						
Other Diseases ...	...	...	...	...	...	6	
Carried forward ...	3	149	1	152	...	310	2

TABLE VI—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1920.	TOTAL		Total cases treated.	Remaining in Hospital at end of 1921.	TOTAL	
		Admissions.	Deaths.			Cases treated.	Deaths.
LOCAL DISEASES.— <i>continued.</i>							
Brought forward ...	3	149	1	152	...	310	2
<i>Diseases of the Lymphatic System.</i>							
Inflammation of Lym- phatic Gland ...	1	3	...	4	...	1	
Splenitis ...	...	...	...	...	...	...	...
Suppuration of Lympha- tic Gland ...	...	1	...	1	...	1	
Lymphangitis ...	...	...	...	...	...	2	
Elephantiasis ...	...	...	...	...	...	...	...
Other Diseases ...	...	1	...	1	...	...	
<i>Diseases of the Urinary System.</i>							
Acute Nephritis ...	...	...	...	...	...	...	...
Bright's Disease ...	...	...	...	...	...	3	
Pyelitis ...	...	...	...	...	...	...	...
Calculus ...	...	...	...	...	...	...	...
Renal Colic ...	...	...	...	...	...	...	...
Cystitis ...	...	...	...	...	...	2	
Vesical Calculus ...	...	...	...	...	...	...	...
Suppression ...	...	...	...	...	...	...	...
Hæmaturia ...	...	...	...	...	...	...	...
Chyluria ..	...	...	...	...	...	...	...
Other Diseases ...	...	...	...	...	...	...	...
<i>Diseases of the Generative System.</i>							
Male Organs:—							
Urethritis ...	...	...	...	...	...	3	
Gleet ...	...	...	...	...	...	...	...
Stricture ...	...	...	...	...	...	...	...
Prostatitis ...	...	...	...	...	...	...	...
Soft Chancre ...	...	...	...	...	...	2	
Condyloma ...	...	...	...	...	...	...	...
Inflammation of Scrotum	...	...	...	...	...	...	...
Hydrocele ...	...	...	...	...	...	...	...
Orchitis ...	...	...	...	...	...	...	...
Epididymitis ...	...	...	...	...	...	1	
Abscess in Testicle ...	...	...	...	...	...	...	...
Other Diseases ...	...	...	...	...	...	...	...
Female Organs:—							
Ovaritis ...	...	...	...	...	...	...	...
Ovarian Cyst ...	...	...	...	...	...	...	...
Endometritis ...	...	1	...	1	...	...	...
Displacement of Uterus	...	...	...	...	...	...	...
Vaginitis ...	...	...	...	...	...	1	
Carried forward ...	4	155	1	159	...	326	2



TABLE VI—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS	
	Remaining in Hospital at end of 1920.	TOTAL.		Total cases treated.	Remaining in Hospital at end of 1921.	TOTAL.	
		Admissions.	Deaths.			Cases treated.	Deaths.
LOCAL DISEASES.— <i>continued.</i>							
Brought forward ...	4	155	1	159	...	326	2
<i>Diseases of the Genera- tive System—contd.</i>							
Female Organs, <i>contd.</i>							
Amenorrhœa ...							
Dysmenorrhœa ...							
Menorrhagia ...							
Leucorrhœa ...							
Other Diseases ...							
<i>Affections connected with Pregnancy.</i>							
Abortion ...							
Other Affections ...							
<i>Affections connected with Parturition.</i>							
Delayed Labour ...							
Retained Placenta ...							
Premature Birth ...							
Other Affections ...							
<i>Affections consequent on Parturition.</i>							
Post-partum Hæmorrhage							
Puerperal Septicæmia...							
Mastitis ...							
Abscess of Breast ...							
Other Affections ...							
<i>Diseases of Organs of Locomotion.</i>							
Osteitis ...							
Arthritis ...	...	...	...	...	...	56	
Spondylitis ...							
Bursitis ...							
Mylagia ...	...	...	...	...	...	5	
Other Diseases ...	...	...	...	...	...	3	
<i>Diseases of Connective Tissue.</i>							
Cellulitis ...	...	...	...	...	...	2	
Abscess ...	...	1	...	1	...		
Other Diseases ...		1	...	1			
<i>Diseases of the Skin.</i>							
Ulcer ...	...	...	...	...	...	5	
Urticaria ...	...	...	...	...	...	1	
Eczema ...	...	...	...	...	...	2	
Carried forward ...	4	157	1	161	...	400	2

