Annual medical and sanitary report / Nigeria.

NIGERIA.

ANNUAL

MEDICAL AND SANITARY REPORT

FOR THE

PERIOD 1919-1921.

MEDICAL AND SANITARY REPORT ON NIGERIA FOR THE PERIOD 1919–1921.

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Annual Medical and Sanitary Report on Nigeria for the period 1919—1921.

ADMINISTRATIVE.

During the period under review, the years 1919, 1920 and 1921, a reorganisation of the Staff has taken place. Formerly the Medical and Sanitary Services in the Northern and Southern Provinces were to all intents and purposes separate Services under the direction of independent Principal Medical Officers and Senior Sanitary Officers; their staff also included Deputy Principal Medical Officers and Provincial Medical Officers.

The whole service was nominally subject to the control of the Director of Medical and Sanitary Service, but as the Director of Medical and Sanitary Service when he went on leave shut up his office and left no one to act for him the control exercised was more peripatetic than effective.

These two services are now united under the Director of Medical and Sanitary Service assisted by the Staff shewn below; the principal changes that have occurred may be briefly summarised:—

The following Offices have been abolished:—

Two Principal Medical Officers.
Three Deputy Principal Medical Officers.
Four Provincial Medical Officers.
Seven Sanitary Officers.

The following additional appointments have been created:—

1 Deputy Director of Medical and Sanitary Service.
1 Deputy Director of Sanitary Service.
1 Senior Assistant Director of Medical Service.
1 Assistant Director of Sanitary Service.
5 Assistant Directors of Medical Service.
4 Specialists.
5 Senior Sanitary Officers.

Medical and Sanitary Staff.

1 Director of Medical and Sanitary Service.
1 Deputy Director of Medical and Sanitary Service.
1 Deputy Director of Sanitary Service.
1 Senior Assistant Director of Medical Service.
1 Assistant Director of Sanitary Service.
5 Assistant Directors of Medical Service.
4 Medical Officers graded as Specialists.
7 Senior Sanitary Officers.
11 Senior Medical Officers.
96 Medical Officers—W.A.M.S.
5 Medical Officers.

Research Institute.

1 Director of Medical Research Institute.
1 Assistant Bacteriologist.

Dental Staff.

1 Government Dental Surgeon.

Subordinate Medical and Sanitary Staff.

1 Confidential Clerk
2 Staff Sergeants
1 Medical Storekeeper
6 Sanitary Inspectors
4 Sergeants
1 Male Nurse
1 Mechanic (Dental Assistant).
1 Laboratory Assistant.

Nursing Staff.

7 Senior Nursing Sisters.
20 Nursing Sisters.

Medical and Sanitary Staff (African).

1 Chief Dispenser.
1 Senior Dispenser.
13 1st Class Dispensers.
1 Storekeeper and Warden, Lagos Hospital.
54 2nd Class Dispensers.
3 Storekeepers.
1 Theatre Assistant.
1 Assistant Storekeeper.
38 1st Class Nurses.
81 2nd Class Nurses.
19 Dispensers-in-training.
71 Nurses-in-training.
81 Sanitary Inspectors.

(g) *Medical and Sanitary Clerical Staff (African).*

1 Chief Clerk.
1 Assistant Chief Clerk.
13 1st Class Clerks.
1 Registrar Vital Statistics.
22 2nd Class Clerks.
1 Deputy Registrar Vital Statistics.
15 3rd Class Clerks.

(b) Financial:—

Total Revenue.

	1919. £ s. d.	1920. £ s. d.	1921. £ s. d.
Northern Provinces	821 7 0	1,209 2 7	927 2 3
Southern Provinces	3,071 8 3	4,796 0 7	5,088 3 0
Cameroons	—	—	13 7 6
Total	£3,892 15 3	6,005 3 2	6,028 12 9

Expenditure:—

Personal Emoluments, N.P. ...	24,931 5 11	41,588 11 6	138,313 4 1
Personal Emoluments, S.P. ...	54,267 5 2	87,073 2 7	
Cameroons	3,425 0 0	4,172 2 7	2,247 3 4
Other Charges, N.P.	12,762 11 6	14,884 18 11	59,760 11 6
Other Charges, S.P.	25,029 13 10	32,111 12 7	
Cameroons	1,146 0 0	1,700 0 0	2,730 6 1
Total	£121,561 16 5	181,530 8 2	203,051 5 0

PUBLIC HEALTH.

GENERAL REMARKS.

The Returns for the three years under consideration are rendered for the combined Colony and Protectorate of Nigeria, including that portion of the Cameroons now under British Mandate.

There is an increase in the number of Europeans treated but the increasing population is sufficient to account for this.

Total cases treated in Government Hospitals and Dispensaries.

	1919.	1920.	1921.
Europeans	4,933	5,696	5,919
Natives	159,725	155,253	172,837
Total	164,658	160,949	178,756

TOTAL DEATHS.

Europeans	36	27	34
Natives	1,327	1,503	1,114
Total	1,363	1,530	1,148

The general health of the community on the whole has been satisfactory, with the exception of a severe outbreak of Variola in the Southern Provinces—Lagos and Enugu District—beginning late in 1919 and extending over the first 6 months of 1920, and of Cerebro-Spinal Meningitis in the Northern Provinces in 1921. No serious epidemics have occurred since the great Influenza Epidemic of 1918. In the Cameroons area, Variola was present in epidemic form in 1921. Among the Europeans the most prevalent diseases were Malaria, Anæmia and those of the Digestive System.

With regard to the general native population diseases of the Respiratory, Digestive and Locomotive System and those of the Skin and Connective Tissue were the chief complaints treated.

COMMUNICABLE DISEASES.

Insect-borne Diseases.

Malaria.—This disease shows a progressive increase in the number of cases treated. It does not necessarily follow that malaria is more prevalent than it was; the staff, though still sadly depleted, has been filling up, and in a country such as Nigeria, the incidence of malaria will be found to correspond with a curve representing the number of its Medical Officers.

As regards the preponderance of the Aestivo-Autumnal type, it must be remembered that the diagnosis in the majority of cases is based upon clinical rather than upon microscopical evidence, and whilst our present shortage of staff continues, and in the absence of Pathologists (one of whom should be attached to each large hospital), I am afraid this is a disability that cannot be remedied.

BLACK-WATER FEVER.

One hundred and thirty cases of this disease were treated; there were 116 cases amongst the European population, with 28 deaths, a case mortality of 24·13 per cent.

The cases have been exhaustively analysed in the Annual Reports of the Medical Research Institute, which are now published separately. On pages 29 and 30 of the present Report are published some notes by Dr. J. W. Thomson, who records the successful treatment of a case with bicarbonate of potash, and suggests that the early administration of this drug in two other cases aborted an attack.

Yellow Fever.

The records disclose one case, with a fatal result, in a European in 1919, and one case, with a fatal result, in an African in 1920.

As regards the former case two Europeans were infected under precisely similar conditions, in the month of March, on board the s.s. "Ravenstow," lying at Warri.

The case of the one who succumbed was diagnosed as "Yellow Fever," and the other who recovered as "Suspicious of Yellow Fever," although the symptoms in the two cases were not dissimilar. These cases are interesting from the point of view of the "Epidemiology" of Yellow Fever as illustrating the reluctance to diagnose the disease unless the "typical symptom of death" is present.

The African case occurred in Lagos in a native who had resided there for some months.

There is a tendency in some quarters to regard the continued existence of Yellow Fever, even in a Sporadic form, amongst us, as a reproach upon our Medical and Sanitary organisation, especially amongst those who are acquainted with what was done in Panama and are ignorant of what remains to be done in Nigeria.

But it is not fair to expect in Nigeria, all at once, the results that were attained in Panama.

Colonel Gorgas, in his address as President of the American Society of Tropical Medicine, at the St. Louis meeting of 11th June, 1910, declared that the actual Sanitary expenditure for employees and their families did not exceed 5·3 pence per day. This, be it remembered, amongst a disciplined population of employees and their families living in regulated townships. I know that the conditions in Nigeria are not strictly comparable with those that obtained in Panama, but they are comparable. The expenditure on Sanitation in the municipality of Lagos (with an estimated population of 100,000) at the same rate, would amount to upwards of £800,000 a year; extended to the whole of Nigeria, one's imagination falters over the figures. The Sanitary Estimates in Nigeria for the year 1920 (I have no figures as to the expenditure on Sanitary Works but I imagine it to have been of little moment), amounted to £32,492, a nett increase of £9,375 over the expenditure for the previous year.

I was, in my early days, as a Sanitary Officer, a believer in the adoption of repressive and punitive measures for the extermination of Stegomyia in West African communities.

In Seccondee, in the year 1910, during and after an out-break of Yellow Fever, after due warning had been given that all vessels used for the storage of water must be made mosquito proof, I used to go out with an axe in the early morning (sometimes accompanied by the Provincial Commissioner and Sir Rubert Boyce) and up-end and smash in every cask or barrel I saw that was not mosquito-proof.

I can remember, too, after the Police Courts at Accra had been blocked for weeks by accumulations of prosecutions for larval offences some hundreds of women forming in procession and marching to Government House, defying the Guard and invading the Governor in his drawing room, to complain that they were taken to Court and fined because

larvæ were found in their pots and every one knew that these larvæ came down in the rain from Heaven, so how could they help having larvæ in their pots.

The longer I live in West Africa the more I am convinced that although the law must be invoked from time to time and the anti-stegomyia campaign must be pursued untiringly, it is by education and by sanitation rather than by enactment or enforcement of law that we must seek to rid West Africa of Yellow Fever.

Education is a matter of time, but pipe-borne water supplies, given men, money and material, can be introduced at once; and it will not be until we have introduced pipe-borne water supplies into the principal centres of the population, and made the supply easily accessible to the inhabitants of those centres, that we shall eliminate Stegomyia and Yellow Fever from their midst. In the meantime the easiest and most practicable way of preventing the occasional manifestation of the disease in Europeans, lies in the practice of segregation.

The month of July, 1920, witnessed the arrival in Nigeria of the members of the Yellow Fever Commission of the International Health Board (Rockefeller Foundation). The Commission was presided over by General R. E. Noble, of the United States Army, and included Doctor Guiteras and other distinguished scientists. Dr. A. E. Horn, a member of the West African Medical Staff, was attached to the Commission; the resources of the Medical Research Institute at Yaba were placed at their disposal and every assistance was given to them by the local Medical and Sanitary Staff.

