

## **Annual report of the Medical Department / Colony of the Gambia.**

### **Contributors**

Gambia. Medical Department.

### **Publication/Creation**

London : printed by Waterlow, [1910]

### **Persistent URL**

<https://wellcomecollection.org/works/nr4exfku>

### **License and attribution**

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
<https://wellcomecollection.org>

COLONY OF THE GAMBIA.

---

345  
as  
338

Annual Report  
OF THE  
MEDICAL DEPARTMENT  
FOR THE YEAR 1910.

---

PRINTED BY  
WATERLOW & SONS LIMITED, LONDON WALL, LONDON.  
1911.

1383



WELLCOME INSTITUTE LIBRARY	
Coll.	walMOMec
Cal.	+
No.	Ann Rep
	WA28
	.HG3
	G19

1910-19

MEDICAL OFFICE,

BATHURST,

GAMBIA,

*4th May, 1911.*

SIR,

I have the honour to submit, for the information of His Excellency the Governor and for transmission to the Right Honourable the Secretary of State, the Medical Report on the health and sanitary condition of the Gambia for the year 1910, together with the Returns, &c., appended thereto.

I have the honour to be,

Sir,

Your obedient servant,

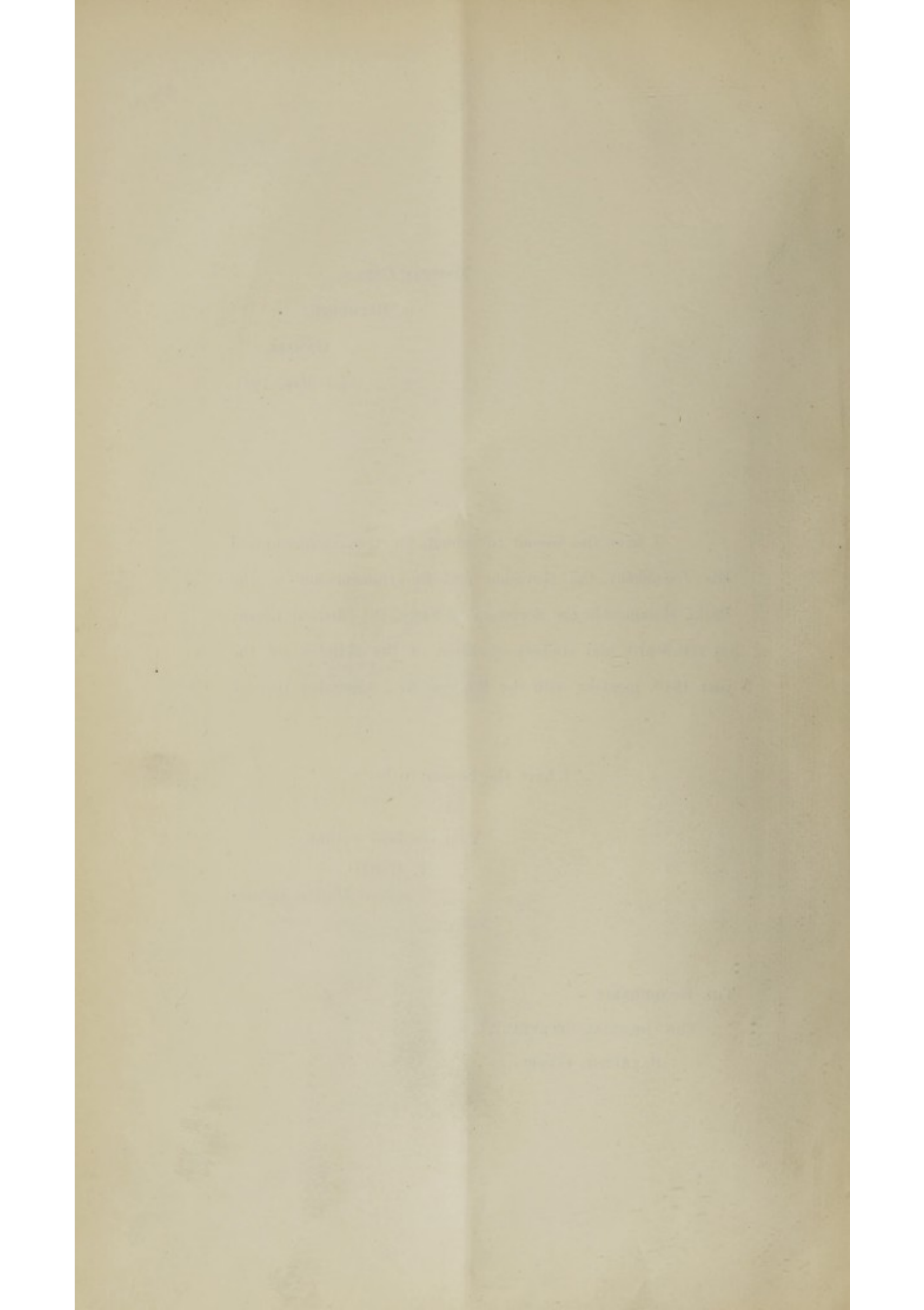
T. HOOD,

*Senior Medical Officer.*

THE HONOURABLE

THE COLONIAL SECRETARY,

BATHURST, GAMBIA.



# Annual Medical Report

FOR THE

YEAR ENDING 31ST DECEMBER, 1910.

## I. ADMINISTRATIVE.

### STAFF.

The Medical Staff of the Colony consists of a Senior Medical Officer and three Medical Officers—all members of the West African Medical Staff.

Dr. T. Hood, Senior Medical Officer, was granted leave on March 25th, and resumed duty on September 3rd.

Dr. J. C. Franklin acted as Senior Medical Officer during Dr. Hood's absence and proceeded on leave September 25th.

Dr. E. Hopkinson, D.S.O., the Protectorate Medical Officer, went on leave on July 6th, and resumed duty on December 29th. During his absence from the Colony Dr. Hopkinson attended the West London Hospital for three months' Post Graduate work.

Dr. F. A. Baldwin was transferred to Southern Nigeria on the 13th April.

Dr. J. A. Harley was appointed a Medical Officer to the Gambia on April 16th, and arrived in the Colony on May 1st for duty.

### FINANCIAL.

The estimated revenue for the maintenance of sick and sale of medicines was £100, but the actual receipts amounted to £124 10s. 0d. The scale of charges for Paying Patients in the Gambia is very moderate and compares favourably with the charges made in other West Coast Colonies. It is seldom that complaints are made in this respect and in consequence patients are more willing to take advantage of the Hospital until they are well on the road to convalescence.

The actual expenditure was £5,513 17s. 0d. and exceeded the estimate of £5,398 by £115 17s. 0d. on account of the inclusion of Fees paid to the Tropical School of Medicine to cover a Medical Officer's course of special study and the salary of a Medical Officer prior to his appointment to the Gambia.

## II. PUBLIC HEALTH.

### (A.) GENERAL REMARKS.

The general health of the inhabitants of the Colony and Protectorate has been good. Record crops of ground nuts have been disposed of at remunerative prices, with the result that the people seemed well able to provide themselves with the necessaries of life.

## (i.) GENERAL DISEASES.

Diseases of the Digestive organs are prevalent throughout the year, due most probably to bad cooking and the want of variety in foodstuffs.

In the Harmattan diseases of the respiratory system are prevalent, owing to dust irritation and partly to the rather large diurnal variation of temperature. The many cases of conjunctivitis that are seen occur mostly at the height of the Harmattan. The aboriginal Natives, especially the Jolas and Sererai, are not given to bodily cleanliness and in consequence suffer a great deal from scabies and other skin troubles. In the Rains rheumatism, seldom in a very acute form, is a disease of common occurrence.

## (ii.) COMMUNICABLE DISEASES.

Insect-borne diseases, except Malaria, do not appear to be so prevalent as one would expect, and the Natives of the place regard somewhat lightly an attack of fever.

Fortunately, although yellow fever is said to be endemic, no suspicion of such a case has occurred in the Gambia during the past four years; this is somewhat remarkable, considering that the *Stegomyia* is the most numerous of all mosquitoes in Bathurst.

As regards Trypanosomiasis it is impossible to make any definite statement at present beyond that cases are found occasionally in the Protectorate and that the *Glossina palpalis* and *Glossina morsitans* are very prevalent all along the banks of the river and its tributaries. I attach hereto a very interesting report on Sleeping Sickness in the Gambia by Dr. Hopkinson, D.S.O., the Protectorate Medical Officer.

The Colony has been free from all infectious diseases this year, except for a mild outbreak of Small Pox that occurred amongst the West African Frontier Force in the Protectorate at the Cape St. Mary Camp. Three Frontier soldiers and a groom were attacked, but fortunately the disease did not spread and the patients all recovered.

Helminthic diseases are not uncommon amongst the Native population. *Bilharzia hæmatobia* has been looked for but never found. The most prevailing nematode is the *Ascaris lumbricoides*, and one can hardly be surprised at this when one considers the insanitary conditions in which native food supplies are allowed to lie about, and the careless manner in which such are so often prepared. *Ankylostomiasis* in an advanced degree is apparently rare; the people in the Gambia for eight months in the year live in a fairly dry atmosphere, and the native hut, being made of a coarsely platted bamboo, is by no means dark or damp. The few cases in which ankylostome eggs have been seen have been found accidentally. Occasionally a case of Guinea worm is seen in this Colony, but such patients as a rule have come recently from lower down the Coast. Of the cestodes the *Taenia Solium* is fairly common, and it is remarkable that not more cases of this infection are seen in the medical department, as pigs are reared in compounds close to human habitation, and under conditions so favourable to the propagation of tapeworm. The new Public Health Ordinance will prohibit the keeping of swine in Bathurst.

*Taenia mediocanellata* is apparently rare in the Gambia, although cattle are reared in large numbers. In the Market carcasses are examined daily by a Medical Officer, but none has been found infected with a cysticercus during 1910. No patient with Hydatids has been under treatment in recent years.

## (b) EUROPEAN OFFICIALS.

The health of European Officials has been extremely good during the year. Of the 19 placed on the Sick List there were five cases of Malarial infection of a benign type and one case of blackwater fever; the latter had been residing at the West African Frontier Force Camp, seven or eight miles from Bathurst, for the previous six months, and was invalided home when convalescent. I attribute the excellent health that prevails amongst the European Officials mainly to the regular taking of quinine, and the methods adopted in screening them from mosquitoes, and in addition to the exercise resulting from the general participation in the various kinds of sports that the Colony affords.

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

	1908.	1909.	1910.
Total number officials resident ... ..	—	—	50
Average number resident ... ..	—	—	25
Total number on Sick List ... ..	19	20	19
Total number of days on Sick List ... ..	121	101	112
Average daily number on sick list ... ..	·33	·27	·31
Percentage of Sick to average number resident...	—	—	·08
Average number of days on Sick List for each patient ... ..	6·36	5·05	5·89
Average sick time to each resident ... ..	—	—	4·5
Total number invalided ... ..	2	1	1
Percentage of invalidings to total residents ...	—	—	2
Total deaths ... ..	—	1	0
Percentage of deaths to total residents ... ..	—	—	0
Percentage of deaths to average number residents	—	—	0
Number of cases of sickness contracted away from residence ... ..	4	2	2

NOTE.—Records incomplete previous to 1910.

## (c) NATIVE OFFICIALS.

On the whole the Native Officials enjoy good health; and if more of them would rely on the efficacy of quinine, by taking it regularly throughout the year, there would have been considerably less fever cases to record. As it is no less than 74, or over 50 per cent. of the cases of sickness, were for fever, resulting in the loss of 216 working days and a general enfeeblement of those affected.