TABLE VI—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.	
	Remaining in Hospital at end of 1920.	TOTAL		Total cases treated.	Remaining in Hospital at end of 1921.	TOTAL	
		Admissions.	Deaths.			Cases treated.	Deaths.
LOCAL DISEASES.— <i>continued.</i>	4	157	...	161	...	400	2
Brought forward ...							
<i>Diseases of the Skin— continued.</i>							
Boil ...	...	...	...	...	...	4	
Carbuncle ...	...	1	...	1	...	...	
Herpes ...	...						
Psoriasis ...	...						
Oriental Sore ...	...						
Tinea ...	...	1	...	1	...	14	
Scabies ...	...	...	...	...	...	9	
Acne ...	...						
Prickly Heat ...	...	...	...	...	...	3	
Other Diseases ...	...	...	...	...	...	5	
<i>Injuries.</i>							
General ...	...					1	
Local ...	...	11	1	11	...	37	
<i>Tumours.</i>							
Benign ...	...	1	...	1	...	...	
Malignant ...	...						
Malformations ...	...						
<i>Poisons.</i>							
Vegetable ...	...						
Animal ...	...	1	...	1	...	...	
Other Poisons ...	...						
<i>Parasites.</i>							
<i>Animal Parasites</i>							
Protozoa ...	...						
Trematoda (Flukes) ...	...						
Cestoda :—							
Tænia Solium ...	...	...	...	...	...	3	
Tænia saginata ...	...	...	...	...	...	3	
Other Cestodes ...	...						
Nematoda :—							
Ascaris ...	...	...	...	...	...	1	
Trichocephalus Dispar ...	...						
Trichina ...	...						
Dracunculus ...	...						
Filaria ...	...						
Strongylus ...	...						
Ankylostomum ...	...						
Oxyuris ...	...						
Other Nematodes ...	...						
Insecta :—							
Insect producing Myiasis							
Dematophilus Penetrans							
Other Insects ...	...						
Total ...	4	172	2	176	...	480	2



TABLE VII.

RETURN OF DISEASES AND DEATHS (NATIVE) FOR THE YEAR 1921.

Diseases.	IN-PATIENTS.					OUT-PATIENTS.
	Remaining in Hospital at end of 1920.	TOTAL.		Total cases treated.	Remaining in Hospital at end of 1921.	Total Cases treated.
		Admissions.	Deaths.			
INFECTIVE DISEASES.						
Beri-beri ...	...	49	3	49	7	
Cerebro-spinal Fever ...						
Chichen-pox ...	...	38	...	38	2	38
Cholera ...	...					
Dengue ...	...					
Diphtheria ...	...					
Dysentery:—						
(a) Amœbic ...	1	24	7	25	2	49
(b) Bacillary ...						
(c) Type not deter- mined ...	2	13	3	15	...	89
Endocarditis-infective...						
Enteric ...						
Erysipelas ...						
Gonorrhœa ...	6	47	...	53	1	1,023
Influenza ...						
Kala-azar ...						
Leprosy:—						
(a) Nodular ...	1	1	1	2	1	7
(b) Anæsthetic ...	1	...	...	1	1	5
Malaria :—						
(a) Tertian ...	...	29	...	29	...	339
(b) Quartan ...						
(c) Aestivo-autumnal ...	1	135	2	136	5	2,998
(d) Chronic ...	...	...	...	...	...	80
(e) Type not deter- mined ...	...	35	1	35	...	132
Blackwater Fever ...	...	...	...	...	...	1
Measles ...	...	1	...	1	1	6
Papataci Fever ...						
Plague ...						
Pneumonia ...	...	49	20	49	1	18
Pyrexia of uncertain- origin ...	...	...	...	...	...	1
Rabies ...						
Relapsing Fever ...						
Septicæmia ...	...	3	2	3	...	2
Smallpox ...	...	29	1	29	...	2
Tetanus ...	...	4	2	4	...	4
Syphilis :—						
(a) Primary ...	...	1	...	1	...	62
(b) Secondary ...	18	83	9	101	7	402
(c) Inherited ...	...	...	...	...	...	22
(d) Tertiary ...	...	4	...	4	1	90
Trypanosomiasis (Sleep- ing Sickness) ...	...	1	...	1	...	...
Tuberculosis ...	3	29	19	32	2	84
Carried forward ...	33	575	70	608	31	5,454