The main object of the Commission was to investigate the incidence of Yellow Fever in West Africa and more particularly to ascertain whether, in cases of the disease diagnosed as Yellow Fever in West Africa an organism discovered by Noguchi, the Leptospira icteroides, could be demonstrated, or whether, in the local rat, an allied organism, the Leptospira icterohaemorrhagica, existed.

Owing to the absence of cases of Yellow Fever the Commission was unable to accomplish its first object as regards the former organism and the results of the examinations of rats for the latter were negative.

Nevertheless, a great deal of preliminary work was accomplished, particularly in connection with attempts to infect laboratory bred mosquitoes (Stegomyia fasciata) with Noguchi's organism.

It is satisfactory to note that the Commission intend to renew their investigations in West Africa at a later period and particularly that Dr. Guiteras, who possesses an unrivalled knowledge of the disease, will be among their number.

TRYPANOSOMIASIS.

During the period 1919–1921, seventy-three cases of this disease came under treatment, three of whom were Europeans.

The Medical Officer of Ibi—on the Benue—makes the following interesting note in his Annual Report. "One case of Trypanosomiasis was admitted to the Native Hospital in July, 1921. There was a rise of temperature and trypanosomes were numerous for three days; on the 4th day, the temperature fell to normal and no trypanosomes were found—no treatment was available at the time.

This patient, who is a police constable, has been in perfect health ever since (January, 1922). I have kept him under observation and examined his blood recently—it will be interesting to see whether he ever has a relapse: he has had no treatment."

During the year 1921, two distinguished scientists, Dr. W. B. Johnson and Dr. Ll-Lloyd were appointed to investigate the "Tsetse" in the Northern Provinces. A brief resumé of their work up to the end of the year 1921 will be found in pages 30 to 32 of this Report.

It will be seen that the investigators are doing careful and valuable work and that they have already made important additions to our knowledge of the life, history and distribution of the Glossina group in the Northern Provinces of Nigeria.

In connection with this subject the discovery of a new member of the Glossina Group, the Glossina haningtoni (Newstead, N. Sp.) by Dr. J. Hanington, is of interest.

G. haningtoni is markedly distinct from all other known species and is distinguished by the morphological character of the Genital Armature in both sexes. *See* page 33 of this Report.

FILARIAL DISEASES.

During the year 1921 Dr. A. Connal and Mrs. S. L. M. Connal visited Sapele and conducted some valuable investigations on the development of Loa Loa (Gaegol) in Chrysops Silacea (Austen). Their investigations added considerably to our knowlege of the subject. The report of their work has been published separately.

FEVERS OF THE DENGUE GROUP.

On pages 42 to 46 Dr. W. B. Johnson and Dr. L. W. Davies report a number of cases of fever of this type; they appear to be very similar to a series of cases seen by the writer in Accra some years ago, in 1918, if my memory serves me rightly.

In commenting on an account of these cases, which was published in the Journal of Tropical Medicine and Hygiene for July, 1921, Lieut.-Colonel Megaw points out the difference between Dengue Fever and the fever under discussion; its close resemblance to Typhus, and emphasises the fact that as it is not louse-borne, it may be transmitted by ticks.

CEREBRO-SPINAL FEVER.

Mention has already been made of an epidemic of this disease in the Northern Provinces during the year 1921, and it is referred to elsewhere by the Deputy Director of Sanitary Service.

On pages 34 and 35 Dr. E. E. Maples contributes the report of a case and some observations as to the incidence of the disease in Calabar.

INFECTIOUS AND EPIDEMIC DISEASES.

Leprosy.

The hospital returns afford but little indication of the incidence of this disease.

A number of the Native Administrations maintain isolation villages for the segregation of these unfortunates, but owing to the depletion of the Medical Staff, it has hitherto not been found possible to attempt much in the way of treatment.

On pages 33 and 34 Dr. E. E. Maples records his experience of the beneficial effects resulting from the intra-venous administration of Tartar-Emetic and claims priority for the use of this method of treatment, which was started under his supervision in the Calabar Native Hospital in 1919.

At the present moment a number of lepers are being treated in the Yaba Leper Asylum by the intra-venous administration of Chaulmoogra Oil as indicated by Dr. P. T. Harper; the results will be published in due course.

VENEREAL DISEASES.

There can be no question but that these are the scourge of West Africa.

A separate report has been sent to the Secretary of State on the subject during the period under revision.

The paucity of our Medical Staff, coupled with the ineradicable customs of the people, inasmuch as the relations of the sexes are concerned, mitigates against their eradication.

A Medical Officer practising in the Niger Delta writes:—

"Gonorrhoea amongst the native population, together with all its innumerable and remote effects, constitutes the curse of this part of the coast and urgently calls for drastic and far-reaching measures of attack.

Compared with this disease, especially in its bearing on women and on the race, other diseases constitute but the trivial round, the daily task of medical practice.

Organised work has been mainly directed towards Gonorrhoea; a shed has been set aside and fully equipped for the morning Gonorrhoea parade and the good work is beginning to tell."

A Medical Officer practising in the Northern Provinces writes:—

"Neo-Kharsivan intra-muscularly has been largely used in the treatment of Syphilis; the results have been most satisfactory. The native seems to appreciate the rapid results very highly, but after a couple of injections considers himself cured and it is difficult to get him to attend for a subsequent course of mercury."

SMALLPOX.

Smallpox proved exceptionally troublesome during the year 1920 and at one time threatened us with a local coal famine, owing to its ravages in the district from which the labour for the coal mines is obtained; but happily it yielded in the end to the usual combative and preventive measures.

VACCINATION.

As recorded in the Sanitary section of this report, the results obtained in the more distant portions of the Northern Provinces with imported vaccine lymph *have been far from satisfactory.*

An endeavour is at present being made in conjunction with the authorities of the Lister Institute, to procure a more potent strain of vaccine lymph from lymph taken from a local strain of Smallpox.

Dr. E. H. Tipper, Senior Medical Officer, writes:—

"I read a welcome suggestion in the 'Lancet' made by a Medical Officer in India, who tried vaccination against Smallpox hypodermically, instead of by scarification, and tried it myself in 110 selected cases, by squeezing the lymph into a well sterilised hypodermic syringe, fixing on

a larger needle and injecting. In every case it took with the usual slight rise of temperature and febrile disturbance, and in no case did vaccination by subsequent scarification 'take' in the same subject.

In two cases only did the skin break slightly, due to rather too much lymph having been injected.

The point is that there were no open, septic sores containing matter with every form of extraneous filth, so often accidentally or unintentionally introduced in the scarification method, and the recipients of the injection did not object to the operation, as school-children generally do."

But the manufacture, preservation and transport of vaccine in the Tropics constitute a problem of paramount importance and I am in agreement with the Deputy Director of Sanitary Service that we should endeavour to produce our lymph locally.

In the Haut Senegal et Niger it is not unusual for Medical Officers in out-stations to make their own "vaccine"; in fact, in an article in the *Supplement au Journal de L'Apique* Repports et Documants (10 Fevrier 1912, No. 63; Dr. Greenwack, states:—

> "Finally, wherever there is a Medical Officer, there also should lymph be made; it is far from impossible and demands but little care. In this lies the future of vaccination and the only real means of combating Smallpox."

HELMENTHIC DISEASES.

Ankylostomiasis.

A very valuable and interesting paper, by Dr. E. E. Maples, will be found on pages 35 and 36 of this report, in which he records the result of the examination of 3,872 specimens for Ankylostomes and other Helminthic infections. Dr. Maples found 40·9 per cent. of his cases to harbour Ankylostoma.

On page 37 Dr. E. J. Quirk gives the result of a similar examination of the prisoners in the Calabar Prison, derived from various parts of the Cross River.

That the disease varies in its incidence, as well as the attitude of Medical Officers as regards the difficulty of combating it, is illustrated by the following extracts from the District reports:—

The Medical Officer, Ogoja, writes:—

"No work was done amongst the natives in this district as regards the treatment of Ankylostomiasis, for they are particularly uncivilised and the only way would be to ram 'thymol' into them at the point of the bayonet."

The Medical Officer, Owerri, writes:—

"Ankylostomiasis cannot be said to be prevalent and any campaign against this helminth in such a large inland area, with unrestricted communications, will necessarily have to be highly technical, complicated and expensive."

The Senior Medical Officer, Opobo, writes:—

"Ankylostomiasis has a very low index. I personally examined the fæces of 100 prisoners with the idea of getting a percentage and found it to be two per cent. with ova, without apparently any symptoms."

But an extended experience of this disease in West Africa, and the memory of many reports on it, leads the writer to the opinion that the epidemiological factor that chiefly determines its incidence, is the "observer."

European Officials.

During the period covered by this report the New Leave Regulations have come into force; the manner of their enforcement is embodied in the following quotations from Circular No. 415/62.

> "An Officer serving under the New Leave Regulations is therefore, subject to the exigencies of the service and the Governor's final authority, at liberty to decide for himself the length of his tour over and above eighteen months, and His Excellency considers it to be neither possible nor desirable to prescribe what stations, and what occupations, are those in respect of which leave should be granted before the completion of a normal tour."

> "His Excellency, however, wishes it to be clearly understood that an officer may, and should, report to a Medical Officer, or to his Superior Officer in the absence of a Medical Officer, if he considers that his health is becoming impaired by too prolonged a tour, irrespective of its duration at the time."

> "If, in the circumstances mentioned in the preceding paragraph, a Medical Officer recommends that an Officer should be sent home at once, or transferred to another station, the recommendation should be forwarded without delay to the Head of the Department concerned, who will report the matter for the Governor's orders."

It is too early yet to determine to what extent the Invaliding and Death Rates of European Officials may be influenced by the new conditions but the records available up to the time of writing do not show cause for apprehension.

During the period 1916–1918 the Invaliding and Death Rates of European Officials, per thousand of the average number resident, were as follows:—

	1916.	1917.	1918.
Invaliding	84	77	128
Death	13	19·6	29·6

The following are the figures for the period 1919–1921:—

	1919.	1920.	1921.
Invaliding	173	132	68·4
Death	19	10·9	8·4

Table showing Sick, Invaliding and Death Rates.

European Officials—Nigeria.