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

	1908.	1909.	1910.
Total number of Officials resident ... ..	—	—	112
Average number resident ... ..	—	—	105
Total number on sick list ... ..	97	88	146
Total number of days on sick list ... ..	509	408	467
Average daily number on sick list ... ..	1·39	1·11	1·28
Percentage of Sick to average number resident	—	—	1·34
Average number of days on sick list for each patient ... ..	5·24	4·63	3·19
Average sick time to each resident ... ..	—	—	4·45
Total number invalided ... ..	—	—	1
Percentage of invalidings to total residents ...	—	—	·9
Total Deaths ... ..	1	0	0
Percentage of Deaths to total residents ... ..	—	—	0
Percentage of Deaths average number resident	—	—	0
Number of cases of sickness contracted away from residence ... ..	1	3	1

NOTE.—Records incomplete previous to 1910.

## (d) GENERAL EUROPEAN POPULATION.

Europeans attached to the Firms have not suffered to any great extent from climatic troubles this year. Many live in isolated factories along the banks of the River during the trading season (October to May) and not under too favourable conditions. All the Firms provide quinine and mosquito nets for the use of their employees and it is generally recognised that disregard of either proves disastrous.

TABLE SHOWING THE SICK, INVALIDING, AND DEATHS OF NON-OFFICIAL EUROPEANS.

	1908.	1909.	1910.
Total number of Residents ... ..	*	*	96
Total number on sick list... ..	9	33	20
Total number invalided ... ..	1	2	3
Total deaths of Residents ... ..	3	0	0
Total Deaths from passing ships... ..	1	1	2

\* No Record.

## (e) GENERAL NATIVE POPULATION.

*Vital Statistics.*

Registration of births and deaths is compulsory in the Colony, but I fear it is not very reliably carried out. The records for the last ten years indicate an excess of deaths over births by 338, but possibly this is accounted for by the deaths of temporary labourers and others from the Protectorate that annually visit the Colony and by the neglect in registering all births that occur. In a Colony of this size, where communications with the Protectorate and the neighbouring French territories are so free and easy, it is difficult to say whether the population is increasing or decreasing, except by means of a census, but the impression prevails that the recent years of prosperity, peace, and freedom from serious epidemics, have not diminished the number of the inhabitants of the country.

COMPARATIVE STATEMENT OF BIRTHS AND DEATHS FOR THE PAST TEN YEARS IN THE COLONY.

Years.	Births.	Deaths.	Births in excess.	Deaths in excess.
1901 ... ..	348	380	—	32
1902 ... ..	403	410	—	7
1903 ... ..	408	495	—	87
1904 ... ..	371	408	—	37
1905 ... ..	331	376	—	45
1906 ... ..	338	359	—	21
1907 ... ..	326	386	—	60
1908 ... ..	351	387	—	36
1909 ... ..	339	330	9	—
1910 ... ..	363	385	—	22
	3,578	3,916	9	347

NUMBER OF DEATHS AND DEATH RATE PER THOUSAND OF THE  
POPULATION (CALCULATED ON THE CENSUS OF 1901) FOR THE  
LAST TEN YEARS IN THE COLONY.

Years.				Estimated Population.	Total Deaths.	Death Rate per 1,000.
1901	...	...	...	13,456	380	20.53
1902	...	...	...	13,456	410	30.46
1903	...	...	...	13,456	495	36.78
1904	...	...	...	13,456	408	30.32
1905	...	...	...	13,456	376	27.94
1906	...	...	...	13,456	359	26.67
1907	...	...	...	13,456	386	28.68
1908	...	...	...	13,456	387	28.77
1909	...	...	...	13,456	330	24.52
1910	...	...	...	13,456	385	28.61

MONTHLY DEATH RATE FOR THE PAST SIX YEARS IN BATHURST.

Years.				Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sept.	Oct.	Nov.	Decr.
1905	...	...	...	30	45	28	23	30	20	31	32	39	38	31	29
1906	...	...	...	20	24	27	30	23	39	25	23	42	32	34	40
1907	...	...	...	22	46	43	15	20	28	32	30	45	48	38	19
1908	...	...	...	32	22	33	25	24	33	30	39	35	34	48	32
1909	...	...	...	31	20	24	22	21	30	36	34	28	29	28	27
1910	...	...	...	29	21	20	17	23	20	21	31	35	31	29	25

INFANTILE MORTALITY FOR THE PAST EIGHT YEARS IN THE COLONY.

Years.				Total Births.	Deaths over 1 year and under 5 years.	Deaths over 1 week and under 1 year.	Deaths over 1 day and under 1 week.	Deaths under 24 hours.	Still Births.
1903	...	...	...	408	58	73	20	7	45
1904	...	...	...	371	32	74	21	19	39
1905	...	...	...	331	41	61	20	10	24
1906	...	...	...	338	33	43	12	14	31
1907	...	...	...	326	37	56	22	11	13
1908	...	...	...	351	55	77	23	—	32
1909	...	...	...	339	23	50	11	17	24
1910	...	...	...	363	40	68	34	11	27

I drew attention in my Annual Report for 1909 to the lack of midwifery facilities in the Colony, and I am glad to state that the provision of a lying-in and a delivering ward, to be attached to the Victoria Hospital, is now under consideration.

### III. SANITATION.

(a) GENERAL REVIEW OF WORK DONE, LAWS PASSED, AND PROGRESS MADE.

(i) ADMINISTRATIVE.

The Sanitary work of Bathurst is still controlled by the Board of Health, consisting of the Senior Medical Officer, Chairman, and the Colonial Engineer ex-officio, and not more than six members appointed by the Governor.

During the year a Senior Sanitary Officer has been appointed for Sierra Leone and Gambia, but his duties are for the present advisory rather than executive as regards Gambia.

An European Town Warden for Bathurst has also been appointed this year, and his duties will include the superintendence of all Sanitary work. I have confidence that this will result in a marked improvement in the state of the Town and ultimately in the health of the inhabitants.

The Sanitary Staff consists of :—

- 1 European Town Warden.
- 1 Inspector of Nuisances.
- 2 Assistant Inspectors do.
- 22 Labourers in the Dry Season.
- 44 Labourers in the Rainy do.
- 3 Cartmen.
- 1 Horseman.
- 4 Lamplighters.
- 1 Clerk.

(ii.) *Preventive Measures.*

A new Public Health Ordinance has been passed by the Legislative Council this year and, when it comes into force, will enable more active measures to be taken again against people who permit mosquitoes to breed on their premises. Further amendments of this Ordinance are under consideration for the purpose of making it still more effective in this respect.

The yards and compounds of the Town are constantly inspected, and it is seldom that larvæ are not found in the country jars that are usually used for the storage of water. Many of the inhabitants are too poor to provide themselves with proper water vessels, and movable lids appear to be never in position.

Quinine has been administered regularly during term time to the School Children, and many children have attended Hospital for quinine during the holidays. All the School Managers recognise the importance of the children taking quinine regularly and attribute their improved health and better attendance to it. Although very few children were reported absent from school for fever, it was found, on examination, that 16 per cent. of the children possessed enlarged spleens even after the administration of quinine for twelve months.

The public generally are beginning to realize the benefits to be derived from taking quinine regularly especially now that it can be obtained free from the Hospital.

All Government Officials are now provided with two well-made mosquito-proof enclosures—one to sleep in, and the other to sit in during the day time when mosquitoes are troublesome. Unfortunately, officials are obliged to live in quarters too close to houses occupied by natives, but these mosquito houses, if put to their proper use, and I am glad to state that they are, should considerably lessen the chances of contracting malaria.

EPIDEMIC DISEASE.

*Small Pox.*

During the month of February a small outbreak of Small Pox occurred among the West African Frontier Force at Cape St. Mary Camp, every precaution was taken to prevent an epidemic, and only three soldiers and one horseman were attacked by the disease, and all made a good recovery.

No other case of Small Pox was reported in the Protectorate.

There were 1,011 vaccinations performed by the Public Vaccinators in Bathurst, and 336 by the Commissioners and Protectorate Medical Officer in the Protectorate.

The Lymph was imported, as in previous years, from the Incorporated Liverpool Institute of Comparative Pathology, but although the same precautions were taken to preserve its activity, the results obtained were not so good as last year, and unfortunately the number of vaccinations performed in the Protectorate this year has greatly fallen off.

## COMPARATIVE RETURN OF VACCINATIONS FOR 1909 AND 1910, BATHURST.

Months.				Total Vaccinated, 1909—1910.	Successes, 1909—1910.	Failures, 1909—1910.	Not Seen, 1909—1910.
January	...	...	...	74 102	74 102	— —	— —
February	...	...	...	68 94	68 94	— —	— —
March	...	...	...	60 110	55 100	7 10	— —
April	...	...	...	80 105	80 81	— 24	— —
May	...	...	...	72 90	72 86	— 4	— —
June	...	...	...	104 105	104 105	— —	— —
July	...	...	...	112 60	112 60	— —	— —
August	...	...	...	158 30	158 30	— —	— —
September	...	...	...	51 135	51 92	— 11	— 32
October	...	...	...	82 120	82 40	— 13	— 67
November	...	...	...	14 60	14 7	— 16	— 37
December	...	...	...	20 ...	20 ..	— —	— —
TOTAL ...				895 1011	888 797	7 78	— 136

## PROTECTORATE.

1909	...	...	...	...	...	2517	Vaccinations Performed.
1910	...	...	...	...	...	336	do. do.

(iii.) *General Measures.*

## SEWAGE DISPOSAL.

The disposal of sewage still causes anxiety; badly constructed cesspits are prevalent. Government quarters and merchants' premises are provided with night-soil pails, which are emptied into the river every night, and a few of the better class natives also are provided with similar means for the disposal of sewage, but the majority find it too costly, and are content with the usual badly constructed cesspit.

There are nine public latrines, each containing six seats; seven are built over the water, and two are situated on land. They are all kept clean by the Board of Health. One new latrine has been built during the year, and has resulted in an improved sanitary condition of the neighbouring streets.

Three hundred galvanized iron night-soil pails were ordered from England this year, but, unfortunately, were lost on the S.S. Axim that foundered at sea. When these articles arrive an attempt will be made in a systematic way to deal with sewage, as money has been provided in the 1911 estimates for this object.

Forty-seven notices to abate nuisances were distributed during the year—eight summonses were served, and five convictions obtained.

## DISPOSAL OF REFUSE.

The purchase of 500 galvanized iron dustbins has greatly facilitated the collection of old tins and bottles and other household refuse. Each yard in a large area of the town has been supplied with a bin, and the condition of these yards has noticeably improved.

The erection of three Incinerators—two of which are in use, at convenient places—saves much labour and considerably expedites the removal of rubbish. The Incinerators are of simple construction in brick, and many loads of refuse are destroyed quickly, instead of being taken a long distance to the swamp, to disintegrate slowly in an unsightly manner. Another advantage is that the ashes are useful for filling in depressions.

## WATER SUPPLY.

The water supply of Bathurst is still unsatisfactory and very insufficient.

— From the Grant of £1,000, thirty-five 400 gallon tanks were imported, and these have been purchased by persons who are refunding the costs by instalments.

Unless some large scheme for a water supply is taken in hand, I am of opinion that the distribution of water tanks should be encouraged and persevered with. Many of the poorer classes would avail themselves of this method of storing rain water for drinking purposes, if the Government would import the tanks, and accept repayment by small instalments.

The public wells are gradually being fitted with Jonot's Elevators, six have been done in the course of a year, and I hope to see every Government well equipped with an elevator, for they are very efficient in preventing further pollution of the water.

I should point out that the measures suggested, and that are being adopted, to improve the water supply of Bathurst, are very inadequate, and never can be regarded as satisfactory: a comprehensive scheme should certainly be carried out when funds are available.

## SURFACE DRAINAGE.

The surface drainage of the town is still in an unsatisfactory state. In the Half Die area a tram line was temporarily laid down to the beach to enable people to bring sand to their yards, for the purpose of raising the level of them, and to some slight extent it was used.

During the heavy rains a large area of Bathurst is flooded, and impossible to deal with except by filling in.

A new plan of Bathurst is being prepared, and among other things, it will indicate the areas that are low and impossible to drain. The positions of cesspits and surface wells will also be shown which will be of immense assistance to the Board of Health.