TABLE VII—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.
	Remaining in Hospital at end of 1920.	TOTAL		Total cases treated.	Remaining in Hospital at end of 1921.	Total Cases treated.
		Admissions.	Deaths.			
<b>INFECTIVE DISEASES.—</b> <i>continued.</i>						
Brought forward ...	33	575	70	608	31	5,454
Undulant Fever ...						
Whooping Cough ..	...	...	...	...	...	74
Yaws ... ..	...	3	...	3	...	228
Yellow Fever ...						
Other Diseases ...	...	4	...	4	...	149
<b>INTOXICATIONS.</b>						
Alcoholism ... ..	...	1	...	1	...	...
Morphinism ... ..						
Other Intoxications ...						
<b>GENERAL DISEASES.</b>						
Anæmia ... ..	3	3	2	6	...	268
Anæmia-pernicious ...	...	...	...	..	...	2
Diabetes ... ..	...	...	...	...	...	1
Exophthalmic Goitre ...	...	...	..	...	...	2
Gout ... ..	...	...	...	...	...	2
Leucocythæmia ... ..						
Lymphadenoma ... ..						
Myxœdema ... ..						
Purpura ... ..						
Rickets ... ..	...	...		...	...	4
Scurvy ... ..						
Other Diseases ... ..						
<b>LOCAL DISEASES.</b>						
<i>Diseases of the Nervous System.</i>						
Sub-section 1.—Diseases of the Nerves :—						
Neuritis ... ..	...	5	1	5	...	21
Meningitis ... ..	...	1	1	1	...	3
Myelitis ... ..						
Hydrocephalus ... ..						
Encephalitis ... ..						
Abscess of Brain ... ..						
Congestion of Brain ...	...	3	3	3	...	1
Other Diseases ... ..	...	4	1	4	...	7
Sub-section 2.—Nervous Disorders and Diseases of Undetermined Nature :—						
Apoplexy ... ..	...	4	3	4	...	...
Paralysis ... ..	...	13	5	13	2	38
Chorea ... ..	...	...	...	...	..	2
Epilepsy ... ..	...	4	...	4	1	7
Neuralgia ... ..	...	4	...	4	...	418
Carried forward ...	36	624	86	660	34	6,681