	1918.	1919.	1920.	1921.
Total No. Resident	1,598	1,931	1,874	2,039
Average No. Resident	1,080·8	975·2	1,166	1,302
Total No. on Sick List	2,221	1,546	1,709	1,801
Total No. of days on Sick List	18,890	11,136	12,641	13,821
Average daily Sick	51·75	30·5	34·53	37·86
Percentage of Sick to Average No. Res. ...	4·78	1·5	2·8	2·9
Average No. of days to each Patient ...	8·5	7·2	6·8	7·6
Average Sick time to each Resident ...	17·47	11·4	10·8	10·61
Total No. Invalided	139	169	154	89
Percentage of Invalided to No. Res. ...	8·69	8·7	8·2	4·36
Percentage of Invalided to Av. No. Res. ...	12·8	17·3	13·2	6·84
Total Deaths	32	19	23	11
Percentage of Deaths to No. Res.	2	·98	1·22	·53
Percentage of Deaths to Av. No. Res. ...	2·96	1·9	1·09	·84

Neurasthenia has been one of the chief causes of invaliding amongst European Officials, accounting for 20 cases in 1919, 20 in 1920 and 6 in 1921.

TABLE.

CAUSES OF INVALIDINGS AND DEATHS— EUROPEAN OFFICIALS—NIGERIA.

Diseases.	1919.		1920.		1921.	
	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.
INFECTIVE DISEASES.						
DYSENTERY:—						
(*a*) Amoebic	2	—	4	—	1	—
(*b*) Bacillary	2	—	—	—	—	—
(*c*) Undetermined	3	—	—	—	—	—
Enteric	—	1	—	—	2	—
Paratyphoid	—	—	4	—	—	—
Malaria	13	—	10	—	5	—
Blackwater Fever	8	8	11	7	7	3
Pneumonia...	—	—	—	—	1	—
Pyrexia of uncertain origin ...	1	—	1	—	—	—
Influenza	3	—	—	—	—	—
Acute Rheumatism	1	—	—	—	1	—
Septicaemia	—	1	—	—	—	—
Variola	—	—	—	1	—	—
Tuberculosis	—	—	2	—	2	—
GENERAL DISEASES:—						
Anaemia	26	—	14	—	10	—
Splenic Anaemia	1	—	—	—	—	—
Diabetes	1	—	—	—	—	—
Gout...	—	—	3	—	—	—
Typical Debility	10	—	—	—	6	—
NERVOUS SYSTEM:—						
Neuritis	—	—	2	—	1	—
Meningitis	1	—	—	2	—	—
Sciatica	—	—	2	—	1	—
Peripheral Neuritis	—	—	5	—	1	—
Apoplexy	—	1	—	—	—	1
Paralysis	—	1	1	—	—	—
Progressive Musc. Atrophy ...	—	—	1	—	—	—
Neuralgia	—	—	1	—	—	—
Neurasthenia	20	—	20	—	6	—
Insomnia	4	—	7	—	1	—
Tremor Hand	1	—	—	—	—	—
Acute Mania	—	—	—	1	1	—
Melancholia	2	—	3	—	—	—
Delusional Insanity	—	—	—	—	1	—
Suicide	—	—	—	1	—	—
DISEASES OF THE EYE:—						
Conjunctivitis	—	—	1	—	—	—
Iritis	—	—	2	—	—	—
Defective Vision	—	—	1	—	—	—
Trachoma	—	—	1	—	—	—
Cataract	—	—	—	—	1	—
DISEASES OF THE EAR:—						
Otitis Media	—	—	1	—	—	—
Mastoid Abscess	1	—	—	—	—	—
DISEASES OF THE NOSE:—						
Chronic Rhinitis	1	—	—	—	—	—

Causes of Invaliding and Deaths—European Officials—Nigeria—*continued.*

Diseases.	1919.		1920.		1921.	
	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.
Circulatory System:—						
Valvular Disease	3	1	5	2	1	—
Arterio-Sclerosis	1	—	—	—	2	1
Aneurism	1	1	—	—	—	—
Endocarditis	—	—	—	—	—	—
Dilatation Heart	1	—	3	—	—	—
Irregular Heart	1	—	—	—	—	—
Cardiac Failure	—	2	—	1	—	—
Angina	—	—	—	—	1	—
Myocarditis	—	—	—	—	1	1
Respiratory System:—						
Broncho-Pneumonia	1	—	—	—	1	—
Emphysema	1	—	—	—	1	—
Pleurisy	1	—	1	—	—	—
Asthma	1	—	—	—	—	—
Hæmoptysis	—	—	1	—	—	—
Gas Trauma	1	—	—	—	—	—
Bronchitis	—	1	—	—	—	—
Empyema	—	—	—	—	1	—
Digestive System:—						
Caries of Teeth	5	—	—	—	—	—
Pyorrhoea	3	—	6	—	—	—
Gastritis	1	—	2	—	2	—
Gastralgia	—	—	—	—	1	—
Gastro-Enteritis	1	—	2	—	—	—
Dilated Stomach	1	—	—	—	—	—
Stricture of Oesophagus	1	—	—	—	—	—
Dyspepsia	2	—	5	—	—	—
Gastric Ulcer	1	—	—	—	—	1
Gastric Cancer	—	—	1	—	1	—
Enteritis	1	—	2	—	—	—
Appendicitis	4	—	7	—	2	—
Colitis	2	—	5	—	—	—
Intestinal Stasis	1	—	—	—	—	—
Duodenal Ulcer	3	—	—	—	2	—
Alveolar Abscess	1	—	—	—	—	—
Cirrhosis Liver	—	—	—	—	—	1
Hepatitis	1	—	3	—	2	—
Abscess Liver	1	—	—	—	1	—
Jaundice	1	—	—	—	1	—
Biliary Colic	—	—	1	—	—	—
Cholecystitis	—	—	—	—	2	—
Diarrhoea	1	—	—	—	—	—
Hæmorrhoids	—	—	3	—	—	—
Perineal Abscess	1	—	—	—	—	—
Fistula in Ano	1	—	1	—	—	—
Lymphatic System:—						
Adenitis	—	—	—	—	1	—
Urinary System:—						
Nephritis	—	2	1	2	—	—
Renal Colic	—	—	—	—	1	—
Renal Calculus	1	—	—	—	2	—
Generative System:—						
M. Urethral Fistula	1	—	—	—	—	—
F. Salpingitis	—	—	1	—	—	—

Causes of Invalidings and Deaths—European Officials—Nigeria—*continued.*

Diseases.	1919.		1920.		1921.	
	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.
Brought forward ...	—	—	—	—	—	—
Locomotion:—						
Arthritis	4	—	—	—	—	—
Osteo-Periostitis	—	—	1	—	—	—
Musc. Rheumatism	3	—	—	—	—	—
Connective Tissue:—						
Cellulitis	—	—	1	—	1	—
Skin:—						
Chronic Ulcer	—	—	—	—	2	—
Rodent Ulcer	—	—	1	—	—	—
Boils	4	—	—	—	1	—
Carbuncle	1	—	—	—		—
Dermatitis	1	—	—	—	—	—
Veldt Sores	1	—	—	—	—	—
Injuries:—						
General Injury	—	1	—	2	—	—
Local Injury	4	—	1	—	2	—
Gun Shot Wounds	—	—	—	4	—	—
Bite by rabid dog	—	—	—	—	2	—
Intoxications:—						
Alcoholism	—	—	1	—	2	1
Sun Trauma	1	—	1	—	5	2
Parasites:—						
Filariasis	—	—	1	—	—	—
Other Causes:—						
Shell Shock	—	—	1	—	—	—
Renewal Artificial Limb ...	1	—	—	—	—	—
Unknown	1	—	—	—	—	—
Total	169	20	154	23	89	11

Table Showing Sick, Invaliding and Death Rates, Native Officials—Nigeria.

	1919.	1920.	1921.
Total number resident	2,377	2,350	2,531
Average number resident	2,307	2,013	2,451
Total number on sick list	2,337	2,728	3,808
Total number of days on sick list	16,432	19,293	27,378
Average daily sick	45·64	52·7	75·008
Percentage of sick to average number resident	1·97	·21	3·06
Average number of days to each patient	7·03	7·07	7·18
Average sick time to each resident	7·12	9·58	11·1
Total number invalided	32	29	25
Percentage of invalided to number resident	1·34	1·23	·98
Percentage of invalided to average number resident	1·38	1·43	1·01
Total deaths	7	16	19
Percentage of deaths to number resident...	·29	·607	·79
Percentage of deaths to average number resident ...	·304	·709	·77

CAUSES OF INVALIDINGS AND DEATHS—NATIVE OFFICIALS—NIGERIA.

Diseases.	1919.		1920.		1921.	
	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.
INFECTIVE DISEASES:—						
Dysentery (Amœbic)	...	1	...	...	1	...
Malaria	...	...	...	2	...	...
Pneumonia	1	2	...	3	1	6
Pyæmia	...	...	...	1	...	...
Septicæmia	...	...	...	...	...	1
Tuberculosis	4	1	7	3	2	4
GENERAL DISEASES:—						
Leukæmia	...	...	...	...	1	...
Anæmia	...	...	1	...	...	...
Diabetes	1	..	...	...	...	...
Debility	3	...	...	...	1	...
NERVOUS SYSTEM:—						
Myelitis	...	...	...	...	...	1
Paraplegia	1	...	...	...	...	1
Hemiplegia	...	...	1	...	2	...
Neurasthenia	2	...	2	...	...	...
Melancholia	1	...	...	...	...	...
Dementia	2	...	...	...	...	...
EYE DISEASES OF:—						
Keratitis	1	...	...	...	...	...
Optic Atrophy	...	...	...	...	1	...
Irido-Cyclitis	...	...	...	...	1	...
Defective Vision	...	...	3	...	...	...
EAR DISEASES OF:—						
Otitis Media	2	...	...	...	...	...
CIRCULATORY SYSTEM:—						
Valvular disease	5	...	8	3	6	4
Arterio-Sclerosis	2	...	...	1	1	...
Aneurism	...	1	...	...	...	...
Cardiac Dilatation	...	...	...	...	1	...
Myocarditis	...	...	...	...	1	...
RESPIRATORY SYSTEM:—						
Emphysema	...	...	1	...	...	...
DIGESTIVE SYSTEM:—						
Hepatic Abscess	...	1	...	...	...	...
Malignant D. Liver	...	...	...	...	1	...

Causes of Invaliding and Deaths—Native Officials—Nigeria—*continued.*

Diseases.	1919.		1920.		1921.	
	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.
Urinary System:—						
Acute Nephritis	...	...	...	2	...	1
Chronic Nephritis	5	...	...	...	1	1
Cystitis	...	...	...	1	...	...
Generative System:—						
Urethral Fistulæ	2	...	1	...	...	...
Syphilis	...	...	...	...	1	...
Locomotion:—						
Rheumatoid Arthritis	...	...	...	...	1	...
Injuries:—						
General	...	...	1	...	...	...
Local—Fracture Skull	...	1	...	...	...	...
Tumours:—						
Cancer Tongue	...	...	...	...	1	...
Cancer Uteri	...	...	...	...	1	...
Parasites:—						
Filariasis	...	...	1	...	...	...
Total	32	7	26	16	25	19

Soldiers—Nigeria Regiments—W.A.F.F.