## CLEARANCE OF BUSH, UNDERGROWTH, &amp;c.

The swamp at Half Die, some ten acres in extent, has been cleared of all mangrove trees, and there is now no cover for tsetse flies in this part of the town.

Rank vegetation is cut down at regular intervals, and during the rains an extra gang of labourers is taken on for this purpose.

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

*Lectures.*

Two courses of lectures were delivered to school teachers during the year, but the attendances were irregular, and after the examination, it was found that no candidate had gained sufficient marks to obtain a first class certificate, and until Elementary Hygiene and Sanitation is made a compulsory subject for the children to be taught at school, I do not anticipate this subject will be taken up seriously by the teachers, or that a useful knowledge of it will ever be obtained by the children.

## (c) RECOMMENDATION FOR FUTURE WORK.

(i.) The filling in and reclamation of large areas of Bathurst, and a water supply, are the two most important and essential requirements from a sanitary point of view.

(ii) The appointment of a Sanitary Officer, solely for the Gambia becomes a necessity, if sanitation in the Protectorate is to receive serious attention.

Other matters of minor importance such as :—

- (1) Screening the Wards of the Victoria Hospital.
- (2) Screening all the public wells.
- (3) Screening all servants' rooms in European quarters.
- (4) Provision of more land latrines and dustbins.
- (5) Provision of an Isolation compound.
- (6) Clearing of Mangrove Swamps, are either being carried out, or are under consideration.

#### IV. METEOROLOGY.

Meteorological observations have been regularly made at Bathurst and McCarthy Island, and Table V. has been prepared from the elaborate forms that are submitted monthly. It may be of some interest to remark that the average minimum and maximum temperature for the year in Bathurst was two degrees higher than last year, and that in comparison with the records taken at McCarthy Island, some 150 miles up the river, the average range of temperature is 33 and 40·6 respectively.

#### V. HOSPITALS AND DISPENSARIES.

##### THE VICTORIA GENERAL HOSPITAL, BATHURST.

All the buildings have been kept in good repair, the walls have been coated with Calcarium and the wood work painted.

On account of the occurrence of Yellow Fever in Sierra Leone, it was considered desirable to mosquito-proof three of the wards, and we are now in the position to segregate, at a moment's notice, twenty or more patients, in the event of Yellow Fever breaking out at Bathurst.

The mosquito-proofed wards are much appreciated by the patients when mosquitoes are prevalent in the rains, and I hope eventually to see all the wards of the hospital treated in the same way.

In the Out Patient Department, 7,440 new cases were attended to, and 669 new cases were admitted to Hospital this year, compared to 7,324 and 666 respectively, in the previous one.

The number of deaths in Hospital have fallen off, but this probably is due to old and decrepit patients being transferred to the Home for Destitutes.

##### IN-PATIENTS, VICTORIA HOSPITAL, 1910.

	Remaining in Hospital, 31st Dec., 1909.	Admitted during the Year.	Died.	Remaining in Hospital 31st Dec., 1909.
Europeans ... ..	—	36	1	—
Natives ... ..	5	393	19	1
Syrians ... ..	—	11	1	—
W. A. F. F. ... ..	2	155	—	—
Civil Police ... ..	—	74	1	1
<b>TOTAL ... ..</b>	<b>7</b>	<b>669</b>	<b>22</b>	<b>2</b>

## RESULT OF TREATMENT.

	Male.	Female.	Total.
Patients remaining in Hospital, 1st January, 1910 ... ..	4	3	7
Patients admitted during 1910 ... ..	530	139	669
<b>TOTAL ... ..</b>	<b>534</b>	<b>142</b>	<b>676</b>
Cured ... ..	355	65	420
Relieved... ..	142	64	206
Not Relieved ... ..	18	8	26
Died ... ..	17	5	22
Remaining in Hospital on the 31st December, 1910 ... ..	2	—	2
Average stay in days of patients who were discharged ... ..	9	10	—
Average stay of patients who died ... ..	7	2	—

## PREVAILING DISEASES OF IN-PATIENTS DURING THE YEAR.

Malarial Fever ... ..	101
Rheumatism ... ..	57
Ulcer ... ..	52
Bronchitis ... ..	42
Abscess ... ..	21
Dyspepsia ... ..	20
Conjunctivitis ... ..	17
Catarrh ... ..	17
Inflammation of Glands ... ..	13
Cellulitis ... ..	12
Constipation ... ..	12
Orchitis ... ..	11
Chigoes ... ..	11

## SURGICAL OPERATIONS PERFORMED UNDER CHLOROFORM DURING THE YEAR.

Abscesses Opened ... ..	2
Adenitis, incisions ... ..	2
Amputation of Leg... ..	1
Popliteal Aneurism, Femoral Artery ligatured ... ..	1
Cellulitis, incisions ... ..	2
Cervex curetted ... ..	1
Circumcisions ... ..	2
Tenotomy ... ..	1
Cyst removed (Sebaceous)... ..	1
Elephantiasis Scroti, Amputations ... ..	2
Empyema, Resection ... ..	1
Foreign Body in Hand removed... ..	1
Ganglion excised ... ..	1
Hernæ, Radical cures ... ..	2
„ Exploratory Incisions ... ..	2
Hydroceles, Radical cures ... ..	4
Incised Wound of Eye sutured ... ..	1
Lipoma removed ... ..	1
Mastitis, Incision ... ..	1
Sequestrotomy ... ..	1
Osteoma removed ... ..	1
Piles excised... ..	1
Varicocele excised ... ..	1
Stricture of Urethra, Perineal Section ... ..	1
Stricture of Urethra, Penile Section ... ..	1
<b>TOTAL ... ..</b>	<b>35</b>

### SURGICAL OPERATIONS PERFORMED WITH A LOCAL ANÆSTHETIC DURING THE YEAR.

Abscesses	...	...	...	...	...	18
Adenitis, Incisions	...	...	...	...	...	5
Fluid in Pleura Aspiration...	...	...	...	...	...	1
Hydroceles Tapped	...	...	...	...	...	2
Whitlow Incised	...	...	...	...	...	1
TOTAL						27

### CAUSES OF DEATHS IN HOSPITAL DURING THE YEAR.

Abscess of Liver	...	...	...	...	...	1
Black Water Fever...	...	...	...	...	...	1
Concussion	...	...	...	...	...	1
Diarrhœa	...	...	...	...	...	1
Senility	...	...	...	...	...	1
Dysentery	...	...	...	...	...	3
Malarial Cachexia	...	...	...	...	...	2
Pneumonia	...	...	...	...	...	2
Rheumatism	...	...	...	...	...	1
Tabes Dorsalis	...	...	...	...	...	1
Tetanus	...	...	...	...	...	1
Trypanosomiasis	...	...	...	...	...	1
Tuberculosis...	...	...	...	...	...	4
Syphilis	...	...	...	...	...	2
TOTAL						22

### THE HOME FOR THE AFFLICTED AND DESTITUTE.

During the year four men and four women were admitted into the Home, making a total of 18 with the ten remaining over from the previous year.

Every care and kindness are shown to the inmates by the attendant in charge, but the number of deaths has been high.

Of the four that were discharged two refused to remain in the Home and one was taken away by relatives to be cared for, and the other, who was suffering from dementia, was sent to the Lunatic Asylum in Sierra Leone.

The food supplies have been ample and suitable, and were prepared at the Victoria Hospital.

The two 400-gallon tanks for the storage of water is insufficient, especially as the well water is so brackish; the addition of a couple more tanks at least is necessary.

The sanitation of the Home is well attended to by the Board of Health.

Sex.			Remained, 1909.	Admitted.	Discharged.	Died.	Remaining, 1910.
Males	...	...	3	4	2	3	2
Females	...	...	7	4	2	6	3
TOTAL			10	8	4	9	5

## CAUSES OF DEATH.

Asthenia	...	...	...	...	...	1
Senile Debility	...	...	...	...	...	2
Diarrhoea	...	...	...	...	...	1
Bright's Disease	...	...	...	...	...	1
Sleeping Sickness	...	...	...	...	...	1
Fever...	...	...	...	...	...	1
Consumption	...	...	...	...	...	1
Elephantoid Fever	...	...	...	...	...	1

## THE PRISON.

The daily average number of prisoners was 23·78 during the year.

The health of the prisoners remained good, and only 7 were admitted to the Infirmary this year, compared with 21 in the previous year. Quinine has been administered to each prisoner regularly every week, and there were only three cases of malaria amongst the prisoners during the past twelve months.

The Sanitation of the Prison is carefully attended to, and the food and water supplies are of good quality and sufficient.

## THE PROTECTORATE.

During the eight months of the dry season, the Protectorate Medical Officer travels from town to town and attends all who come for medical aid, and each year he finds the natives show greater appreciation of his services. 1,002 patients received treatment and 23 minor operations were performed. Table vii. C. indicates the various diseases and the tribes of the patients.

A little over two years ago a Dispensary, with a small ward for three beds was established at McCarthy Island, some 150 miles up the River from Bathurst. The Medical work there is increasing yearly, and it has been considered necessary to make further provision with the view of a resident Medical Officer being stationed there. During the year a suitable Hospital of brick to accommodate two Europeans and ten natives has been built. This will meet a long felt want and has given great satisfaction to the merchants, who are obliged to maintain factories, with numerous Europeans and Native Clerks, at points many miles from Bathurst.

T. HOOD,

*Senior Medical Officer.*

4th May, 1911.

Bathurst,  
Gambia.

NOTE.—Sanitation, Section iii., of this report has been prepared by the Senior Medical Officer. The Senior Sanitary Officer has submitted a separate Sanitary Report on the Gambia, as a result of his inspections during two short visits he paid to the Colony before he went on leave.

T. H.

## VI. SCIENTIFIC.

## REPORT ON SLEEPING SICKNESS IN THE GAMBIA.

Sleeping Sickness is a well-known endemic disease of the Gambia, but fortunately is at the present time not a common one, though formerly it is said to have been much more so.

Since I have been in the Protectorate (since 1902) I see, perhaps, half-a-dozen cases a year, all of which have eventually terminated fatally, but during my last tour it so happened that I personally came across none. As I see some 1,500 new patients each tour, this number would show that Sleeping Sickness only occurs in the proportion of three per cent. of all disease. Taking everything into consideration, that many cases are too bad to be brought to me, I do not believe that this disease occurs in a greater proportion than one per cent. of all disease. During the same period, I have also known of two Europeans (officials) who have contracted the disease, and I believe that there was also a third case, about 1903, in a European, a Roman Catholic Missionary. Of the two first, one (Forde and Dutton's) was the first case in which the disease was recognised in a European, or at any rate the first in which the actual casual organism was discovered. The other case occurred some three years ago; the patient was put on arsenic early, sent home at once, and after a course of this drug, made an apparent recovery, and kept well while taking it, but suffered a relapse when he left it off, to recover again on resuming treatment. He is, I believe, still alive. A fourth case occurred in a mulatto trader. Of these four cases, in the three that were fatal, death occurred within eighteen months.

Among the natives of the Protectorate the disease is well-known and feared as always fatal, but all agreed that it is not nearly so frequent now as it was in their forefathers' time. They have no knowledge of its cause and do not connect it in any way with the bite of the Tsetse fly. Recently, however, a certain number of the more intelligent have believed me when I told them how the disease was spread and now make some attempt to avoid being bitten. As regards cure they know of none, but there is a common belief that somewhere to the north (in Senegal) there is a place where the disease is cured, at any rate for as long as the patient remains there. The Headman of Sami once told me that his brother was taken there, when so ill with Sleeping Sickness that he had to be carried, and that within six months he was well again. He stayed there a year, and as a sign of and a thanksgiving for his complete recovery learnt to read the Koran. Afterwards he came home again apparently quite well, but died within six months of his return.