TABLE VII—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.
	Remaining in Hospital at end of 1920.	TOTAL		Total cases treated.	Remaining in Hospital at end of 1921.	Total Cases treated.
		Admissions.	Deaths.			
<b>LOCAL DISEASES.—</b>						
<i>continued.</i>						
Brought forward ...	36	624	86	660	34	6,681
Hysteria ...	...	...	...	...	...	2
Other Diseases ...	14	17	8	31	3	336
Sub-section 3.—Mental Diseases.—						
Idiocy ...	...	...	...	...	...	...
Mania ...	...	3	...	3	...	1
Melancholia ...	...	...	...	...	...	1
Dementia ...	4	2	...	6	...	1
Delusional Insanity ...	...	...	...	...	...	1
Other Diseases ...	...	...	...	...	...	1
<i>Diseases of the Eye.</i>						
Conjunctivitis ...	...	17	...	17	2	562
Keratitis ...	...	1	...	1	...	9
Ulceration of Cornea ...	1	2	...	3	...	15
Iritis ...	...	2	...	2	...	13
Optic Neuritis ...	...	...	...	...	...	3
Cataract ...	2	...	...	2	...	6
Other Diseases ...	...	7	...	7	4	46
<i>Diseases of the Ear.</i>						
Inflammation ...	...	...	...	...	...	208
Other Diseases ...	...	1	...	1	...	171
<i>Diseases of the Nose.</i>						
Inflammation ...	...	...	...	...	...	60
Other Diseases ...	...	...	...	...	...	279
<i>Diseases of the Circulatory System.</i>						
Pericarditis ...	...	...	...	...	...	1
Endocarditis ...	...	3	...	3	...	2
Valvular Diseases :—						
(1) Mitral ...	3	25	11	28	3	120
(2) Aortic ...	1	3	4	4	...	33
(3) Tricuspid ...	...	...	...	...	...	...
(4) Pulmonary ...	...	...	...	...	...	...
Arterial Sclerosis ...	...	...	...	...	...	7
Aneurism ..	...	2	...	2	...	3
Other Diseases ...	...	10	2	10	...	127
<i>Diseases of the Respiratory System.</i>						
Laryngitis ...	...	...	...	...	...	23
Bronchitis ...	1	49	...	50	...	5,874
Broncho-pneumonia ...	...	15	4	15	...	11
Abscess of Lung ...	...	...	...	...	...	...
Gangrene of Lung ...	...	...	...	...	...	...
Emphysema ...	...	...	...	...	...	1
Carried forward ...	62	783	115	845	46	14,598

TABLE VII—continued.

Diseases.	IN-PATIENTS.					OUT-PATIENTS.
	Remaining in Hospital at end of 1920.	TOTAL		Total cases treated.	Remaining in Hospital at end of 1921.	Total Cases treated.
		Admissions.	Deaths.			
LOCAL DISEASES— <i>continued.</i>						
Brought forward ...	62	783	115	845	46	14,598
<i>Diseases of the Respiratory System—continued.</i>						
Pleurisy ... ..	...	16	...	16	...	178
Empyema ... ..	...	...	...	...	...	...
Other Diseases ...	1	10	...	11	2	148
<i>Diseases of the Digestive System.</i>						
Stomatitis ... ..	...	...	...	...	...	173
Caries of Teeth ...	...	4	...	4	...	1,127
Pyorrhœa Alveolaris ...	...	...	...	...	...	17
Glossitis ... ..	...	1	...	1	...	29
Sore Throat ... ..	1	1	...	2	...	202
Inflammation of Tonsils ... ..	...	...	...	...	...	319
Gastritis ... ..	1	7	1	8	1	113
Ulceration of Stomach	...	...	...	...	...	...
Hæmatemesis ... ..	...	1	1	1	...	107
Dilatation of Stomach	...	...	...	...	...	...
Stricture of Stomach ...	...	...	...	...	...	...
Dyspepsia ... ..	...	5	...	5	...	2,650
Enteritis ... ..	...	2	1	2	...	32
Appendicitis ... ..	1	2	1	3	...	4
Colitis ... ..	...	...	...	...	...	1
Ulceration of Intestines	...	...	...	...	...	...
Sprue ... ..	...	...	...	...	...	...
Hernia ... ..	1	23	1	24	2	160
Diarrhœa ... ..	2	60	5	62	1	825
Constipation ... ..	...	5	...	5	...	4,940
Colic ... ..	...	17	...	17	...	392
Hæmorrhoids ... ..	...	2	...	2	...	109
Pancreatitis ... ..	...	...	...	...	...	...
Hepatitis—Acute ... ..	...	10	2	10	...	72
Abscess ... ..	...	1	...	1	...	1
Cirrhosis ... ..	...	6	5	6	...	6
Jaundice ... ..	1	38	...	39	...	72
Peritonitis ... ..	...	4	2	4	...	2
Ascites ... ..	...	7	3	7	3	18
Other Diseases ... ..	...	8	...	8	2	240
<i>Diseases of the Lymphatic System.</i>						
Splenitis ... ..	...	2	...	2	...	122
Inflammation of Lymphatic Gland ...	1	23	...	24	2	318
Suppuration of Lymphatic Gland ...	1	...	...	1	...	19
Carried forward ...	72	1,038	137	1,110	59	26,994