	1919.	1920.	1921.
Average Strength	5,272	4619	3,885·35
Sick Rate per 1,000	838·6	864·03	442·47
Death Rate per 1,000	6·8	18·3	9

Police Force.

	1919.	1920.	1921.
Northern Provinces.			
Average Strength	804	993	1,088
Sick Rate per 1,000	639·3	534	20·3
Death Rate per 1,000	18·65	11·07	9·1
Southern Provinces and Colony.			
Average Strength	1,448	1,555	1,674
Sick Rate per 1,000	33·43	65·85	31·47
Death Rate per 1,000	9·66	6·4	8·49

(*a*) PRISON—GOVERNMENT PRISONS.

	1919.	1920.	1921.
NORTHERN PROVINCES:—			
Total No. of Prisoners	3,230	2,942	2,508
Daily Average	975	956	838
Sick Rate per 1,000	35·9	16	84
Death „ „ „	89·23	73·32	27·4
SOUTHERN PROVINCES AND COLONY:—			
Total No. of Prisoners	34,461	307,775	33,064
Daily Average	6,414	6,674	5,600
Sick Rate	7·26	9·89	8·94
Death Rate	100·4	103·98	25·35

(*b*) NATIVE ADMINISTRATION PRISONS—NORTHERN PROVINCES.

	1919.	1920.	1921.
Total No. of Prisoners	7,621	14,393	9,412
Average Daily	2,511·98	2883·52	2,825·36
Total Deaths	96	178	144
Death Rate	38·21	61·73	50·96

The Death Rate in the Prisons in the Northern Provinces for the years 1916, 1917 and 1918 respectively were 15·7, 27·7 and 32·5 per thousand, but these figures were based on the total admissions rather than on the daily average.

During the years 1919 and 1920 the Death Rates in the Government Prisons in boththe Northern and Southern Provinces were regrettably high, the more so in the latter.

During the years 1920 and 1921 Dr. W. S. Clark, Senior Sanitary Officer, conducted an exhaustive inquiry into the conditions obtaining in the Southern Provinces and was able to demonstrate that this very high death rate was due in the main to three causes:—

1. The transference of prisoners from their own to another country.
2. The system of contracts, the repeated failure of the contractors to fulfil their contracts and the consequent starvation of the prisoners.
3. The pilfering of the food supplied.

The figures for the year 1921 shew a very substantial improvement.

In view of the fact that one of the most prevalent symptoms, during the period of high death rate in the Prisons, was a starvation oedema, the following note by the Medical Officer, Ogoja, is not without interest:—

> "There is a great shortage of meat amongst the natives, also of fish, except near the larger rivers.
>
> The main diet is yams. with beans occasionally; most natives are on the borderland of protein starvation.
>
> During the quarter July–September, 1921, 15·6% of the prisoners admitted had peripheral oedema. During the month of July, 1921, when the prison diet included beans, ground-nuts and meat (2 oz. daily), out of 79 convicts 3 (3·79%) showed oedema; during the month of September, when the diet included meat (2 oz.) daily, but neither beans nor ground-nuts, out of 106 convicts, 56 (52·8%) showed oedema.

NON-OFFICIAL EUROPEAN POPULATION.

The Statistics shewn are those available from all Government Hospitals and attendances by Government Medical Officers. It is not possible to obtain Statistics from the Private Practitioners and private hospitals.

TABLE SHOWING SICK, INVALIDING AND DEATH RATES.

	1919.	1920	1921.
Estimated Population	2,193	2,908	1,784
Total on Sick List	1,044	2,462	733
Total No. of days on Sick List ...	6,347	15,161	5,967
Total Invalided	76	91	51
Percentage of Invalidings to Residents	3·46	3·12	2·85
Total Deaths	26	23	23
Percentage of Deaths to Residents ...	1·13	·79	1·23

TABLE.

CAUSES OF INVALIDINGS AND DEATHS—EUROPEAN NON-OFFICIAL—NIGERIA.

Diseases.	1919.		1920.		1921.	
	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.
INFECTIVE DISEASES:—						
Dengue	...	...	...	...	1	...
Dysentery—Amoebic	12	2	10	1	2	1
Enteric	1	2	1	...	...	...
Paratyphoid	...	...	...	...	1	...
Malaria	21	6	30	1	6	1
Blackwater Fever	8	6	3	5	5	7
Yellow Fever	...	1	...	...	...	...
Pneumonia...	2	...	1	1	1	3
Syphilis	...	...	...	...	1	1
Trypanosomiasis	...	...	...	...	3	...
Tuberculosis	2	2	3	1	...	...
Whooping Cough	...	1	...	...	...	...
INTOXICATIONS:—						
Alcoholism	4	...	...	...	...	...
Drug Habit	...	...	...	...	1	...
GENERAL DISEASES:—						
Anaemia	1	...	5	...	1	...
Debility	...	...	...	...	1	...
NERVOUS SYSTEM:—						
Neuritis	...	...	1	...	2	...
Cerebral Abscess	...	...	...	1	...	...
Cerebral Haemorrhage	...	...	...	1	...	...
Neurasthenia	4	...	10	...	8	...
CIRCULATORY SYSTEM:—						
Myocarditis	...	...	...	...	1	1
Cardiac Valvular...	1	2	5	...	1	2
Arterio-Sclerosis	...	...	...	...	...	1
Aneurism	1	...	...	...	...	...
Angina	...	...	...	1	...	...
Pulmonary Embolism	...	...	...	1	...	...
RESPIRATORY SYSTEM:—						
Bronchitis	...	...	...	...	...	1
Empyema	...	...	...	...	1	...
Haemoptysis	...	...	...	...	1	...
DIGESTIVE SYSTEM:—						
Gastritis	2	...	3	...	4	...
Gallstones	1	...	...	...	...	...
Cholangitis	1	...	...	...	...	...
Cholecystitis	1	...	1	...	...	...
Hepatitis	...	...	...	...	3	...
Cirrhosis of Liver	...	...	...	...	...	1
Abscess of Liver	...	...	...	1	...	...
Appendicitis	6	...	...	1	1	...
Colitis	1	...	1	...	...	...
Hernia	...	...	1	...	...	...
Diarrhoea	...	...	...	1	...	...
Fistula (Anal)	...	...	1	...	...	...
URINARY SYSTEM:—						
Nephritis	...	1	...	1	...	...
Haemoglobinuria	...	...	...	...	1	...

Causes of Invalidings and Deaths—European Non-Official—Nigeria—*continued.*

Diseases.	1919.		1920.		1921.	
	Invalided.	Died.	Invalided.	Died.	Invalided.	Died.
Generative System:—						
Salpingitis	...	...	...	...	1	...
Pregnancy	2	...	...	...	...	...
Locomotion:—						
Arthritis	...	...	3	...	...	...
Osteo-Periostitis	...	...	1	...	...	...
Connective Tissue:—						
Abscess	...	...	...	...	1	...
Septic Fingers	...	...	...	...	1	...
Skin:—						
Carbuncle	...	...	...	1	...	...
Eczema	1	...	...	...	1	...
Injuries:—						
Drowning	...	...	...	...	...	1
Old Shrapnell Wound	1	...	...	...	...	...
General Injury	1	2	...	...	...	1
Tumours:—						
Benign	1	...	...	...	...	...
Poisons:—						
Snake Bite	...	...	...	1	...	...
Other Causes:—						
Sunstroke	...	...	...	...	...	1
Suicide	...	...	...	1	...	...
Violent Fright	...	...	...	...	...	1
Unknown	...	1	...	...	...	...
Total	75	26	82	19	50	23

NON-OFFICIAL NATIVE POPULATION.

Population.	1919.	1920.	1921.
Northern Provinces	8,668,138	9,005,019	10,353,347
Southern Provinces	7,856,586	7,956,986	8,260,000
Total	16,524,724	16,962,005	18,613,347

VITAL STATISTICS—Township—Lagos and Ebute Metta.

	1919.	1920.	1921.
Estimated Population	83,306	84,694	98,625
Total Births	2,517	2,845	3,002
Birth Rate per 1,000	30·2	33·5	30·43
Total Deaths	2,256	2,443	2,472
Death Rate per 1,000	27	28·8	25·06
Deaths—Infants under 1 year...	746	869	855
Infantile Mortality per 1,000 ...	296·3	284·8	284·8
Still Births	125	116	168

Too much reliance must not be placed upon the somewhat alarming figures as regards Infantile Mortality.

It must be borne in mind that whilst approximately all the deaths are registered, it is by no means probable that such is the case as regards births.

The illiterate African has not yet arrived at the stage of realising the need of registration from the point of view of legality; still less is he interested in its statistical aspect.

He cannot bury his dead until he has obtained a burial permit, which is only issued after the death has been registered; but no formalities impede the process of birth.

It is not without interest in this connection to recall a statement of a former Medical Officer of Health on the Gold Coast, who was also Registrar of Births and Deaths, that the number of infant deaths exceeded the number of infants—officially—born in his district.

METEOROLOGY.

The table which appears on page 25 of this report gives the Meteorological Returns for 16 Stations for the period 1919–1921, though, unfortunately, we have no records concerning the Cameroons. From the figures given it will be seen that, climatically speaking, the most desirable stations, in the order named, are:—Naraguta, Zaria, Kaduna, Enugu, Ibadan.

Kaduna is already an important administrative centre and Enugu bids to rival it in importance at no distant date.

To the dweller in regions such as Lagos, in which a high relative humidity is associated with a high average minimum temperature (the most trying of all climatic alliances), casts a longing eye at Naraguta with its average minimum temperature of 62·3.

In the opinion of the writer, who has recently made a tour of some of the more highly situated districts of the Cameroons, the high lands of which Bamenda forms a centre, are climatically the most desirable. The following is a note made in this region in the month of February:—

> "I've not seen a more beautiful spot than Santus. From the bottom of the valley, on a slope of which the Rest House is situated, the mountains rise up in huge steps to a height of over 10,000 feet.
>
> One could stay for weeks and each day plan an ascent of one or other of the near or distant summits.
>
> The temperature fell to 54°F. during the night."

In the course of the same tour, during the month of January, the writer made the following note:—

> "The 'Onitsha' left Calabar about 5 p.m. and proceeding about two hours down the river, anchored for the night off Parrot Island; the night proved to be one of the most distressing I've yet spent in West Africa; added to a saturated atmosphere we had a temperature of 88 degrees F on deck at midnight."