As regards treatment we use Atoxyl and Arsenic. In no case, however, have we had a permanent cure in the Gambia, though in practically every case, except for one or two in the very last stage, there has been some temporary improvement, but remissions are not uncommon in the ordinary untreated course of the disease. The least discouraging case which has come under my notice was a boy about sixteen years old from Kudang, who was brought to me with the disease well advanced. He was nearly always asleep and hardly woke up even for food, he had been much neglected by his relations and was altogether in a bad state, much emaciated, filthy and covered with sores. I put him on Atoxyl, fed him up and kept him with me till I could send him to the hospital in Bathurst, where the treatment was continued, within a fortnight after the commencement of the Atoxyl he had begun to improve, he slept less, he took interest in his surroundings and his skin got healthy; after about two months he was apparently nearly well, though still liable to fainting on the least exertion, while his blood still contained Trypanosomes, but in much smaller quantities than at first. Five months after all symptoms had disappeared and he seemed to be in perfect health. He remained in Bathurst for nearly a year, still taking arsenic at gradually increasing intervals, and keeping well except for some slight troubles due to the arsenic, on account of which its administration had to be temporarily interrupted. His people then, seeing, I think, that he was now well and strong enough again to work, insisted on taking him back to Kudang; here he died during the following rains of "dysentery," they said, and that he had never shown any signs of a return of the Sleeping Sickness. We can hardly count this as a cure, but at any rate life was much prolonged and a mere vegetative existence changed into one of tolerable enjoyment of the attractions of this world, and I believe that had it been possible to keep him under the treatment, he might still be alive.

The Sleeping Sickness patients I have seen have come from various parts of the Protectorate, and not, I think more from one part than another, though I am rather under the impression that the Kiangs have provided rather a larger proportion of the comparatively small number of cases I have seen, than they should have, but then I have spent probably more time there than in any other one district. Without my register of cases to refer to, I cannot give a list of all the cases I have seen. But I remember patients from the following places:—Faraba in the Upper River, Lamin Koto, McCarthy Island and Sami in the McCarthy Island Province Salikenni (2) in Baddiboo, Albreda in Niumi, Kaiaff and Kwinella in the South Bank, Mandowa and Willimissa in Kiang, and two cases in Bathurst, either from Bathurst itself or some adjacent town in Kombo.

One may say therefore that no part of the Gambia is safe from the disease, and its presence must always be a constant menace. In the neighbouring French territory, the Upper Gambia, above the Barrakunda Rapids, has, or rather till within the last few years had, the reputation of being a bad country for Sleeping Sickness and to absolutely swarm with Tsetse flies, so much so that for some 150 miles above our boundary villages were few and far between, but within the last few years, I hear from people who have been there recently, that the villages are increasing in numbers and size along this part of the river, though from all accounts the Tsetses are as abundant as ever.

The course of the disease as seen in the natives of the Gambia shows a gradually increasing torpor, which within two or three years, interrupted perhaps by longer or shorter intervals of quiescence and apparent return towards health, develops into an almost constant slumber, from which at first the patient wakes at meal times to take food, but which later on becomes heavier and more continuous, so that he has to be violently awakened to be fed. Eventually he dies, absolutely comatose, unless some intercurrent disease carries him off before the typical termination is reached. Long before the actual sleeping stage comes on, the patient is noticed to be dull, indolent, and to lose interest in his surroundings and occupation; he is liable to irregular attacks of fever and severe headaches, and may have an occasional fit, while a very constant concomitant of the malady is the presence of an itching impetiginous rash on the skin, which at first the patient scratches till it is raw, but later on, as his feelings become dulled, he leaves alone, so that towards the end the skin is almost normal, though often slightly cracked and much drier than it is in health. From quite an early stage a Sleeping Sickness patient is disinclined to talk, a most unusual state of affairs in a negro—he will hardly answer when spoken to, always seems tired, looks sleepy, as if he can hardly keep his eyes open. When the disease is well developed, but before the stage of torpor is reached, the heart shows signs of failing, and the least exertion is often followed by palpitation, shortness of breath or syncope.

In Europeans the disease is more rapid—they appear rarely to live till the real sleeping stage is reached. First of all irregular fever, not amenable to quinine, is noticed, and this is accompanied by frequent headaches, gastric disturbances and a distinct change in temper and demeanour, the patient becoming alternately unnecessarily irritable or unusually careless and troubled. In the European the skin change is a peculiar dryness associated with a red macular eruption, which changes position from day to day, but tends to preserve a more or less circular or crescentic outline. This kind of skin-lesion Sir Patrick Manson has pointed out is exactly the counterpart of that as seen in the black races, which one would expect to find in the thinner, cleaner and commonly covered skin of the European.

One year I examined for the presence of enlarged post-cervical glands all the children who, in the ordinary routine, came to me for medical treatment or vaccination. I cannot now remember the percentage which showed this clinical sign, but it was not a very large one, and the few whom I have since seen of those who had such enlargement, are still well. The main fact however impressed on my memory by this examination was that, however valuable this sign may be as an index to the disease, the occurrence of such enlargement of glands varies from extraneous causes enormously in different races; in my series I find this glandular enlargement about four times as frequent among the Jollofs as among the Mandingoes, and this proportion expresses well the relative ideas of cleanliness of these two races in the Protectorate; of course dirty heads are a frequent cause of such chronic adenitis in all races.

Among the Mandingoes in the Gambia it is the almost universal practice to "cut the neck-stones" kanta-berro (kuntu) of all the male children, and this operation is believed to prevent the occurrence of Sleeping Sickness in later life. The operation consists of making a small incision on each side under the centre of the ramus of the jaw, removing a small piece of tissue (supposed always to be a gland) and then keeping the wound open for some days so that a distinct scar is left. The incision is usually about over the sub-maxillary salivary gland, but I am pretty sure that this is scarcely ever (or never) reached, and rather doubt if in most cases even a lymphatic gland is removed, as the cut is never a deep one and the bit removed always most minute. Our knowledge though of the connection of the Trypanosomiasis and the lymphatic gland makes this native custom of particular interest, as showing that they too seem to know or imagine some similar connection, but one can hardly believe that the practice can confer any sort of protection, even if the glands were really removed. Practically every Mandingo bears the scars of the operation and I can remember at least one case of Sleeping Sickness who died in spite of the presence of good scars.

I ought to have mentioned before, that as far as my experience goes in the Gambia males are much more frequently affected with Sleeping Sickness than females. There would seem to be but little reason for this, as all the rice cultivation is done by the women, a laborious work, which takes them into the swamps, and therefore into Tsetse fly areas at the very worst season, namely, during the rains.

Tsetse flies are found practically everywhere in the Gambia, but are much more numerous in some places than in others. The parts of the country most infested are Niumi, Fogni, and Western Kiang, along the Vintang and all the other creeks below McCarthy Island, at any rate all those which I have been up, for in such places these flies absolutely swarm, and travellers by boat, in spite of constant watchfulness, cannot avoid being frequently bitten. In Bathurst, I have only seen Tsetse flies at the end of the rains, and then but few, though within six miles, near Jeshuaan, there is a place where they are numerous and to be found all the year round. There are two quite different kinds of locality which these flies haunt in the Gambia, one, the typical situation, the water or swamp-side, where thick grass and dense jungly growth often shaded by large trees abounds, or (in Niumi particularly) in real forests, damp but not necessarily close to water. The second locality is among the bamboo belts of which clothe the ironstone ridges near or along the boundary, especially from behind Chakunda on the south bank of the Upper River to behind Kaiaff in the South Bank Province. Here, in by no means the kind of place one would associate with Tsetse flies, as they are waterless and for the greater part of the year dry and burnt up, Tsetses, a horse-biting species particularly, are most numerous and troublesome even during the dry season. There is one little point which is worth noting about these Tsetses: when three or four horses are travelling, riding in single file along the ordinary bush path, the leading horse will be covered with the flies, the second may occasionally carry one or two, but those following will be left absolutely unmolested.

From specimens caught in the Gambia the two common species, *Glossina palpalis* and *G. Morsitans*, the carriers of sleeping sickness and horse-Trypanosomiasis respectively, have been identified as occurring in the Gambia together with at least one other species. Of those sent home so far the larger number have been found to be "*palpalis*," but this may be merely accidental, and the proportion may be reversed when more identified. At any rate a knowledge of the country and relative frequency of horse and man Trypanosomiasis would make one think that the horse biting species must be much the more abundant.

Native tradition asserts that in earlier times the disease was much more prevalent in the Gambia than it is now, and whole districts, now desirable dwelling-places, are said to have been uninhabitable. In the Protectorate, this particularly applies to Nianija, which, in former days bore such evil name that its inhabitants were few or non-existent, but is now a rich and fairly thickly populated country inhabited mainly by Turankos, a branch of the Foulah race and a prosperous people, who are the owners of large quantities of cattle. Accounts too of the slave-trade and the frequent awful mortality among the slave-gangs and slave-ship cargoes from this disease, all provide additional evidence to show in those days sleeping sickness was a much commoner disease in the Gambia, one of the chief centres of the export trade in slaves, than it is now.

May we not hope that this awful scourge is really on the wane here, and that cases will get fewer and fewer year by year.

Can it be that the natives have acquired some degree of immunity against Trypanosome infection?

Several facts seem to point this way. Tsetse flies of all sorts abound in the Gambia a country which is merely the banks of a tropical river and which consists for at least half its area of the alluvium and swamp which fringe such a river. Here there is every environment favourable to the life and increase of these flies. Cases, few in number though, do occur every year, so that foci of possible infection are present, and practically everywhere we have the Tsetse to carry the infection. Human carriers too would always be numerous, for travellers are many, some for trade, others for agricultural purposes; these being the hundreds of "Strange farmers," who come in every year for the rains to plant ground-nuts in British Territory. As peace and prosperity prevail everywhere, there is absolutely nothing to hinder frequent intercourse between all parts of the Protectorate and of the surrounding portions of French Territory. This intercourse is large and widely spread and means continual coming and going, for our river is still, as it has been for a century or more, the main highway from the sea to the Soudan and the interior, so that nearly all the produce of, and nearly all the imports for the neighbouring countries, as well as our own, are carried to or from our river, which provides easy water-transport to Europe. With such frequent movement therefore from one end of the country to the other, there must be every facility for the spread of Sleeping Sickness, as there are so many places where travellers in our territory must meet with Tsetse flies—in many places indeed it would be impossible even to take the shortest journey without passing through a Tsetse haunt.

How is it then that under these conditions, instead of one case here and there, we do not see one case followed by others infected from it, till by now the terrible state of affairs which prevails elsewhere has been reached, if our people are not more or less immune to the disease, having acquired this immunity in the days when Sleeping Sickness was much more prevalent than at present?

The general conditions favourable to the incidence of the disease must, one would think, be much the same round the Uganda Lakes or in the Congo as in the Gambia: the actual morbid agent, the Trypanosome, is the same, the same carrier, the Tsetse fly (more particularly *G. palpalis*) is present. Yet in one place the disease is decimating (or worse) the people, in the other, though fatal to those it attacks, it is uncommon. Our people no doubt have the advantage over the inhabitants of Uganda in the matter of stamina, as the Gambia natives are a fine strong people of good physique and constitution; many are quite wealthy, all are comfortably off and there are certainly nowadays no very poor or absolutely destitute, for everyone can get enough to eat, and nearly all live really well. The ground-nuts they grow bring them in a good return in cash, and their cereal crops provide a great part of their food, while any additional food-stuffs they require or little luxuries can be obtained, at prices but little above those ruling in Europe, at the numerous trading factories, which are dotted at frequent intervals all the way up the river. Whenever too there has been any failure of the food crops, or the slightest likelihood of a coming shortage of food, the Government has always been in the habit of issuing rice at cost price on credit to all who required it. In every way therefore our people have all the aid which good food and good living can give towards good health and resistance to disease.