TABLE VII—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.
	Remaining in Hospital at end of 1920.	TOTAL		Total cases treated.	Remaining in Hospital at end of 1921.	Total Cases treated.
		Admissions.	Deaths.			
GENERAL DISEASES— <i>continued.</i>						
Brought forward ...	72	1,038	137	1,110	59	26,994
<i>Diseases of the Lympha- tic System.</i>						
Lymphangitis ...	...	3	...	3	1	27
Elephantiasis ...	1	10	...	11	1	29
Other Diseases ...	...	3	...	3	...	17
<i>Diseases of the Urinary System.</i>						
Acute Nephritis ...	7	20	10	27	3	30
Bright's Disease ...	...	5	1	5	2	27
Pyelitis ...	...	...	...	...	...	...
Calculus ...	...	...	...	...	...	...
Renal Colic ...	...	...	...	...	...	...
Cystitis ...	1	3	...	4	...	35
Vesical Calculus ...	...	...	...	...	...	...
Suppression ...	...	7	...	7	...	14
Hæmaturia ...	...	1	...	1	...	8
Chyluria ...	...	...	...	...	...	...
Other Diseases ...	...	10	1	10	...	17
<i>Diseases of the Genera- tive System.</i>						
Male Organs:—						
Urethritis ...	...	...	...	...	...	42
Gleet ...	...	...	...	...	...	12
Stricture ...	2	13	...	15	1	27
Prostatitis ...	...	...	...	...	...	10
Soft Chancre ...	1	9	...	10	...	153
Condyloma ...	...	...	...	...	...	...
Inflammation of Scrotum ...	...	2	...	2	...	14
Hydrocele ...	3	8	...	11	1	80
Orchitis ...	2	30	...	32	...	221
Epididymitis ...	...	...	...	...	...	23
Abscess of Testicle ...	...	...	...	...	...	2
Other Diseases ...	...	13	...	13	2	28
Female Organs:—						
Ovaritis ...	...	1	...	1	...	10
Ovarian Cyst ...	...	...	...	...	...	1
Endometritis ...	...	2	...	2	...	36
Displacement of Uterus ...	...	...	...	...	...	2
Vaginitis ...	...	...	...	...	...	7
Amenorrhœa ...	...	...	...	...	...	168
Dysmenorrhœa ...	...	...	...	...	...	65
Menorrhagia ...	...	...	...	...	...	44
Leucorrhœa ...	...	...	...	...	...	32
Other Diseases ...	...	...	...	...	...	100
Carried forward ...	89	1,178	149	1,267	70	28,275

TABLE VII—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.
	Remaining in Hospital at end of 1920.	TOTAL.		Total cases treated.	Remaining in Hospital at end of 1921.	Total cases treated.
		Admissions.	Deaths.			
LOCAL DISEASES— <i>continued.</i>						
Brought forward ...	89	1,178	149	1,267	70	28,275
<i>Affections connected with Pregnancy.</i>						
Abortion ...	...	5	...	5	...	34
Other Affections ...	...	...	...	...	...	66
<i>Affections connected with Parturition.</i>						
Delayed Labour ...	...	115	3	115	...	9
Retained Placenta ...	...	1	...	1	...	4
Premature Birth ...	...	1	...	1	...	2
Other Affections ...	...	18	...	18	...	...
<i>Affections consequent on Parturition.</i>						
Post-partum Hæmor- rhage ...	...	...	...	...	...	1
Puerperal Septicæmia Mastitis ...	...	...	...	...	...	30
Abscess of Breast ...	...	...	...	...	...	7
Other Affections ...	...	...	...	...	...	13
<i>Diseases of Organs of Locomotion.</i>						
Osteitis ...	...	2	...	2	...	36
Arthritis ...	9	106	3	115	8	5,377
Spondylitis ...	...	...	...	...	...	1
Bursitis ...	...	...	...	...	...	839
Myalgia ...	1	4	...	5	...	517
Other Diseases ...	...	10	...	10	2	...
<i>Diseases of Connective Tissue.</i>						
Cellulitis ...	...	10	...	10	...	129
Abscess ...	3	39	1	42	2	307
Other Diseases ...	...	2	...	2	...	40
<i>Diseases of the Skin.</i>						
Ulcer ...	28	117	5	145	19	3,341
Urticaria ...	...	...	...	...	...	12
Eczema ...	...	10	...	10	...	237
Boil ...	...	14	...	14	...	305
Carbuncle ...	1	2	...	3	...	16
Herpes ...	...	...	...	...	...	26
Psoriasis ...	...	...	...	...	...	6
Oriental Sore ...	...	...	...	...	...	141
Tinea ...	...	...	...	...	...	428
Scabies ...	...	2	...	2	...	...
Carried forward ...	131	1,636	161	1,767	101	40,199