The Medical Officer, Owerri, writes:—

> "To revert from a country like East Africa, where life during the day was a torment from the onslaught of the ordinary house-fly and night a dread from the sting of the culicoides, to Nigeria where, in comparison, either insect is a rarity, is a relief to be daily and truly thankful for."

The Medical Officer, Bauchi, writes:—

> "Europeans and Natives suffer more or less from Catarrhal Rhinitis with occasional discharge of blood. This appears to be due to the dryness of the air and the Harmattan; the dryness of the air is remarkable: sometimes there are 12 degrees of difference between the wet and dry thermometers; there is no dew."

STATION.	1919.						1920.						1921.					
	Absolute Shade Max.	Absolute Shade Min.	Average Maximum.	Average Minimum.	Relative Humidity.	Rainfall inches.	Absolute Shade Max.	Absolute Shade Min.	Average Maximum.	Average Minimum.	Relative Humidity.	Rainfall inches.	Absolute Shade Max.	Absolute Shade Min.	Average Maximum.	Average Minimum.	Relative Humidity.	Rainfall Inches.
Ilorin	100	53	88	69·6	77·2%	36·23	103	50	88·68	69·38	80·24%	49·42	102	52	89·9	68·7	83·1%	66·25
Kaduna	99	45	88	65·4	72·5%	43·53	100	49	86·83	64·42	68·84%	54·83	102	54	88·	65·3	70·2%	56·18
Maiduguri ...	116	52	98·8	69·3	46·1%	16·91	115	47	95·91	66·87	52·92%	31·27	115	49	96·4	67·9	53·6%	28·87
Naraguta ...	90	51	84	62·3	62·3%	58·03	95	44	80·37	61·59	56·49	51·87	95	46	78·6	62·2	61·6%	51·22
Kano	107	43	91·4	62·8	55·0%	32·41	104	41	87·63	63·52	56·75%	43·11	107	50	94	66·9	52·7%	36·62
Lokoja	99	59	90·1	72·2	72·2%	47·29	102	54	90·31	71·71	75·85%	55·09	102	56	91·2	72·2	75%	50·96
Sokoto	109	50	93·2	70·3	48·4%	30·11	109	50	94·05	67·20	50·32%	29·68	109	50	94·5	67·5	50·2%	33·98
Yola	106	49	93·2	64·4	59·6%	47·70	108	45	69·41	60·80	58·64%	28·63	108	45	93·5	64·4	58·6%	40·36
Zaria	100	41	89	63·3	53·6%	37·47	101	38	87·65	59·20	58·77%	43·14	101	38	87·6	59·2	58·7%	41·91
Zungeru	105	55	92·6	70·5	64%	45·16	106	56	91·95	69·48	64·25%	48·96	106	56	92·5	74·5	65%	57·14
Lagos	99·5	69	85·1	75	81·8%	48·39	99·5	68	85·8	75	79·3%	53·10	99	60	86·1	75·2	84·4%	83·22
Onitsha	100	64	89·7	74·5	87·1%	49·59	106	60	91·1	74·5	87·2%	66·89	101	61	91·0	73·5	90·2%	75·49
Forcados ...	98	50	84·5	71·6	79·8%	150·57	94	62	22·7	71·4	87·7%	133·78	90	62	87·1	71·3	81·7%	147·75
Ibadan	102	53	90·3	66·3	87·7%	38·10	103	62	90·2	70·7	89·6%	48·73	103	58	90·8	71·3	89·4%	67·89
Calabar	99	70	85·7	73·5	81·7%	89·96	100	60	84·8	71·0	81·6%	105·69	90	70	83·5	72·8	84%	100·18
Enugu	100	40	91·9	65·3	69·9%	63·16	98	54	86·7	67·5	79·6%	86·89	97	55	86·3	62·3	82·2%	74·63

HOSPITALS AND DISPENSARIES.

In the following table will be found details of these institutions; it will be noticed that many are described as "Bush," "Mud and Thatch," etc. Only those who are acquainted with local conditions can realise the full meaning of this description, but it is well put in the following note by the Medical Officer, Owerri:—

> "There are two such in this area. They are all of the unspeakable bush variety. (The area under my medical charge amounts in all to some three thousand square miles, with a population of about a million and a half).
>
> I considered it a heavy misfortune in my first year of service to have to work in such depressing surroundings, but additional years have only strengthened my distaste (and I cannot think I am singular in this respect), to work under the fog of red mud, the debris of white ants and the unmentionable droppings off a mat roof.
>
> I notice fourteen thousand, eight hundred and ninety-six are the total number of daily attendances; more than half come from "locals," *i.e.* Native Non-Officials, who are most anxious to receive medical aid.
>
> Whatever interest this report may have it must be remembered that the material for it is gathered from my three short months study of these locals and I trust such fruitfulness as they can show will be rewarded by the early erection of some more reliable and permanent structure where further and closer study may be prosecuted."

One of the greatest disabilities occasioned to this department by the present financial crisis, is the inability to obtain funds for the erection of permanent buildings to replace bush or mud and thatch structures such as those described above.

At times one wonders whether such savings in brick and mortar are in reality an economy, in view of the restrictions their enforcement entails upon the out-put and efficiency of Officers of this Department.

During the year 1921, a hospital, composed of the excellent local materials obtainable in the Northern Provinces, was erected by the Native Administration at Katsina.

It is hoped to found in connection with it a School for the training of Dispensers and Nurses—Natives of the Katsina and other Emirates—so that in the process of time the personnel may be available for the establishment of similar Institutions in other Emirates.

Although in the foregoing paragraphs an effort has been made to paint the conditions in which our Medical Staff in remote Out-Stations strive "to bear the black man's burden," it is difficult to give an adequate picture.

In the course of recent tours, I saw under treatment three cases of wounds inflicted by wild animals; the first was a compound comminuted fracture of the fore-arm, caused by an attack by a wild hog; the second an extensive laceration of the muscles of the thigh inflicted by a crocodile; in the third case the greater part of one side of the buttock had been torn away by an infuriated hippopotamus.

The papers printed, in the scientific section of this report, on pages 29–48 bear witness to the fact that in spite of all difficulties, work of a very high order is attained; and from that section I have removed the account of one case and print it below because it has a human as well as a scientific interest and, laconic as the account is, it represents a problem in surgery and an achievement such as has fallen to the lot of few Medical men.

Case of Contracted Pelvis, 4th Degree.

By H. R. M. Ferguson, M.D., B.Ch., etc.

This case was sent in from a mission station up the line. The girl, aged about 15, was almost a dwarf. Apparently the pregnancy had reached full term and the child was extracted (dead) forcibly, in some way.

When seen, the uterus extended to the sternum with seven months retained menses. There was no trace of the os in the vagina. In fact, the vagina was represented by a shallow tract of ulcerated granulation tissue with a fistula leading into the bladder. The true conjugate could not be measured accurately owing to the state of the vagina but on general considerations the contraction was of the fourth degree.

A hysterectomy was done. The remains of the cervix were found anchored to the vaginal scar tissue. The uterus was a thin dilated sac. The bladder fistula was closed later by two plastic operations from the vagina.

IV.—HOSPITALS AND DISPENSARIES.

Station.	Nature of building.	Mosquito proofing.	No. of Beds.		Remarks.
			M.	F.	
Lagos—E. Hospital ...	Brick and Wood	Completely	13	1	Prison has its own E. and N. Hospitals.
Native Hospital ...	Wood and Iron...	Partially ...	53	14	
I. D. Hospital—European	Brick	Completely	6	4	
„ „ Native ...	„	„	25	13	
Massey St. Dispensary ...	„	None ...	...	...	
Ereko „ ...	„	„ ...	...	...	
Ebute-Metta „ E.	„	„ ...	...	...	
„ „ N.	„	„ ...	...	...	
E. Prison Hos. and Disp.	„	„ ...	...	...	
N. „ „	„	„ ...	...	...	
Yaba—L. Asylum N. ...	„	„ ...	24	24	
Leper „ N. ...	Mud and Thatch	„ ...	21	12	
Ibadan—E. Hos. and Disp.	Wood on Iron Pillars	Completely	5	...	
Native „ ..	Brick	„	16	4	
Abeokuta—E. Hospital ...	None	...	...	...	
Native „ ...	Mud, Iron Roof...	None ...	8	4	
Warri—E. Hospital ...	Concrete ...	Completely	6	...	
Native „ ...	Brick	Partially ...	24	6	
I. D. Hospital ...	„	„ ...	20	...	
Sapele—E. Hospital ...	„	Completely	4	...	
Native „ ...	„	Partially ...	16	2	
I. D. Hospital ...	„	„ ...	8	...	
Onitsha—E. Hospital ...	Brick and Wood	Completely	3	1	
Native „ ...	Concrete & Wood	„	19	5	
Forcados—E. Hospital ...	Concrete ...	„	4	...	
Native „ ...	Brick	„	12	4	
Agbor—E. Hospital ...	None	...	...	...	
Native „ ...	Brick	None ...	6	...	
Benin City—E. Hospital...	None	...	...	...	
Native „ ...	Brick	Partially ...	8	...	
Enugu—E. Hospital ...	„	None ...	6	...	Railway Construction Hospital.
Native „ ...	„	„ ...	8	...	Station Hospital.
„ „ ...	Mud and Pan and Grass roof	„ ...	22	...	Construction Hospital, Railway.
Calabar—E. Hospital ...	Wood	Completely	6	2	Lunatic Asylum—Brick and Iron roof—30 beds—15 Male, 15 Female. Prison has its own E. and N. Hospitals.
Native „ ...	Brick	„	46	11	
I. D. Hospital ...	„	None ...	50	16	