The situation of the towns too, probable compares favourably with what is the case in Uganda. Practically all the native towns are situated at a distance (generally at least two miles) from the river, and usually at least half as far from any swamp or other likely hold for Tsetses, and they are always surrounded by a cleared tract, the cultivated area, the extent of which naturally varies with the size of the town, but is always round all the towns or villages of any size, at least a mile across. Tsetse flies never live in such towns, but the same cannot be said of any of the Jola villages in Fogni, a thickly wooded part, full of swamps and abounding in Tsetse flies, or of the numerous trading stations on the river, or its creeks, or stations, which are increasing in size and number every year. Most of these are situated actually in the swamp which borders the river, while the usual dense water-side growth is, as a rule, only cleared along the actual frontage of the station.

From the health point of view one can only say that most of the trading stations are most unsuitably situated, but on the other hand such positions are necessary from the trade point of view, as close access to waterway is essential to facilitate landing and shipment of goods.

Another minor point of difference between Gambia and Uganda is the fact that our people eat large quantities of Kola nuts, a habit which I believe does not extend to East Africa. This habit can scarcely give any real protection against Trypanosomiasis, but I mention it as the natives thoroughly believe that Kola is "good medicine" and a preventative of many diseases, and it is, undoubtedly, a wonderful stimulant and antidote to fatigue, and its use in moderation, seems to do nothing but good to its votaries.

Although all these are favourable factors on the side of general resistance to disease, one can hardly believe that to them alone is due our present comparative freedom—long may it continue—from the scourge of Sleeping Sickness. So that taking everything into consideration—the established presence on the Gambia of the Trypanosome, of myriads of its carriers, the Tsetse flies, and of its results, cases of disease—I am driven more to the belief (and hope) in a degree of acquired immunity among our people.

On this question of immunity, the presence and effects of Trypanosomes in the domestic animals may throw some light, reasoning on the lines of analogy.

Horses live but do not really thrive anywhere in the Gambia, though in the Upper River Province they do much better than elsewhere. In most places it is quite the exception to see a really fit horse and nowhere can one say of them, as one certainly can of the donkeys and cows, that practically all look fit and well. Trypanosomiasis is the disease most fatal to them, and to it they are extremely susceptible. If a horse is taken into a Tsetse district even for the shortest time, there is every likelihood of his being infected, while in those districts where the fly is most abundant horses will not live a year.

Donkeys do well and look well nearly everywhere, and though they are not nearly so well cared for as, and do much more work than the horses, especially in carrying the ground-nuts to the wharves and therefore go much oftener into Tsetse areas, Trypanosomiasis is rare in them. Captain Todd, the Veterinary Surgeon who visited the Gambia a few years ago, found only one case of this disease in a donkey, which also, I believe, was the only sick donkey he saw, as against innumerable sick horses.

Cattle take us a step further, for they must surely have reached immunity. Trypanosomes are commonly found in their blood—in the blood, too, of absolutely healthy beasts (Dutton and Todd 1902), and yet our cattle are by far the healthier of our domestic

animals and in every way do the Gambia credit. They are extremely numerous all over the Protectorate, and practically always look fit and well, except for occasional slight epidemics of other cattle disease, and towards the end of the dry seasons, when they may suffer from shortage of pasturage. Their range, too, is spreading into districts where formerly cattle could not thrive. Both in Fogni and Niumi during the last 9 years one has seen a great increase in the number of cattle kept, especially so in the first-named. With this may be compared the increase of population which has in former years taken place in certain parts of the Gambia, and with that which is now occurring along the French Upper Gambia. Is it not fairly reasonable to suppose that the people in the one place and the cattle in the other have increased as their resistance to their respective diseases increased?

(Signed) EMILIUS HOPKINSON, M.A., M.B.

*Protectorate Medical Officer.*

Gambia.

---

## RETURNS.

TABLE I.

## MEDICAL STAFF.—

Dr. T. Hood	...	...	Senior Medical Officer.
Dr. F. A. Baldwin	...	...	Medical Officer, transferred to Southern Nigeria.
Dr. J. C. Franklin	...	...	Medical Officer.
Dr. E. Hopkinson, D.S.O.	...	...	Protectorate Medical Officer.
Dr. J. A. Harley	...	...	Medical Officer.

## PRINCIPAL MEMBERS OF SUBORDINATE STAFF.

Sister Joseph Mary	...	...	Nursing Sister.
Sister Mary Veronica	...	...	do.
Sister Mary Alex	...	...	do.
Sister Mary Herbert	...	...	do.
Mr. W. S. Smart	...	...	Chief Dispenser.
Mr. C. Shaw	...	...	Clerk, Storekeeper, and Steward.
Mr. L. G. Boyle	...	...	Assistant Dispenser.
Mr. J. F. Johnson	...	...	do.
Mr. A. C. Tudor	...	...	Second do.
Mr. J. S. Kennedy	...	...	Third do.
Mr. E. W. Johns	...	...	Senior Native Nurse.
Mr. T. D. Johnson	...	...	Assistant do.
Mr. A. C. Briggsman	...	...	do. do.
Mr. G. A. Saunders	...	...	Attendant Home for Destitutes and Afflicted.
Mr. J. Duncan	...	...	Attendant Infectious Diseases Hospital.
Mr. D. Senghore	...	...	Apprentice.
Mr. S. B. Palmer	...	...	do.
Miss E. Miller	...	...	do.
Miss M. A. Thomas	...	...	do.

## PRINCIPAL CHANGES.

## APPOINTMENTS.

Date.	Name.	Rank.
1st January	Eliza Miller	Apprentice.
3rd March	S. B. Palmer	Apprentice.
1st April	Mary A. Thomas	Apprentice.
16th "	J. A. Harley	Medical Officer.
8th July	A. C. Briggsman	Assistant Nurse.
1st October	B. Fall	Pantryman and Cook's Assistant.

## LEAVE OF ABSENCE.

Date.	Name.	Rank.	Leave.
1st January	F. A. Baldwin	Medical Officer	4 months and 10 days.
25th March	T. Hood	Senior Medical Officer	4 months.
14th April	Sister M. Alex	Nurse	6 months.
6th July	E. Hopkinson	Protectorate Medical Officer	4 months.
21st July	W. S. Smart	Chief Dispenser	3 months.
25th September	J. C. Franklin	Medical Officer	4 months and 10 days.
1st October	A. C. Tudor	2nd Assistant Dispenser	14 days.
10th November	Sister M. Herbert	Nurse	5 months.

## EXTENSION OF LEAVE.

Date.	Name.	Rank.	Leave.
16th November ...	E. Hopkinson ...	Protectorate Medical Officer.	1 Month and 13 days.

## RESUMPTION OF DUTY.

Date.	Name.	Rank.
3rd September	T. Hood ...	Senior Medical Officer...
16th October ...	A. C. Tudor ...	2nd Assistant Dispenser ...
21st October ...	W. S. Smart ...	Chief Dispenser ...
9th November...	Sister M. Alex ...	Nurse ...
29th December...	E. Hopkinson ...	Protectorate Medical Officer ...

## TERMINATION OF SERVICES.

Date.	Name.	Rank.	Remarks.
31st March ...	Sarian Harding ...	Apprentice ...	Dismissed.
19th June ...	J. J. Pratt ...	Assistant Native Nurse ...	"

## TRANSFER.

Date.	Name.	Rank.	Remarks.
13th April ...	F. A. Baldwin ...	Medical Officer. ...	Transferred to Southern Nigeria.

## RESIGNATIONS.

Date.	Name.	Rank.
30th September	Momo Turay ...	Pantryman and Cook's Assistant
20th December	J. B. Turner ...	Messenger and Porter ...

TABLE II.  
FINANCIAL MEDICAL DEPARTMENT.  
EXPENDITURE.

Details.	Estimated.	Actual.
	£ s. d.	£ s. d.
Personal Emoluments ... ..	3,560 0 0	3,517 5 1
OTHER CHARGES.		
Maintenance of Sick ... ..	600 0 0	657 14 10
Washing ... ..	55 0 0	51 13 9
Fuel ... ..	30 0 0	40 11 2
Sundries ... ..	100 0 0	98 13 5
Medicines, Dressings and Medical Comforts	250 0 0	237 13 11
Expenses of Burials ... ..	20 0 0	14 9 10
Vaccinations ... ..	200 0 0	69 5 10
Infectious Diseases Hospital ... ..	23 0 0	19 13 0
Maintenance of Lunatics (Sa. Leone) ...	153 0 0	181 13 5
" " (England) ... ..	75 0 0	45 12 6
Purchase of, and Repairs to Instruments	30 0 0	12 5 7
Medical Library ... ..	10 0 0	7 6 8
Horse Allowance ... ..	90 0 0	77 1 3
Uniforms for Attendants ... ..	26 0 0	29 19 10
Passages for Officers and Sisters ... ..	176 0 0	203 19 0
Special Expenditure at the Tropical School of Medicine ... ..	—	248 17 11
TOTAL ...	£5,398 0 0	£5,513 17 0

RECEIPTS.

Details.	Estimated.	Actual.
	£ s. d.	£ s. d.
Maintenance of Sick and Sale of Medicines	100 0 0	124 10 0

TABLE IIa.  
FINANCIAL.  
BOARD OF HEALTH DEPARTMENT.

Receipts.	Amount.	Payments.	Amount.
	£ s. d.		£ s. d.
Town Rates ... ..	743 16 6	Excess of Payments in 1909 adjusted ... ..	200 14 9
Slaughter-house Fees ... ..	82 11 0	Clerk of Board of Health ... ..	12 0 0
Grant-in-Aid ... ..	450 0 0	Inspector of Nuisances ... ..	60 0 0
Cost of Summonses from Rate Defaulters ... ..	6 14 0	Asst. Inspectors of Nuisances... ..	57 0 0
Fines ... ..	1 19 3	Cost of Summonses on Local Rates Defaulters ... ..	10 10 0
Sale of Old Stores ... ..	0 0 10	Up-keep of Carts and Horses ... ..	130 12 1
	1,285 1 7	Street Lighting ... ..	176 12 10
		Cleaning Streets, &c. ... ..	445 15 3
		Commission on Collecting of Slaughter-house Fees ... ..	8 15 2
		Miscellaneous ... ..	49 17 7
Excess of Payments (1910) ... ..	157 13 0	Extraordinary Expenditure ... ..	290 8 11
Total ... ..	£1,442 14 7		£1,442 14 7

In addition to the ordinary expenditure incurred by the Board of Health a grant of £1,000 has been made for special Sanitary purposes and this has been expended on the erection of three Incinerators, 500 galvanized iron Dustbins, 300 galvanized iron Night-soil Pails, and 35 galvanized iron 400-gallon Tanks.

TABLE III.

## RETURN OF STATISTICS OF POPULATION FOR THE YEAR.

## BATHURST, GAMBIA.

	Europeans and Whites.	Africans.	Mixed and Coloured.
Number of Inhabitants in 1910 ... ..	151	10,000†	100†
„ Births during the year, 1910 ... ..	—	288	6
„ Deaths „ „ 1910 ... ..	2	295	5
„ Immigrants „ „ 1910 ... ..	—	—	—
„ Emigrants „ „ 1910 ... ..	—	—	—
Number of Inhabitants in 1901 (Census) ... ..	193*	8,807	116
Increase or... ..	44	1,200†	—
Decrease ... ..	—	—	16†

\*107 Europeans were temporarily in the Colony on a Military expedition.

†Approximately.

TABLE IV.

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

## 1. NAME OF TOWN.—BATHURST, GAMBIA.

	Approximate area.	Number of proclaimed open spaces.
1910 ... ..	400 acres.	One—3 acres.
1911 ... ..		
1912 ... ..		

## 2. POPULATION.

	Number of Natives.		Number of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1910 ... ..					
1911 ... ..					
1912 ... ..					

## 3. HOUSING.

	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses :—		
1910 ... ..	33	1000 approximately.
1911 ... ..		
1912 ... ..		
Number of Huts :—		
1910 ... ..	1,500 approximately.	
1911 ... ..		
1912 ... ..		