TABLE VII—*continued.*

Diseases.	IN-PATIENTS.					OUT-PATIENTS.
	Remaining in Hospital at end of 1920.	TOTAL.		Total cases treated.	Remaining in Hospital at end of 1921.	Total cases treated.
		Admissions.	Deaths.			
LOCAL DISEASES.— <i>continued.</i>						
Brought forward ...	131	1,636	161	1,767	101	40,199
Acne ...	...	...	...	...	...	1
Prickly Heat ...	...	2	...	2	...	26
Other Diseases ...	...	12	1	12	...	397
<i>Injuries.</i>						
General ...	3	50	4	53	3	309
Local ...	5	144	2	149	5	3,014
<i>Tumours.</i>						
Benign ...	...	3	...	3	1	32
Malignant ...	...	3	1	3	...	17
Malformations ...	...	1	...	1	...	2
<i>Poisons.</i>						
Vegetable ...	...	...	...	...	...	...
Animal ...	...	...	...	...	...	...
Other Poisons ...	...	1	...	1	...	...
<i>Parasites.</i>						
<i>Animal Parasites.</i>						
Protozoa ...	...	...	...	...	...	2
Trematoda (Flukes) ...	...	...	...	...	...	...
Cestoda :—						
Tænia Solium ...	...	1	...	1	...	160
Tænia Sagninata ...	...	2	...	2	...	29
Other Cestodes ...	...	...	...	...	...	...
Nematoda :—						
Ascaris ...	...	16	...	16	...	1,195
Tricocephalus Dispar ...	...	10	...	10	...	...
Trichina ...	...	...	...	...	...	...
Dracunculus ...	...	...	...	...	...	...
Filaria ...	...	...	...	...	...	...
Strongylus ...	...	...	...	...	...	...
Ankylostomum ...	...	98	1	98	7	20
Oxyuris ...	...	...	...	...	...	1
Other Nematodes ...	...	...	...	...	...	...
Insecta :—						
Insects producing Myia-						
sis ...	...	...	...	...	...	...
Dematophilus Penetrans ...	...	2	...	2	...	3
Other Insects ...	...	...	...	...	...	5
Undiagnosed ...	...	...	...	...	...	25
No appreciable Disease ...	...	...	...	...	...	57
Total ...	139	1,981	170	2,120	117	45,494

TABLE VIII.

## SURGICAL OPERATIONS PERFORMED.

Total Number.	Cured.	Relieved.	Unrelieved.	Died.
40	33	6	—	3



## APPENDICES.

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Laboratory.

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TO THE PRINCIPAL MEDICAL OFFICER.

SIR,

I have the honour to forward the annual report of work done in the Colonial Hospital Laboratory during 1921.

Dr. Semple was in charge from the beginning of the year until 8th March, on which date he handed over to Dr. Maconaghy; as there had been very little equipment since the fire in the old Colonial Hospital, viz: a microscope and some stains and re-agents, only specimens for clinical diagnosis could be obtained. Analysis of these specimens and result is attached.