IV.—HOSPITALS AND DISPENSARIES—*continued.*

Station.	Nature of building.	Mosquito proofing.	No. of Beds.		Remarks.
			M.	F.	
Bonny—N. Hospital ...	Brick	Partially ...	9	4	
I. D. Hospital ...	„	None ...	8	4	
Brass—N. Hospital ...	„	„ ...	8	...	
Degema—N. Hospital ...	„	„ ...	28	6	
Ikot-Ekpene—N. Hospital	„	„ ...	16	3	
Opobo—E. Hospital ...	„	Completely	4	...	Closed at present.
Native „ ...	Iron	None ...	6	2	
Owerri—N. Hospital ...	Bush	„ ...	...	...	
P. Harcourt—E. Hospital	Wood and Iron...	Completely	6	...	
Native „ ...	„ „	Partially ...	...	...	
I. D. Hospital ...	Bush	None ...	...	...	
Obubra—N. Hospital ...	Brick	„ ...	8	2	
Ikom „ „ ...	Bush	„ ...	10	...	
Obudu „ „ ...	„	„ ...	10	...	
Okigwi „ „ ...	„	„ ...	10	...	
Ogoja „ „ ...	„	„ ...	10	...	
Abakaliki—N. Hospital ...	„	„ ...	10	...	
Victoria—E. Hospital ...	Brick	„ ...	6	...	
Native „ (16)	„	1 Completely	401	...	15 N. Hospital plantations.
I. D. Hospital ...	Iron	None ...	99	...	
Buea—N. Hospital ...	„	„ ...	10	...	
Bamenda—N. Hospital ...	Bush	„ ...	20	4	
Ossidinge „ „ ...	Iron	„ ...	4	...	
Badagry „ „ ...	Brick	Completely	6	...	Closed at present.
Afikpo „ „ ...	Bush	None ...	8	...	
Kaduna—E. Hospital ...	Brick	Completely	12	...	
Native „ ...	„	Partially ...	36	4	
Kano—E. Hospital ...	Concrete ...	None ...	5	...	
Native „ ...	Brick	Partially ...	26	2	
I. D. Hospital ...	Mud and Thatch	None ...	19	...	
Lokoja—E. Hospital ...	Wood	Partially ...	10	...	
Native „ ...	Brick	„ ...	48	4	
Sokoto—N. Hospital ...	Mud and Thatch	None ...	12	...	
Ilorin „ „ ...	Iron	„ ...	6	...	
Offa „ „ ...	Bush	Partially ...	6	..	
Ibi „ „ ...	Brick	„ ...	6	...	
Yola „ „ ...	Stone	None ...	10	...	
Bauchi „ „ ...	Brick	„ ...	6	...	
Zaria—N. Hospital ...	Brick and Mud...	Partially ...	16	...	
I. D. Hospital ...	Thatch	None ...	12	...	
Naraguta—N. Hospital ...	Grass	„ ...	20	...	
Keffi „ „ ...	Mud and Thatch	„ ...	10	...	
Zungeru „ „ ...	Brick	„ ...	10	...	
Minna „ „ ..	Mud and Thatch	„ ..	14	...	
Ankpa „ „ ...	„ „	„ ...	12	...	
Maiduguri „ „ ...	Brick	„ ...	12	...	

SURGICAL OPERATIONS.

	1919.	1920.	1921.
Total Number	2,053	2,652	3,949
Number—Cured	1,771	2,314	3,540
Relieved	216	249	312
Not Relieved	14	26	32
Number of Deaths	52	63	65

SCIENTIFIC.

1. The Etiology of Blackwater Fever and the use of Potassium Bicarbonate as a Prophylactic.—By J. W. Thomson, M.B., CH.B. (GLAS.), etc.

2. Tsetse Investigation.—By W. B. Johnson, M.B., B.S. (LOND.), F.R.C.S. (ENG..) etc., and I.I. Lloyd, D.SC., etc.

3. List of Biting Flies collected in the Mamfe Division of the Cameroons.—By J. Hanington, M.D., etc.

4. Fever of the Dengue Group.—By W. B. Johnson, M.B., B.S. (LOND.), F.R.C.S. (ENG.), etc., and L. W. Davies, O.B.E., M.D., CH.B. (EDIN.), etc.

5. Some notes on the treatment and diagnosis of Leprosy.—By E. E. Maples, M.D., B.S. (LOND.), F.R.C.S. (ENG.), etc.

6. A case of Cerebro-Spinal Fever.—By E. E. Maples, M.D., B.S. (LOND.), F.R.C.S. (ENG.), etc.

7. Ankylostomiasis.—By E. E. Maples, M.D., B.S. (LOND.), F.R.C.S. (ENG.), etc.

8. Ankylostomiasis Return.—By E. J. J. Quirk, M.R.C.S., L.R.C.P., etc.

9. Three successful cases of operation for Prolapse of the Rectum.—By E. E. Maples, M.D., F.R.C.S. (ENG.), etc.

10. A rare case of faecal fistula.—By W. R. Parkinson, F.R.C.S. (ENG.), etc.

11. A case of Perforated, Strangulated Richter's Hernia; Operation—Recovery.—By W. R. Parkinson, F.R.C.S. (ENG.), etc.

12. Three cases of multiple Symetrical Peripheral Neuritis, following acute poisoning.—By W. R. Parkinson, F.R.C.S. (ENG.), etc.

13. Some Surgical Operations and Tumours of Special Interest.—By W. B. Johnson, M.B., B.S. (LOND.), F.R.C.S. (ENG.), etc.

14. Two cases of Malignant Disease.—By H. R. M. Ferguson, M.D., B.CH., etc.

15. Notes on cases of Deep Abscesses.—By J. W. Thomson, M.B., CH.B. (GLAS.), etc.

The Etiology of Blackwater Fever and the use of Potassium Bicarbonate as a Prophylactic against it in cases of Bilious Malaria,

BY DR. J. W. THOMPSON, M.B., CH.B. (GLAS.), ETC.

One European case was interesting, in that one watched the development of Blackwater Fever.

This patient gave a history of thorough wetting and chill. Four days later he developed a malarial temperature with very frequent vomiting and marked jaundice. He looked exactly like a Blackwater case but there was no blackwater, the urine was bilious, it was a very deep amber brown colour and contained no albumen. Twenty to twenty five grains of quinine were given daily.

There was slight improvement but on the evening of the third day the patient passed blackwater. There was no doubt about it: it was very black and loaded with albumen. He was given 2 drams of Pot. Bicarb. every hour and much water to drink. The urine was clear in 4 hours, there was no relapse and he made an uninterrupted recovery.

Dr. Johnson told me about giving alkalis, best Potassium Bicarbonate, in large doses to Blackwater cases. At the beginning a Blackwater urine is always acid; if it can be made alkaline by the giving of alkalis the outlook is much better and quinine may be cautiously administered safely.

After this case I had two more cases of bilious malaria characterised by vomiting, marked jaundice and very highly coloured urine. They were very like the first case.

In both cases I gave Potassium Bicarbonate in large doses and quinine with caution—neither developed Blackwater.

TSETSE INVESTIGATION.

By W. B. Johnson, M.B., B.S., F.R.C.S., etc. and Ll. Lloyd, D.Sc., etc.

Dr. W. B. Johnson, W.A.M.S., having been seconded for this work, commenced a preliminary survey in the Northern Provinces in June, 1921, and was joined by Dr. Ll. LLoyd in September of the same year. The intentions of the survey were:—(i) to obtain a general idea of the distribution of the various species of tsetse in relation to varying local conditions, *i.e.*, forests, game, cattle, etc., (2) to estimate the relative importance of the three prevalent species, *G. palpalis*, *G. tachinoides*, and *G. morsitans*; (3) to select a site for a base camp which is to be the centre of future experimental work; (4) to collect information on the bionomics of the tsetse as far as this could be done while travelling. The results to April, 1922 are briefly summarised under these four heads seriatim.

1. *Distribution of Tsetse in Northern Provinces, Nigeria.*—The country examined included the Northern part of Nupe Province, the eastern part of Sokoto including the Kwiambana and Zanfara forest reserves, the western edge of Kano Province and the Southern part as far east as Katagum, the Northern part of Zaria Province and the line of the proposed Eastern Railway, and this was followed through Nassarawa to Benue Bridge, the Niger from Baro to Lokoja and the Benue from Benue Bridge to Numan, the middle and northern parts of Bauchi Province.

G. palpalis is limited to the evergreen rain forest type of bush and is especially prevalent east of long. 9. E. and south of lat. 11 N. In other parts of the country it is very localised and of no great importance. The country which drains into Chad for instance, is unsuitable to it except for occasional patches of forest at the headwaters of a few of the streams in the foothills of the Bauchi Plateau, and there is an isolated instance of its occurrence in the southern part of Bornu. Within these limits it is especially prevalent on the larger streams and small permanent hill torrents but is very scarce in the extensive impenetrable type of rain forest which occurs in Nassarawa.

G. tachinoides is the most prevalent of the tsetse as it includes in its range practically all the palpalis areas and also the rest of the country where there is permanent water and the primary forest has not been farmed out. Like palpalis, it is inhibited in excessively dense, impenetrable kurumi.

G. morsitans has limited range but a wide distribution. It requires a dry season focus with considerable degree of shade though less than that required by the two species above, and consequently it is only found where there is water near the surface and where parts of the primary forest have not been farmed out. It also needs relatively dry climate. Wherever it was met with a certain amount of game is present but there are large areas in the Northern Provinces, as for example, the Ningi Bush, north of Bauchi, and the country round the Dingaiya River, which fulfil all these requirements, and yet the fly is not found in them.

G. longipalpis replaces *morsitans* in the wetter parts of the country and is consequently localised to the extreme south.

G. fusca, also a wet climate fly, is found as a curiosity in Kabba Province.

2. *Relative importance of the three prevalent species.*—G. palpalis is considered to be the least important of these. It is certainly the carrier of sleeping sickness in Nassarawa Province but conditions appear to be stabilised there as far as the indigenous population is concerned, and there is no record of epidemics among these. Epidemics do occur on mines and among troops, *i.e.*, among immigrants who upset in one way or another the stabilisation, and outbreaks of sleeping sickness must be anticipated also among the labourers in the construction of the new railway.

G. morsitans is considered of more importance. The areas of country where it occurs, however, are of relatively limited extent and stock owners avoid these as being absolutely fatal to the stock, attributing the danger to bad water or some similar cause.

Unfortunately the country which is thus barred to them is in some localities the best of the stock country, as it contains permanent water in otherwise dry areas, and for a large part of the year the cattle have to be watered at wells. Large game, which is not found in general in the country over which Filani cattle graze, occupy the areas from which the cattle are excluded.

The fly becomes very heavily infested with trypanosomes from the antelope and we find these parasites in some 20% of the flies. As in East Africa the morsitans areas are very thinly populated, but the fly is not known as a carrier of sleeping sickness in West Africa.

It is considered unlikely that the fly is extending its range.

G. tachinoides is considered to be the most important of the three flies in the Northern Provinces. It is the most widely distributed. It is proved on conclusive circumstantial evidence to be the carrier of sleeping sickness in Southern Kano and part of Zaria Provinces and it is probably also the carrier of this disease on the Benue from Abinsi to Lau. In the former of these areas, until the settlement of the country, the natives did not come into intimate contact with the fly as it does not invade the large towns, but with extension of farming small colonies settle on the banks of infested streams and epidemics of sleeping sickness occur among them, resulting in the abandonment of the farms. Further it is an important carrier of trypanosomiasis of stock, though not comparable in this respect with *morsitans*, and the cattle owners do not avoid its haunts as they do those of *morsitans*.