## 4. MOSQUITO PROTECTION OF HOUSES.

—	1910.	1911.	1912.
Number of European houses wholly mosquito-protected ...	Nil.		
Number of European houses with mosquito room ...	32		
Number rendered during the year wholly mosquito-protected	Nil.		
Number rendered during the year partially mosquito-protected	24		

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

—	1910.	1911.	1912.
Number of public buildings erected with sanction as to site, construction, and relation to other buildings ...	Nil.		
Number of houses erected with sanction as to site, construction, and relation to other buildings ...	Nil.		
Number of huts erected with sanction as to site, construction, and relation to other buildings... ..	Nil.		
Number of houses built without sanction ... ..	40		
Number of huts built without sanction ... ..	2		

## ACTION TAKEN.

—			Number of Prosecutions.		Number Demolished.	
			Huts.	Houses.	Huts.	Houses.
1910	...	...	nil.	nil.	4	2
1911	...	...				
1912	...	...				

## 6. MARKETS.

—						Total number.	Number paved and drained.	Number unpaved.
1910	...	...	...	...	...	1	1	nil.
1911	...	...	...	...	...			
1912	...	...	...	...	...			

## 7. SLAUGHTER-HOUSES.

—						Total number.	Number paved and drained.	Number unpaved.
1910	...	...	...	...	...	2	1	1 (wood and iron, over sea)
1911	...	...	...	...	...			
1912	...	...	...	...	...			

## 8. LATRINES.

	For Males.		For Females.	
	Number.	Number of Seats.	Number.	Number of seats.
Number of Public Latrines :—				
1910 ... ..	9	27	9	27
1911 ... ..				
1912 ... ..				
Number of new Public Latrines erected during the year :—				
1910 ... ..	1	3	1	3
1911 ... ..				
1912 ... ..				
Number of Public Latrines repaired during the year :—				
1910 ... ..	2	6	2	6
1911 ... ..				
1912 ... ..				
Number of Public Latrines demolished during the year :—				
1910 ... ..	1	3	1	3
1911 ... ..				
1912 ... ..				

	1901.	1911.	1912.
Number of Private Latrines ... ..	500 ×		
Average number of pails of nightsoil removed daily ... ..	200 ×		
Average number of soiled pails removed and clean pails substituted ... ..	106*		
Number of nightsoil men employed to clean latrines and remove excreta ... ..	5 +		
Number of cesspools ... ..	450 ×		
Number of cesspools cleansed ... ..	25		
Number of new cesspools constructed during the year ... ..	20		
Number of old cesspools abolished ... ..	20		
Number of cesspools oiled regularly by Department ... ..	nil.		

× Approximately.

\* By Government

+ By Contractor.

## 9. REMOVAL OF REFUSE.

	1910.	1911.	1912.
Number of dustbins, galvanized iron, in yards ... ..	500		
Number of carts at work daily to remove refuse from streets ... ..	1		
Amount of refuse removed daily ... ..	6		
Number of carts at work daily to remove refuse from yards and premises ... ..	2		
Amount of refuse removed daily from yards and premises ... ..	14		
Number of men employed for moving refuse ... ..	11		

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

	Daily average number of pails of excreta			Daily average number of cartloads of refuse.			Daily average number of cartloads of Slaughter House and Market Offal.		
	1910.	1911.	1912.	1910.	1911.	1912.	1910.	1911.	1912.
Buried or trenched ... ..							3*		
Burnt ... ..				20					
Thrown into sea ... ..	120								
Otherwise dealt with ... ..									

\* A cartload averages one cubic yard.

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

1910.	1911.	1912.
5		

12. WATER SUPPLY.

Nature of Water Supply	1910.	1911.	1912
Pipe-borne water :—			
Source (river, lake, or spring) :—	Nil.		
Number of linear yards ... ..			
Number of stand-pipes along roads ... ..			
Number of stand-pipes in compounds and houses ...			
Wells :—			
Public :—			
Number ... ..	17		
Number with pumps protected against surface water and mosquito-protected ... ..	8		
Private :—			
Number ... ..	400*		
Number protected against surface water and mosquito-protected... ..	21		
Tanks :—			
Public—i.e. on Government premises :—			
Number underground ... ..	3		
Number mosquito-protected and served by pumps ...	2		
Number above ground ... ..	54		
Number mosquito-protected ... ..	51		
Number of 400 gallons capacity or less ... ..	50		
Number above 400 gallons ... ..	6		

\* Approximately.

Nature of Water Supply.	1910.	1911.	1912.
Tanks :—			
Private :—			
Number underground ... ..	1		
Number mosquito-protected ... ..	1		
Number above ground ... ..	71		
Number mosquito-protected ... ..	71		
Number of 400 gallons capacity or less ... ..	62		
Number above 400 gallons ... ..	10		
Nature of tanks :—			
Wood ... ..	—		
Iron ... ..	71		
Concrete ... ..	1		
Barrels :—			
Number ... ..	*200		
Number mosquito-protected ... ..	26		

\* Approximately.

## 13. DRAINAGE.

Nature of drainage.	Public.	Private.
Masonry drains :—		
Lineal yards of masonry drains :—		
1910 ... ..	3,886	
1911 ... ..		
1912 ... ..		
Lineal yards reconstructed during the year :—		
1910 ... ..	nil.	
1911 ... ..		
1912 ... ..		
Lineal yards repaired during the year :—		
1910 ... ..	200	
1911 ... ..		
1912 ... ..		
Lineal yards of new drains constructed during the year :—		
1910 ... ..	nil.	
1911 ... ..		
1912 ... ..		
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :—		
1910 ... ..	9,433	
1911 ... ..		
1912 ... ..		
Number of linear yards of ditches dug and graded :—		
1910 ... ..	nil.	
1911 ... ..		
1912 ... ..		
Average frequency of clearing ditches of grass :—		
1910 ... ..	Weekly during the rains.	
1911 ... ..		
1912 ... ..		

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

	1910.	1911.	1912.
Number of square yards of weeds, grass, and vegetation cut and removed ... ..	*50,000		
Average frequency of clearance of rank vegetation on same area ... ..	Monthly during rains.		

\* Approximately.

## 15. EXCAVATIONS AND LOW-LYING LAND.

	1910.	1911.	1912.
Number of pools and excavations ... ..	large areas	in the rains.	
Number of excavations filled up ... ..	nil.		
Amount of low-lying and marsh land raised and drained ... ..	1,000sq. y'ds.		
Number of pools, marshes, streams, &c., fish stocked ... ..	4		
Number of cubic yards of material used for filling up pools and excavations ... ..	nil.		
Number of persons fined for making new excavations ... ..	nil.		
Average number of men daily employed in filling up pools, &c., and oiling and cleaning drains ... ..	11		

## 16. OILING.

	1910.	1911.	1912.
Number of drains oiled ... ..	14		
Number of pools and excavations oiled ... ..	4		
Number of tanks and barrels oiled ... ..	emptied frequently.		
Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ..	11		

## 17. INSPECTIONS AND PROSECUTIONS.

	1910.	1911.	1912.
Number of inspectors employed ... ..	3		
Number of houses inspected ... ..	500*		
Number of houses where larvæ were found ... ..	44%		
Number of notices served to remove conditions causing the breeding of larvæ ... ..	nil.		
Number of persons fined for having mosquito larvæ on premises	nil.		
Number of notices served to remove insanitary conditions on premises	47		
Number of persons fined for not removing insanitary conditions after notice ... ..	5		
Number of soda and aerated water factories inspected... ..	1		

\*Approximately.

TABLE V.

## METEOROLOGICAL RETURN FOR THE YEAR 1910.—BATHURST.

Months.	Temperatures.					Rainfall.	Winds.
	Mini- mum on grass.	Shade maxi- mum.	Shade mini- mum.	Range.	Mean.	Amount in inches.	
January ... ..	51	93	57	36	75.0	—	East.
February ... ..	53	101	62	39	86.5	—	North.
March ... ..	54	100	62	38	81.0	—	"
April ... ..	56	104	62	42	83.0	—	"
May ... ..	60	91	64	27	77.5	—	"
June ... ..	60	95	70	25	82.5	1.15	Variable.
July ... ..	64	93	70	23	81.5	11.98	"
August ... ..	60	93	62	31	77.5	16.60	"
September ... ..	55	90	60	30	75.0	11.52	"
October ... ..	60	92	79	22	81.0	2.75	"
November ... ..	55	95	68	27	81.5	—	East.
December ... ..	47	93	62	31	77.5	—	"
TOTAL ... ..	675	1,140	778	371	959.5	44.00	

## METEOROLOGICAL RETURN FOR THE YEAR 1910.—McCARTHY ISLAND.

Months.	Temperatures.			Mean.	Rainfall.	Winds.
	Shade maxi- mum.	Shade mini- mum.	Range.		Amount in inches.	
January ... ..	101	52	49	76.5	—	N.W.
February ... ..	105	55	50	80.0	—	"
March ... ..	110	60	50	85.0	—	"
April ... ..	111	63	48	87.0	—	"
May ... ..	110	61	49	85.5	—	N.
June ... ..	108	69	39	88.5	2.88	Variable.
July ... ..	102	68	34	85.0	9.43	N.
August ... ..	91	68	23	79.5	10.72	"
September ... ..	95	68	27	81.5	9.86	"
October ... ..	95	63	32	79.0	2.20	"
November ... ..	98	55	43	76.5	—	Variable.
December ... ..	99	55	44	77.0	—	"
TOTAL ... ..	1,225	737	488	981.0	35.09	

TABLE VI.

## VICTORIA HOSPITAL, BATHURST.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1910.

Diseases.	Remain- ing in Hospital at end of 1909.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospital at end of 1910.	Remarks.
		Ad- missions.	Deaths.			
INFECTIVE DISEASES.						
Beri-Beri ... ..	—	—	—	—	—	
Cerebro-Spinal Fever ... ..	—	—	—	—	—	
Chicken-Pox ... ..	—	—	—	—	—	
Cholera ... ..	—	—	—	—	—	
Dengue ... ..	—	—	—	—	—	
Diphtheria ... ..	—	7	3	7	—	
Dysentery ... ..	—	—	—	—	—	
Endocarditis—infective ... ..	—	—	—	—	—	
Enteric ... ..	—	—	—	—	—	
Erysipelas ... ..	—	—	—	—	—	
Gonorrhoea ... ..	1	6	—	7	—	
Influenza ... ..	—	—	—	—	—	
Catarrh... ..	—	17	—	17	—	
Kala Azar ... ..	—	—	—	—	—	
Leprosy (a) Nodular ... ..	—	—	—	—	—	
(b) Anæsthetic ... ..	—	—	—	—	—	
Malaria (a) Tertian ... ..	—	16	—	16	—	
(b) Quartan ... ..	—	4	—	4	—	
(c) Mixed Quotidian... ..	—	34	—	34	—	
(d) Aestivo-autumnal ... ..	—	14	—	14	—	
(e) Chronic Malaria... ..	—	4	—	4	—	
(f) Black-water ... ..	—	3	1	3	—	
(g) Undetermined ... ..	—	26	2	26	—	
Measles... ..	—	1	—	1	—	
Malta Fever ... ..	—	—	—	—	—	
Plague ... ..	—	—	—	—	—	
Pneumonia ... ..	—	—	—	—	—	
Rabies ... ..	—	—	—	—	—	
Relapsing Fever ... ..	—	—	—	—	—	
Rheumatism ... ..	—	57	1	57	1	
Septicæmia ... ..	—	1	—	1	—	
Trypanosomiasis (Sleeping Sickness) ... ..	—	1	1	1	—	
Small-Pox ... ..	—	[4]	—	[4]	—	At Infectious Diseases Hospital.
Syphilis (a) Primary... ..	—	1	—	1	—	
(b) Secondary ... ..	—	5	2	5	—	
(c) Inherited ... ..	—	—	—	—	—	
Tetanus ... ..	—	2	1	2	—	
Tuberculosis ... ..	—	7	4	7	—	
Whooping Cough ... ..	—	—	—	—	—	
Yaws ... ..	—	—	—	—	—	
Yellow Fever ... ..	—	—	—	—	—	
INTOXICATIONS.						
Alcoholism ... ..	—	—	—	—	—	
Morphinism ... ..	—	—	—	—	—	
Others ... ..	—	—	—	—	—	
GENERAL DISEASES.						
Anæmia ... ..	—	4	—	4	—	
Anæmia—Pernicious ... ..	—	—	—	—	—	
Diabetes ... ..	—	—	—	—	—	
Exophthalmic Goitre ... ..	—	—	—	—	—	
Gout ... ..	—	—	—	—	—	
Leucocythæmia ... ..	—	—	—	—	—	
Hodgkin's Disease ... ..	—	—	—	—	—	
Myxœdema ... ..	—	—	—	—	—	
Total ... ..	1	210	15	211	1	

## VICTORIA HOSPITAL, BATHURST—continued.

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1910—continued.