I have the honour to be,

SIR,

Your obedient servant,

J. MACONAGHY,

*Medical Officer in charge of Laboratory.**7th February, 1922.*

Total Number of Specimens examined.		{ Containing Ankylostomata Ova. 76	Ankylostome and Ascaris 12	Ascaris 32	Amoebae Histolytica 11	Balantidium Coli 1	Negative 237
Faeces ...	...						
Blood ...	18	{ Containing Subtertian Malaria parasites 2	16 Negative	...	...	...	...
Sputum ...	20	{ Containing T. B. 2	18 Negative	...	...	...	...
Pus (Urethral)	5½	{ Containing Gonococci 5	...	...	...	...	...

In addition 131 specimens of urine were examined.

7th February, 1922.

J. McCONAGHY,  
Medical Officer in charge of Laboratory.



## Appendix A to Sanitary Report.

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### Sanitary Rules for Prisons in Sierra Leone.

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1. Cells, dormitories, wards, etc., shall be swept daily and washed once a week with 1 per cent. disinfectant. (Four tablespoonful of Izal to one kerosene tin of water.) The walls of all buildings in the Prison shall be whitewashed at least twice a year. Any dormitory or ward in which there has been a prisoner suffering from infectious disease (including Dysentery, Tuberculosis, Venereal Disease) should be disinfected and whitewashed immediately it is vacated.

2. Bed-boards are to be scrubbed once a week with 2 per cent. disinfectant (eight tablespoonful of Izal to a kerosene tin of water) and if bed-bugs are present, sprayed with kerosene twice a week until the boards are free.

3. All prisoners' clothes are to be washed once a week and blankets once a month.

4. All prisoners shall have a complete bath at least once a week, and whenever a sufficient supply of water is available once a day.

5. Clothes worn by prisoners on admission shall be washed by themselves and when stored shall be occasionally exposed to the dry wind and sun.

6. Infected clothing should always be dealt with by a special gang of prisoners detailed for this work. Steam disinfection is most satisfactory, but if this is not available the clothing must be dealt with as in section 7.

7. On discharge of a prisoner, the prison clothes should be dealt with by a special gang of prisoners detailed for the work. It should first be soaked for not less than four hours in 2 per cent. disinfectant (eight tablespoonful of Izal to one kerosene tin of water) and afterwards washed in the usual way before being returned to the store.

8. Care shall be taken that prisoners shall always have the same bedding.

9. All prisoners shall be weighed monthly and their weight carefully noted; weighing to be done without clothing.

10. Vaccination of all unprotected prisoners should be carried out immediately after admission.

11. Cooks and any other prisoners who are handling food should be healthy and must be examined periodically (say once a month) for the presence of infectious disease. They shall wash their hands in 1 per cent. disinfectant (see rule 1) before handling food; a cook showing the least sign of Diarrhœa must be relieved of his duties at once.

12. Cooking utensils, food pans and drinking cups should be washed with soap and hot water, and should not be touched again until next meal time. In jails outside Freetown, they must be boiled immediately before each meal by being placed in a native made basket, with handle and this placed in a drum of boiling water and left for not less than five minutes.

13. The kitchen should be scrubbed daily and benches or tables on which food has been placed should be scrubbed immediately after meals have been served. Meals are not to be served from the coppers until just before they are to be eaten.

14. Concrete slabs for washing up and drying kitchen utensils should be provided in all jails to prevent soakage into the ground.

15. All drinking water shall be boiled and stored in tanks with taps, and kept locked. The dipping of vessels into tanks or other waters containers must not be allowed. Care must be taken that the water is carried direct from the boiler to the tank in containers which have immediately before been rinsed in boiling water.

16. The floors and seats of the latrines should be washed night and morning with 1 per cent. disinfectant (four tablespoonful of Izal to one kerosene tin of water) and the walls whitewashed once a week.