For this reason it is probably responsible for more actual loss than the species which they avoid.

3. *Selection of a site for future work.*—For the reason just given it has been decided to concentrate for the present on *G. tachinoides*, and a site is to be selected for a base camp in the densely populated part of southern Kano Province in the neighbourhood of Birnin Kudu or the Dingaiya River, and experimental work will be organised from these. This locality is selected for the following reasons:—

(1) It is a densely populated area and there is evident desire for more extended farming there, but the fly renders the extension difficult.

(2) It is easily accessible, as a motor road crosses it.

(3) It is an important cattle country, and it is traversed by a large trade route along which stock moves and comes into contact with the fly.

(4) The dry season distribution of the fly makes the area suitable for economical experiment, as it is confined in many cases to very small isolated patches of kurumi which could be treated in various ways. Good control of the experiment could therefore be kept.

(5) There is an abundant supply of native labour.

4. *Bionomics of Tsetse, etc.*—*G. tachinoides* is found to draw a considerable proportion (approximately 20%) of its food from non-mammalian sources, and most of this probably comes from the monitor lizard, *Varanus*, on which it is well known that *G. palpalis* feeds freely.

Crocodiles in Northern Nigeria form probably a very inconsiderable food supply to either species. *G. tachinoides* attacks man with avidity and colonies of the fly probably feed freely on baboons and it is also known to attack game animals.

All three species were found to be breeding freely in the dry season and some evidence was obtained that *palpalis* and *tachinoides* suspended breeding in the wet season; certainly the rate of breeding is very greatly reduced at that time.

The breeding places of *G. palpalis* were found to be much like those described for this fly in East Africa. The pupæ are found in dry sand banks in shady places and in addition to being overshadowed by high trees there is nearly always a close shrubbery within a foot or so of the spot where the pupæ lie.

The great majority of the pupæ of *G. tachinoides* are also found in sand: occasionally they are in cracks in dry mud. They are generally in the open glades of kurumis, and the sites differ from those of *palpalis* in that usually there is only high shade above them without any low shrubbery. Occasionally they were taken under shrubs.

About 2,000 flies of the three species have been dissected and the salivary glands, gut, and proboscis have been examined for trypanosomes. None have been seen in the salivary glands as a mature infection of one of the Brucel group of trypanosomes has not yet been met with. Flagellate infections of the gut only, gut and proboscis, and proboscis only were found to be numerous in all. They were rarest in *G. palpalis*, twice as numerous in *G. tachinoides*, and four times as numerous in *morsitans*, 19·3% of which were found to contain flagellates. An analysis of these infections is given in the table below. It is seen there that the proboscis infections are most numerous in *G. morsitans*, these comprising mature infections of the pecorum group of trypanosomes and developing or mature infections of the vivax group. As it is only the parasite of these groups which affect cattle it would appear that *morsitans* is about four times as dangerous to cattle as G. tachinoides. At the time of writing the examination of the preparations is incomplete so that no further details can be given.

Table showing the position of Flagellated Bodies and percentage infection of Glossina (X. 21—III. 22) in Nigeria, Northern Provinces.

Glossina species.	No. examined.	Gut only.	Flagellates in:—	
			Gut and Proboscis.	Proboscis only.
G. Morsitans ...	322	3·4%	5·9%	10·0%
G. tachinoides ...	1,084	6·0%	1·3%	2·7%
G. palpalis	437	3·2%	0·7%	1·8%

LIST OF BITING FLIES.

By J. W. B. Hanington, M.D., etc.

Mamfe (Ossidinge) Division, Cameroons,

Collected, 1921–1922.

Glossina palpalis.

„ pallicera.

„ haningtoni, Newstead (n. sp.)

Chrysops silacea.

Tabanus grandidissimus.

Haematopota near *fusca*. Austen.

Simulium damnosum.

Hippocentrum versicolor.

Note:—The new species of Glossina is apparently restricted to the river-valley in the neighbourhood of Basho, where 2 M. and 4 F. were collected.

Some Notes on the treatment and diagnosis of Leprosy by E. E. Maples, M.D., F.R.C.S., etc,.

"Since that date we have been in the habit of administering "Tartar Emetic intravenously in Leprosy cases once a "week (on Thursday mornings) at the Calabar Native "Hospital and there is no question as to its beneficial results, "although it is certain it does not cure if administered in "doses that are compatible with safety to the patient. At "the beginning of the method of treatment the dose was "gradually increased up to 20 c.c. of a 1% solution, but a "fatal result then occurred. The patient, a woman, with "marked nodular leprosy, died on the fourth day after an "injection of 20 c.c., but there was a most astonishing "disappearance of the leprosy nodules within a few hours of "the injection, a disappearance to which Miss Keiller, the "European Sister, could testify.

"In the Annual Medical Report for Nigeria, 1917, page 97, I "published a note on the effect of Tartar Emetic given "intravenously in a case of papillary growth of the skin and "it was because of its effects in this case that I was led to "try it in, at first in nodular, and subsequently in all leprosy "cases. (I may here note that I saw the particular patient "who had the papillary skin growth a short while back, and "she is still free from a recurrence of the tumours, that is, "after aperiod of four years.)

"The diagnosis of Leprosy is very difficult in early cases and "many skin diseases are designated 'Leprosy' by natives. "Until 1917 I must confess I was frequently puzzled over "cases, and I am deeply indebted to a colleague, Dr. Wm. S. "Clark, for a method of definitely determining a diagnosis. "This method is not generally known and I mention it here "as it is most helpful.

"In a suspected case of leprosy a nodule, macule, or other lesion "is punctured with a fairly large bore hypodermic needle, "which is stirred about in it.

"A little of the exudate is then drawn up into a hypodermic "syringe, spread out in a film on a microscopic slide, and "stained by the Ziehl-Neelsen method. when in positive cases, "the acid-fast lepra bacilli will be seen, usually in myriads, "and frequently in large lepra cells. If the lesion is merely "pricked with an ordinary needle and a blood film taken, "lepra bacilli will still be seen, although the lepra cells will "usually be absent.

"By the use of this method several cases were found of a definitely "leprous nature when the clinical appearance and signs were "against such diagnosis, and I have become convinced that "leprosy is commoner than is generally supposed in Nigeria, "and in the early stages a very benign disease."

REPORT OF A CASE OF CEREBRO-SPINAL FEVER AT CALABAR

By E. E. Mafles, M.D., F.R.C.S., etc.

On 28th April, 1919, Dr. O'Keefe sent into the Hospital, a patient from the Barracks, Private W., suffering from an obscure form of fever—and suggested that he might have Enteric Fever.

2. The patient was in a semi-stuporose condition on admission, so that I was unable to make a diagnosis, but both Enteric and Cerebro-Spinal Fever occurred to me as possible diagnosis, but the absence of retraction of the head rather discountenanced the latter.

3. The patient died on the 1st of May, and at the Post-mortem dissection ordered by the Coroner the following conditions were found:—

(*a*) The *Right Lung* was adherent to the chest wall everywhere by recent adhesions; it was congested, consolidated, and contained, scattered through its substance, minute abscesses.

(*b*) The *Left Lung* was in a similar condition, but not consolidated nor adherent.

(*c*) The *Liver* had similar small abscesses, scattered through its substance, and one rather larger one about the size of a haricot bean.

(*d*) The *Kidneys* shewed similar abscesses, that is, were in a condition of acute suppurative pyelonephritis.

(*e*) The *Large Intestine* shewed two patches of congestion but no ulceration.

(*f*) The *Brain* was highly congested everywhere, the basal cisternae contained excess of turbid fluid, and pus was seen along the larger vessels in the Sulci between the convolutions.

(*g*) The *Spinal Cord* was natural.

4. Although pus was present at the base of the brain, its absence along the Spinal-Cord rather militated against diagnosis of Cerebro Spinal Fever. However, I took some smears of the meningeal exudate and found diplococci present—as well as short bacilli. The latter I look upon as bacilli of commencing putrefaction, the former I must consider as either pneumococci or meningococci.

5. Against the probability of the diplococci being pneumococci and the disease therefore a pneumococci septicaemia, are the facts that usually pneumococcic pus is situated over the superior surface of the Cerebrum and not at the base of the brain. Against their being meningococci is the absence of pus along the Spinal Cord.

6. In any case the infection was so virulent as to be a blood stream infection—that is, septicaemic in nature—and I am, on the whole, inclined to consider the case one of Cerebro-Spinal Fever in which the infection was so fulminating as to be septicaemic—and not allowing time for the usual local collection of pus in the brain, and more especially in the Spinal Cord, to appear.

7. From the Annual Reports of the past few years you will see that we usually have two or three sporadic cases of Cerebro-Spinal Fever in Calabar each year.

REPORT ON ANKYLOSTOMIASIS, CALABAR, 1921.

By E. E. Maples, M.D., F.R.C.S., etc.

Since 1915 we have been in the habit of carrying out routine examination of the stools of all Inpatients and many Outpatients at the Native Hospital, Calabar. During the past 6 years 3,872 stools have been examined and the percentage infection with ankylostomes, during this period, works out at 40·9%.

2. It is noticeable however, that while the percentage infection for 1915 and 1916 worked out at 13·3% and 22·3% respectively, the figures for 1917, 1918, 1919 and 1920–21 were 42·2%, 58·8%, 51% and 57·5%, or an average for these four years of 52·4%. This figure, I consider, represents more accurately the true percentage infection than the lower figures for 1915 and 1916, for with increasing experience and more accurate observation a higher infection was revealed than in the earlier periods of routine stool examination.

3. The effect of ankylostome infection varies in different patients; many seem to suffer no ill effects, while others suffer severely with symptoms of debility, anæmia, wasting and œdema, which give an appearance to the patients that is somewhat characteristic. Malnutrition, starvation, uncleanliness, neglect, chronic illness (especially if accompanied by sepsis), and insanitary surroundings seem to aid the pernicious effect of an infection, while good food and a comfortable state in life seem to act as an obstacle to its deleterious effects.

4. This special ankylostomiasis appearance is gradually becoming known to the Calabar people, and many patients now attend the Native Hospital stating that they think they are suffering from "worms" and asking for Thymol treatment, actually mentioning the drug by name. The effect of dosage with thymol is striking: not only does it cause, by eliminating the helminths, a rapid and often remarkable improvement in the physical condition of the patients, but as an European Missionary teacher pointed out to me on one occasion, it makes a tremendous improvement in their mental vigour as well.