Diseases.	Remain- ing in Hospital at end of 1909.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospital at end of 1910.	Remarks.
		Ad- missions	Deaths.			
From Previous Page ... ..	1	210	15	211	1	
GENERAL DISEASES—continued.						
Purpura ... ..	—	—	—	—	—	
Rickets... ..	—	—	—	—	—	
Scurvy ... ..	—	—	—	—	—	
Debility ... ..	—	5	—	5	—	
Senile Decay ... ..	—	1	1	1	—	
LOCAL DISEASES.						
DISEASES OF THE NERVOUS SYSTEM.						
Sub-section 1.						
Neuritis ... ..	—	1	—	1	—	
Meningitis ... ..	—	—	—	—	—	
Myelitis ... ..	—	—	—	—	—	
Hydrocephalus... ..	—	—	—	—	—	
Encephalitis ... ..	—	—	—	—	—	
Abscess of Brain ... ..	—	—	—	—	—	
Congestion of Brain ... ..	—	—	—	—	—	
Tabes Dorsalis... ..	—	1	1	1	—	
Sub-section 2.						
Apoplexy ... ..	—	—	—	—	—	
Paralysis ... ..	—	—	—	—	—	
Chorea ... ..	—	—	—	—	—	
Epilepsy ... ..	—	2	—	2	—	
Neurasthenia ... ..	—	1	—	1	—	
Neuralgia ... ..	—	2	—	2	—	
Hysteria ... ..	—	2	—	2	—	
Insomnia ... ..	—	1	—	1	—	
Mental Diseases—Sub-section 3.						
Idiocy ... ..	—	—	—	—	—	
Mania ... ..	—	—	—	—	—	
Melancholia ... ..	—	—	—	—	—	
Dementia ... ..	—	—	—	—	—	
Delusional Insanity ... ..	—	—	—	—	—	
Diseases of the Eye—						
Conjunctivitis ... ..	—	17	—	17	—	
Keratitis ... ..	—	2	—	2	—	
Ulceration of Cornea ... ..	—	—	—	—	—	
Iritis ... ..	—	—	—	—	—	
Optic Neuritis... ..	—	—	—	—	—	
Cataract ... ..	—	—	—	—	—	
Ophthalmia ... ..	1	3	—	4	—	
Diseases of the Ear—						
Inflammation ... ..	—	—	—	—	—	
Other Diseases... ..	—	—	—	—	—	
Diseases of the Nose—						
Coryza ... ..	—	1	—	1	—	
Diseases of the Circulatory System—						
Pericarditis ... ..	—	—	—	—	—	
Endocarditis ... ..	—	—	—	—	—	
Valvular Mitral ... ..	—	8	—	8	—	
Aortic ... ..	—	1	—	1	—	
Tricuspid ... ..	—	—	—	—	—	
Pulmonary ... ..	—	—	—	—	—	
Arterial Sclerosis ... ..	—	—	—	—	—	
Aneurism ... ..	—	1	—	1	—	
Varicose Veins... ..	—	2	—	2	—	
Total ... ..	2	261	17	263	1	

VICTORIA HOSPITAL, BATHURST.—*continued.*RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1910.—*continued.*

Diseases.	Remain- ing in Hospital at end of 1909.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospital at end of 1910.	Remarks.
		Ad- missions	Deaths.			
From Previous Page... ..	2	261	17	263	1	
LOCAL DISEASES— <i>continued.</i>						
Diseases of the Respiratory System—						
Laryngitis ... ..	—	—	—	—	—	
Bronchitis ... ..	—	42	—	42	1	
Broncho-pneumonia ... ..	—	4	2	4	—	
Abscess of Lung ... ..	—	—	—	—	—	
Gangrene of Lung ... ..	—	—	—	—	—	
Emphysema ... ..	—	2	—	2	—	
Pleurisy ... ..	—	3	—	3	—	
Empyema ... ..	1	—	—	1	—	
Pleurodynia ... ..	—	1	—	1	—	
Diseases of the Digestive System—						
Stomatitis ... ..	—	—	—	—	—	
Caries of Teeth... ..	—	—	—	—	—	
Glossitis ... ..	—	—	—	—	—	
Sore Throat ... ..	—	—	—	—	—	
Inflammation of Tonsils ... ..	1	1	—	2	—	
Gastritis ... ..	—	4	—	4	—	
Ulceration of Stomach... ..	—	—	—	—	—	
Hæmatemesis ... ..	—	—	—	—	—	
Dilatation of Stomach... ..	—	—	—	—	—	
Stricture of Stomach ... ..	—	—	—	—	—	
Dyspepsia ... ..	1	19	—	20	—	
Enteritis ... ..	—	—	—	—	—	
Appendicitis ... ..	—	1	—	1	—	
Colitis ... ..	—	—	—	—	—	
Ulceration of Intestines ... ..	—	—	—	—	—	
Sprue ... ..	—	—	—	—	—	
Hernia ... ..	—	5	—	5	—	
Diarrhoea ... ..	—	8	1	8	—	
Constipation ... ..	—	12	—	12	—	
Colic ... ..	—	8	—	8	—	
Hæmorrhoids ... ..	—	4	—	4	—	
Pancreatitis ... ..	—	—	—	—	—	
Hepatitis—Acute ... ..	—	7	—	7	—	
Abscess... ..	—	1	1	1	—	
Cirrhosis ... ..	—	3	—	3	—	
Jaundice ... ..	—	—	—	—	—	
Peritonitis ... ..	—	—	—	—	—	
Ascites ... ..	—	—	—	—	—	
Diseases of the Lymphatic System—						
Splenitis ... ..	—	4	—	4	—	
Inflammation of Lymphatic Gland ... ..	—	13	—	13	—	
Suppuration of Lymphatic Gland ... ..	—	—	—	—	—	
Lymphangitis ... ..	—	—	—	—	—	
Elephantiasis ... ..	—	2	—	2	—	
Diseases of the Urinary System—						
Acute Nephritis ... ..	—	—	—	—	—	
Bright's Disease ... ..	—	4	—	4	—	
Pyelitis... ..	—	—	—	—	—	
Calculus ... ..	—	—	—	—	—	
Renal Colic ... ..	—	—	—	—	—	
Cystitis ... ..	—	1	—	1	—	
Vesical Calculus ... ..	—	—	—	—	—	
Suppression ... ..	—	—	—	—	—	
Hæmaturia ... ..	—	1	—	1	—	
Chyluria ... ..	—	—	—	—	—	
Total ... ..	5	411	21	416	2	

VICTORIA HOSPITAL, BATHURST.—*continued.*RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1910.—*continued.*

Diseases.	Remain- ing in Hospital at end of 1909.	Yearly Total.		Total Cases Treated	Remain- ing in Hospital at end of 1910.	Remarks.
		Ad- mission.	Deaths.			
From Previous Page ... ..	5	411	21	416	2	
LOCAL DISEASES— <i>continued.</i>						
Diseases of the Generative System—						
Male Organs :—						
Urethritis ... ..	—	—	—	—	—	
Gleet ... ..	—	—	—	—	—	
Stricture ... ..	—	9	—	9	—	
Prostatitis ... ..	—	—	—	—	—	
Soft Chancre ... ..	—	5	—	5	—	
Condyloma ... ..	—	—	—	—	—	
Inflammation of Scrotum ... ..	—	—	—	—	—	
Hydrocele ... ..	—	7	—	7	—	
Orchitis ... ..	—	11	—	11	—	
Epididymitis ... ..	—	—	—	—	—	
Abscess of Testicle ... ..	—	—	—	—	—	
Phimosis ... ..	—	3	—	3	—	
Female Organs :—						
Ovaritis ... ..	—	1	—	1	—	
Ovarian Cyst ... ..	—	—	—	—	—	
Endometritis ... ..	—	4	—	4	—	
Displacement of Uterus ... ..	—	—	—	—	—	
Vaginitis ... ..	—	—	—	—	—	
Amenorrhœa ... ..	—	1	—	1	—	
Dysmenorrhœa ... ..	—	—	—	—	—	
Menorrhagia ... ..	—	—	—	—	—	
Leucorrhœa ... ..	—	—	—	—	—	
Abortion ... ..	—	1	—	1	—	
Delayed Labour ... ..	—	1	—	1	—	
Postpartum Hæmorrhage ... ..	—	—	—	—	—	
Retained Placenta ... ..	—	—	—	—	—	
Premature Birth ... ..	—	—	—	—	—	
Puerperal Septicæmia ... ..	—	—	—	—	—	
Mastitis ... ..	—	2	—	2	—	
Abscess of Breast ... ..	—	—	—	—	—	
Parturition ... ..	—	2	—	2	—	
Threatened Abortion ... ..	—	2	—	2	—	
Diseases of Organs of Locomotion—						
Osteitis ... ..	—	1	—	1	—	
Arthritis ... ..	—	3	—	3	—	
Spondylitis ... ..	—	—	—	—	—	
Bursitis ... ..	—	2	—	2	—	
Necrosis of Bones ... ..	—	3	—	3	—	
Synovitis ... ..	—	4	—	4	—	
Ganglion ... ..	—	1	—	1	—	
Diseases of Connective Tissue—						
Cellulitis ... ..	—	12	—	12	—	
Abscess ... ..	—	21	—	21	—	
Elephantiasis ... ..	—	—	—	—	—	
Whitlows ... ..	—	4	—	4	—	see page 18
Diseases of the Skin—						
Urticaria ... ..	—	—	—	—	—	
Eczema ... ..	—	7	—	7	—	
Boil ... ..	—	—	—	—	—	
Carbuncle ... ..	—	—	—	—	—	
Herpes ... ..	—	—	—	—	—	
Psoriasis ... ..	—	—	—	—	—	
Total ... ..	5	518	21	523	2	

VICTORIA HOSPITAL, BATHURST.—*continued.*RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1910.—*continued.*

Diseases.	Remain- ing in Hospital at end of 1909.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospital at end of 1910.	Remarks.
		Ad- mission.	Deaths.			
From Previous Page ... ..	5	518	21	523	2	
LOCAL DISEASES— <i>continued.</i>						
Diseases of the Skin— <i>continued.</i>						
Oriental Sore ... ..	—	—	—	—	—	
Tinea ... ..	—	—	—	—	—	
Scabies ... ..	—	4	—	4	—	
Acne ... ..	—	—	—	—	—	
Prickly Heat ... ..	—	—	—	—	—	
Ulcers ... ..	1	51	—	52	—	
Injuries—General ... ..	—	3	1	3	—	
Local ... ..	1	72	—	73	—	
Surgical Operations ... ..	—	[62]	[1]	[62]	—	
Tumours ... ..	—	—	—	—	—	
Uterine Fibroid ... ..	—	1	—	1	—	Recorded under respect- ive diseases.
Osteo Chondroma ... ..	—	1	—	1	—	
Malformation ... ..	—	—	—	—	—	
Poisons ... ..	—	3	—	3	—	
Parasites—Animal ... ..	—	—	—	—	—	
Protozoa ... ..	—	—	—	—	—	
Trematoda (Flukes) ... ..	—	—	—	—	—	
Cestoda—						
Tenia Solium ... ..	—	1	—	1	—	
Tenia Saginata ... ..	—	—	—	—	—	
Nematoda—						
Ascaris ... ..	—	—	—	—	—	
Trichocephalus Dispar. ... ..	—	—	—	—	—	
Trichina ... ..	—	—	—	—	—	
Dracunculus ... ..	—	—	—	—	—	
Filariasis ... ..	—	—	—	—	—	
Strongylus ... ..	—	—	—	—	—	
Ankylostomiasis ... ..	—	—	—	—	—	
Oxyuris ... ..	—	—	—	—	—	
Insecta—						
Myiasis ... ..	—	—	—	—	—	
Chigoes ... ..	—	11	—	11	—	
No Appreciable Disease ... ..	—	4	—	4	—	
Total ... ..	7	669	22	676	2	

TABLE VI A.