17. Sanitary dust-bins of the improved pattern should be provided in all jails.

18. Rubbish shall, if possible, be burned rather than buried.

19. In any earth closet all excrement must be covered with dry earth or sand at once, and a prisoner should be detailed to see that this is carried out. Only latrine buckets of the approved pattern with lid should be used.

20. Each cell should have a painted board on the outside, indicating capacity, ventilation, area, and maximum number of prisoners intended to be placed therein.

Note.—These rules have been made in order that they may be applied particularly to prisons outside Freetown.

W. H. PEACOCK MAJOR,

*Acting Senior Sanitary Officer.*

*21st December, 1920.*



## Appendix B to Sanitary Report.

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### Directions for Meteorological Observers.

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Thermometers are to be kept in a cage suspended under a thatched shelter situated in an open spot some distance from buildings. The shelter must be well ventilated and should guard instruments from exposure to sunshine or rain or to radiation from the ground.

2. Maximum and minimum thermometers are to be suspended in the stand in a horizontal position.

Wet and dry bulb thermometers should be placed side by side in a vertical position about four inches apart.

3. The wet bulb thermometer requires special attention. The bulb should be covered with a piece of thin muslin. Four thread of darning cotton in the form of a noose should be *loosely* tied round the neck of the bulb and led through a small hole in the cover of the reservoir which should always be kept filled with clean rain or filtered fresh water.

The reservoir should be placed on one side of and a little beneath the wet bulb so that evaporation from the water may not effect the reading of the dry bulb.

The muslin and the conducting threads must be quite free from grease. To remove grease they should be washed in boiling water, prior to use. They should be changed once a month or whenever there is any appearance of dirt upon them. The proper muslin and thread can be obtained from the Senior Sanitary Officer on requisition.

4. *Rain Gauge.*—The rain gauge should be firmly set in an open place. The distance between the gauge and the nearest object should be at least three times the height of that object. The height of the rim of the funnel should be not less than one foot or more than two feet above the ground. It is essential that the top of the cylinder above the funnel should be absolutely horizontal.

5. *Reading of instruments.*—Readings are to be taken at 9 a.m. and 5 p.m. At 9 a.m. readings of dry and wet bulb thermometers are to be taken and rainfall recorded.

The gauge must be examined each day, whether rain has fallen or not, as dew may give an appreciable reading.

At 5 p.m. readings of dry and wet bulb should be taken again and maximum and minimum thermometers read and set.

The observer should be careful to refrain from breathing on the thermometers while taking wet and dry bulb observations.

6. The maximum thermometer should be set by taking in the hand and swinging gently bulb downwards until the column of mercury ceases to fall.

Care must be taken that there is no bubble or break in the column and that the mercury does not slip forward when the instrument is brought into a horizontal position after setting.

7. The minimum thermometer should be set by sloping it with the bulb uppermost until the index runs down to the end of the column of liquid. It should then be returned to the stand and replaced in a horizontal position, care being taken that the index does not run down towards the bulb.

8. The minimum thermometer should be carefully watched and periodically compared with the dry bulb thermometer, for some of the spirit is apt to volatilise and afterwards to condense in the distal or further end of the tube causing the instrument to read too low by two, three or even more degrees.

Such an accident is easily remedied by swinging the thermometer backwards and forwards bulb downwards at arm's length *but without jerking it*. A violent jerk may cause the index to become immovably fixed in the bend of the glass near the bulb.

9. *Recording of Observations.*—Readings of dry and wet bulb thermometers should be entered at 9 a.m. and 5 p.m. and readings of maximum and minimum thermometers at 5 p.m. All are to be entered to the same day.

A second reading of all thermometers should be taken to guard against any mistake in the first entry. Averages for the month should be calculated to one place of decimals only.

The average extreme daily range should be the exact difference between the average maximum and minimum figures.

The daily record of dew point and relative humidity should be the mean of the 9 a.m. and 5 p.m. readings. Rainfall recorded should be entered *to the previous day*. If rain or dew has been collected, but the amount is not measurable, the word "trace" should be entered.

If there is no water in the gauge a dash should be inserted in the register.

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