## THE PRISON INFIRMARY.

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1910.

Diseases.	Remain- ing in Hospital at end of 1909.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospital at end of 1910.	Remarks.
		Ad- mission.	Deaths.			
Malaria... ..	—	—	—	—	—	
Tertian ... ..	—	1	—	1	—	
Debility ... ..	—	2	—	2	—	
Rheumatism ... ..	—	1	—	1	—	
Neuritis ... ..	—	1	1	1	—	
Bright's Disease ... ..	—	1	—	1	—	
Synovitis ... ..	—	1	—	1	—	
Total ... ..	—	7	1	7	—	

TABLE VIb.

## McCARTHY ISLAND DISPENSARY.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1910.

Diseases.	Remain- ing in Hospital at end of 1909.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospital at end of 1910.	Remarks.
		Ad- mission.	Deaths.			
Malaria...	—	—	—	—	—	
Undetermined	—	3	1	3	—	
Black-Water	—	1	1	1	—	
Rheumatism	—	2	—	2	—	
Neuralgia	—	1	—	1	—	
Conjunctivitis	—	1	—	1	—	
Bronchitis	—	2	—	2	—	
Orchitis	—	2	—	2	—	
Abscess...	—	1	—	1	—	
Ulcer	—	1	—	1	—	
Injuries...	—	—	—	—	—	
Local	—	5	—	5	—	
Total	—	19	2	19	—	

TABLE VII.

## VICTORIA HOSPITAL, BATHURST.

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1910.

Diseases.		Males.	Females.
INFECTIVE DISEASES.			
Malaria	...	246	160
Trypanosomiasis	...	1	1
Gonorrhœa	...	34	—
Rheumatism	...	424	290
Syphilis	...	5	2
GENERAL DISEASES.			
Anæmia	...	6	12
Debility	...	21	26
Marasmus	...	—	1
LOCAL DISEASES.			
Diseases of the Nervous System	...	23	14
"    Eye	...	234	176
"    Ear	...	49	54
"    Nose	...	16	11
"    Circulatory System	...	5	4
"    Respiratory	...	808	602
"    Digestive	...	1,299	736
"    Lymphatic	...	26	11
"    Urinary	...	17	9
"    Generative	...	—	—
Male Organs	...	61	—
Female Organs	...	—	47
"    Organs of Locomotion	...	4	1
"    Connective Tissue	...	74	50
"    Skin	...	598	242
Injuries	...	384	76
Parasites	...	315	265
TOTAL		4,650	2,790

TABLE VII<sub>A</sub>.

## THE PRISON DISPENSARY.

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1910.

Diseases.							Male.	Female.
Malarial Fevers	...	...	...	...	...	...	—	—
" Tertian	...	...	...	...	...	...	2	—
Gonorrhœa	...	...	...	...	...	...	4	—
Parasitic Disease	...	...	...	...	...	...	1	—
Rheumatism	...	...	...	...	...	...	12	—
Leprosy	...	...	...	...	...	...	3	—
Debility	...	...	...	...	...	...	6	—
Diseases of the Nervous System	...	...	...	...	...	...	6	1
" " Eye	...	...	...	...	...	...	1	—
" " Respiratory System	...	...	...	...	...	...	8	—
" " Digestive	...	...	...	...	...	...	65	—
" " Lymphatic	...	...	...	...	...	...	1	—
" " Generative	...	...	...	...	...	...	7	—
" " Organs of Locomotion	...	...	...	...	...	...	3	—
" " Skin	...	...	...	...	...	...	8	—
Injuries	...	...	...	...	...	...	3	—
No appreciable Disease	...	...	...	...	...	...	7	—
TOTALS							137	1

TABLE VII<sub>B</sub>.

McCARThY ISLAND DISPENSARY.

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

Diseases.										MALE.	FEMALE.
Malarial Fever	Undetermined	...	...	...	...	...	...	...	...	36	20
Measles	...	...	...	...	...	...	...	...	...	1	—
Dysentery	...	...	...	...	...	...	...	...	...	5	2
Gonorrhœa	...	...	...	...	...	...	...	...	...	7	—
Parasitic Disease	...	...	...	...	...	...	...	...	...	10	8
Tetanus...	...	...	...	...	...	...	...	...	...	1	—
Rheumatism	...	...	...	...	...	...	...	...	...	98	8
Leprosy	...	...	...	...	...	...	...	...	...	—	2
Debility	...	...	...	...	...	...	...	...	...	15	6
Syphilis	...	...	...	...	...	...	...	...	...	21	5
Diseases of the	Nervous System	...	...	...	...	...	...	...	...	1	—
"	"	Eye	...	...	...	...	...	...	...	24	6
"	"	Ear	...	...	...	...	...	...	...	20	7
"	"	Nose	...	...	...	...	...	...	...	4	—
"	"	Circulatory System	...	...	...	...	...	...	...	3	1
"	"	Respiratory	"	...	...	...	...	...	...	88	58
"	"	Digestive	"	...	...	...	...	...	...	285	113
"	"	Generative	"	...	...	...	...	...	...	11	1
"	"	Lymphatic	"	...	...	...	...	...	...	12	4
Affections connected with pregnancy		...	...	...	...	...	...	...	...	—	7
Diseases of the Female Breast	...	...	...	...	...	...	...	...	...	—	1
"	"	Connective Tissue	...	...	...	...	...	...	...	8	4
"	"	Cellular	"	...	...	...	...	...	...	8	5
"	"	Skin	...	...	...	...	...	...	...	96	39
Injuries	...	...	...	...	...	...	...	...	...	80	17
Operations	...	...	...	...	...	...	...	...	...	12	1
Total										846	315

TABLE VIIc.

DISEASES TREATED BY THE PROTECTORATE MEDICAL OFFICER DURING 1910 SHOWING THEIR  
INCIDENCE IN THE DIFFERENT RACES.

Diseases.	Total.	Mandigo.	Jollof.	Sarkuli.	Tukolor or Turanko.	Foulah.	Jola.	Aku.	Other tribes.
Malaria ... ..	32	18	1	1	—	2	1	9	—
Syphilis ... ..	6	—	1	—	1	1	—	2	1
Gonorrhœa ... ..	18	6	2	—	—	4	1	3	2
Intestinal Parasites ... ..	18	15	2	—	1	—	—	—	—
Rheumatism ... ..	70	41	9	2	3	6	1	6	2
Undefined (Debility, &c.)... ..	9	7	—	—	1	—	—	1	—
Diseases of the Nervous System ... ..	12	7	2	1	1	—	—	1	—
do. do. Ear ... ..	22	15	2	—	1	2	1	1	—
do. do. Eye ... ..	52	30	9	4	2	4	1	—	2
do. do. Nose ... ..	2	1	—	—	—	1	—	—	—
do. do. Circulatory System ... ..	3	—	—	—	1	1	—	1	—
do. do. Respiratory do. ... ..	65	48	3	1	5	3	—	4	1
do. do. Alimentary do. ... ..	314	198	36	10	6	28	7	25	4
do. do. Lymphatic do. ... ..	21	15	2	1	2	—	—	—	1
do. do. Connective Tissue ... ..	32	24	3	2	1	1	—	—	1
do. do. Skin ... ..	64	43	7	3	—	8	—	1	2
Typical Tropical Ulcer ... ..	94	61	10	—	4	13	3	—	3
Diseases of the Urinary ... ..	12	4	3	2	—	2	—	1	—
do. do. Male Generative System... ..	19	12	1	1	3	—	—	2	—
do. do. Female do. do. ... ..	6	4	—	—	1	1	—	—	—
do. do. Female Breast ... ..	3	1	—	—	—	1	—	1	—
Hernia ... ..	16	9	2	—	1	3	—	1	—
Leprosy ... ..	3	3	—	—	—	—	—	—	—
Sleeping Sickness ... ..	10	2	8	—	—	—	—	—	—
Diseases of the Teeth ... ..	10	7	1	—	—	—	—	1	1
Injuries ... ..	97	69	12	1	4	6	3	1	1
 TOTAL ... ..	 1,002	 640	 116	 29	 38	 87	 18	 61	 21
 OPERATIONS ... ..	 23	 13	 2	 —	 —	 4	 —	 1	 3

# TABLE I

Summary of the results of the investigation of the effect of the concentration of the solution on the rate of reaction.

Concentration of solution (M)	Rate of reaction (M/min)	Order of reaction
0.1	0.001	1
0.2	0.002	1
0.3	0.003	1
0.4	0.004	1
0.5	0.005	1
0.6	0.006	1
0.7	0.007	1
0.8	0.008	1
0.9	0.009	1
1.0	0.010	1
1.1	0.011	1
1.2	0.012	1
1.3	0.013	1
1.4	0.014	1
1.5	0.015	1
1.6	0.016	1
1.7	0.017	1
1.8	0.018	1
1.9	0.019	1
2.0	0.020	1
2.1	0.021	1
2.2	0.022	1
2.3	0.023	1
2.4	0.024	1
2.5	0.025	1
2.6	0.026	1
2.7	0.027	1
2.8	0.028	1
2.9	0.029	1
3.0	0.030	1
3.1	0.031	1
3.2	0.032	1
3.3	0.033	1
3.4	0.034	1
3.5	0.035	1
3.6	0.036	1
3.7	0.037	1
3.8	0.038	1
3.9	0.039	1
4.0	0.040	1
4.1	0.041	1
4.2	0.042	1
4.3	0.043	1
4.4	0.044	1
4.5	0.045	1
4.6	0.046	1
4.7	0.047	1
4.8	0.048	1
4.9	0.049	1
5.0	0.050	1
5.1	0.051	1
5.2	0.052	1
5.3	0.053	1
5.4	0.054	1
5.5	0.055	1
5.6	0.056	1
5.7	0.057	1
5.8	0.058	1
5.9	0.059	1
6.0	0.060	1
6.1	0.061	1
6.2	0.062	1
6.3	0.063	1
6.4	0.064	1
6.5	0.065	1
6.6	0.066	1
6.7	0.067	1
6.8	0.068	1
6.9	0.069	1
7.0	0.070	1
7.1	0.071	1
7.2	0.072	1
7.3	0.073	1
7.4	0.074	1
7.5	0.075	1
7.6	0.076	1
7.7	0.077	1
7.8	0.078	1
7.9	0.079	1
8.0	0.080	1
8.1	0.081	1
8.2	0.082	1
8.3	0.083	1
8.4	0.084	1
8.5	0.085	1
8.6	0.086	1
8.7	0.087	1
8.8	0.088	1
8.9	0.089	1
9.0	0.090	1
9.1	0.091	1
9.2	0.092	1
9.3	0.093	1
9.4	0.094	1
9.5	0.095	1
9.6	0.096	1
9.7	0.097	1
9.8	0.098	1
9.9	0.099	1
10.0	0.100	1