5. It is usually stated by most authors that an ankylostomiasis infection must have a special toxic effect in addition to the results of the persistent and often profound anæmia which it causes. For my part, I am not convinced that it is necessary to invoke the idea of toxity in connection with this infection; it seems to me that the concomitant anæmia can account sufficiently for all the symptoms. There is no doubt that fever is frequently an accompaniment of ankylostomiasis, but it appears sometimes to be overlooked that fever

is also an accompaniment of most anæmias, if profound enough, *e.g.*, chlorosis, pernicious anæmia, lymphadenoma, and even a hæmorrhage. An aphorism of that renowned clinician, the late Dr. Samuel J. Gee, was that "hæmorrhage is a febrile disease," meaning that after a loss of blood of sufficient degree, there is a rise of temperature. The same effect occurs in ankylostomiasis, except that the loss of blood, in addition to being frequently profound, is also persistent, and hence may cause a persistent temperature. One of the most striking examples of the fever which accompanies ankylostomiasis occurred in 1915 in a patient upon whom I performed an ordinary Bassins' operation for the radical cure of a hernia. The patient ran a persistent remittent temperature after the operation up and down from normal to 103° F, and I naturally supposed the case had become septic. No sepsis, however, could be discovered; the stitches were taken out on the eighth day and the wound healed by first intention.

The febrile temperature still continued, and I was greatly puzzled about the case until one day, about three weeks after the operation, when going round the wards, I noticed that the patient was very anæmic, the conjunctiva of his lids being almost pearly white in appearance; the stools were therefore examined and were found to be heavily infected with ankylostome ova. Thirty grains of Thymol were administered, repeated in an hour and a half's time; the next morning the patient's temperature had fallen to normal, and it remained so. It was my experience in this case that led me to institute miscroscopical stool examination as a routine proceeding among the Inpatients of the Calabar Native Hospital.

6. I append a copy of a table presented in the 1920–21 Calabar Annual Medical Report which shows the percentage helminthic infection found during the past six years among the 3,872 examined:—

Helminth Found.	1915.	1916.	1917.	1918.	1919.	1920–21.	Average 1915–1916–1920–1921.
							%
Ascaris	28·6	25·6	31·1	46·1	51	69·7	42
Trichocephalus ...	28·0	26·0	23·6	24·6	25·4	32·5	26·4
Ankylostoma	13·3	22·3	42·2	58·8	51	57·5	40·9
Taenia	2·0	2·6	·42	·9	·7	·0018	1·1
Strongylus	·68	...	...	2·4	2·1	2·3	1·25
Oxyuris	...	...	·14	...	...	·0027	·02
Fasciola	...	...	·14	...	·2	...	·06
Negative	·59	39·8	23·5	14·3	19·8	6·6	27·2

7. As regards the Medicinal treatment of Ankylostomiasis, in spite of the praise that Oleum Chenopodii has received from the American school of investigators, I am not convinced that it is by any means as efficacious a remedy in eliminating an infection as Thymol.

One advantage, however, it possesses over Thymol, and that is its remarkable action in eliminating Ascaris; I consider it to be even more powerful than Santonin; in fact, it seems the drug "par excellence" for the treatment of Ascaris infections.

ANKYLOSTOMIASIS RETURN.

By E. J. Quirk, M.R.C.S., L.R.C.P., etc.

The following investigations into the frequency of ankylostomiasis have been carried out in Calabar Prison during the last year—the stools of every male prisoner have been examined on admission and those infected have been treated with Thymol.

The following are the figures obtained :—

No. examined.	*No. infected.*	*Percentage infected.*
955	362	37%

If we classify the infected prisoners according to their districts the percentage rate is as follows :—

District.	*No. examined.*	*No. infected.*	*Percentage.*
Eket	37	1	·03
Obubra	50	9	18
Ikot-Ekpene ...	242	87	35
Calabar	529	220	41
Uyo	35	15	43
Abakaliki ...	62	30	48

II

Three successful cases of operation for prolapse of the rectum by E. E. Maples, M.D., F.R.C.S. (Eng.), etc.

"The patient is prepared in the manner advised by Lockhart "Mummery on pages 31 to 33 of his 'Disease of the rectum "and Anus,' and which is strongly recommended for all rectal "operations. The patient is then put up in the lithotomy "position with the buttocks overhanging the end of the "table, and the rectum is plugged well above the prolapse "with swabs. The intestinal tube is then first cut through "in its front half and the outer (peritoneal) surfaces sewn "together by a continuous catgut suture, oversewing every "fourth stitch at the level where the excision is to take "place; the incision is then continued around the posterior "half of the outer tube of bowel and the suture continued "till completed. Considerable difficulty arises in suturing "the posterior half of the section on account of the presence "of the prolapse in front which hangs over the operator's "hands and which, if dragged forward out of the way, pulls "out a higher portion of the rectum behind, through the "anus, than is present in front, tending to make the plane "of suturing out of the transverse, so that it lies high up the "rectum behind. There is a good deal of Hæmorrhage in "cutting through the rectal wall but if it is done piece by "piece and the bleeding parts caught and ligatured as they "appear, it is easily controlled.

"The inner tube is then cut through, in front at first, and the "muscular coats sewn together by a second and similar "continuous oversewn catgut suture; the incision is then "completed behind, the prolapse removed, and the muscular "suturing continued until completed.

"Finally, the mucous membrane is then sewn together by a "third and similar continuous oversewn catgut suture. The "bowel then recedes naturally within the anus and the "operation is complete with the removal of the rectal plugs.

"The bowels are not opened for a week, the patient continuing "an astringent mixture, according to Lockhart Mummery's "method, for this period, and is kept on a milk diet. At the "end of the week a dose of castor oil is given to open his "bowels."

A RARE CASE OF FAECAL FISTULA.

By W. R. Parkinson, F.R.C.S. (Eng.) etc.

A native of Lagos, aged 28, a tailor, was admitted to Huspital on March 2nd, with a sinus in the left loin behind, just below the twelfth rib.

He had had it over a year and it had been treated as a kidney sinus and also as a sinus connected with a subphrenic abscess.

He suggested that it might be connected with the bowel because he noticed a burning sensation when he ate peppers. He had not noticed definite faecal matter.

A rectal washout settled the diagnosis as the fluid leaked from the sinus.

An incision was made at the outer border of the left rectus and the abdomen opened; the descending colon below the splenic flexure was found firmly adherent to the abdominal wall immediately deep to the sinus; omentum was adherent to the colon.

An end to end anastomosis was made between the transverse colon above the sinus and the descending colon below the sinus.

The diseased bowel was difficult to remove owing to the firm adhesions and there was a risk of infecting the peritoneal cavity with pus from the sinus so the ends of the remaining bowel were closed and it was left in situ. The mucous membrane of this part sloughed and was discharged and the sinus gradually cleaned and closed up.

The origin was probably perforation of a dysentric abscess; he nearly died eighteen months before of an abscess in that flank with septicaemia.

PERFORATED STRANGULATED RICHTER'S HERNIA. OPERATION—RECOVERY.

By W. R. Parkinson, F.R.C.S. (Eng.) etc.

A labourer, S., aged 29, admitted 27th December, 1919. He had had complete obstruction of the bowels and vomiting for 5 days before admission and knew of no reason to cause it. He was not aware that he had ever had a hernia and pointed to the middle of his abdomen as the site of all his trouble.

He looked extremely ill, with hollow eyes and drawn, pinched face.

The tongue was furred and dry. Temperature 98; pulse 88. A diffuse swelling was present in the right groin. It extended from the anterior superior spine to the scrotum: it was not easily detected without comparison with the left side. On palpation it was soft and gas was felt in it. Diagnosis of strangulated hernia was made.

He was given chloroform and operated upon an hour or two after admission. The first incision opened into pus and gas outside the external oblique and extending down to the scrotum. A small button of everted mucous membrane appeared at the external opening of the inguinal canal. This wound was cleansed as far as possible and the abdomen opened through the rectus and the hernia withdrawn from inside. It was a small Richter's hernia involving only half the lumen of the bowel. It had perforated. The diseased bowel was resected, a radical cure of the hernia made. The first wound was enlarged into the scrotum, left open and packed with gauze.

He required saline, glucose, and sodium bicarbonate rectally for some days for a sharp attack of septicaemia but his extraordinary vitality allowed him to recover.

THREE CASES OF MULTIPLE SYMMETRICAL PERIPHERAL NEURITIS FOLLOWING ACUTE POISONING.

By W. R. Parkinson, F.R.C.S. (Eng)., etc.

Two Kroo men and one Kroo woman were admitted on December 1st, 1920.

The history was that six weeks before the woman had got cassava from a farm at Agege. The farmer was away and had notified people that he had "laid poison" to prevent the removal of the cassava.

Eight Kroo natives ate this cassava and they were all acutely poisoned; one died, four hurried back to their country and these three were admitted six weeks later to the hospital.

The attack began as an acute poisoning with vomiting for five days in two of them and four days in the other. This was followed by symmetrical weakness of both arms and legs for which they came for treatment.

They were all in a very similar condition. There was multiple symmetrical peripheral neuritis affecting legs and arms below the hips and shoulders. Below the knees and elbow all muscles were paralysed equally and wasting was general; there was no evidence of any selection of groups of muscles. There was foot drop and wrist drop (the drop occurred in any direction; when the forearm was supine, the hand extended, when prone, the hand flexed); reflexes were absent and there was very marked dulling of tactile sensation, but violent pain, cramps and extreme tenderness to pressure were present. There was no blue line on the gums and no history of alcohol in any of the three patients. No alteration of skin was noticed nor any signs or symptoms of other disease.

Very little alteration occurred in four months; there were exacerbations of pain; the flexor muscles gradually contracted the hands and feet into the typical deformity. Massage and the application of splints were unbearable on account of the pain. It appears to be acute arsenical poisoning due to one dose followed by chronic poisoning lasting now five and a half months with no sign of improvement.

"TUMOURS AND CYSTS." By W. B. Johnson, M.B., B.S., F.R.C.S., etc.

The following cases of tumours and cysts were operated upon during the year:—

Type of Tumour.	No. of cases.	Operation.	Remarks.
Lipomata	4	Excision	
Fibromata—			
Juxta-articular Nodules...	2	„	
Keloid of ear	1	„	Followed human bite.
Keloid tribal marks	1	„	
Papillomata	1	„	Of frenum and glans penis.
Polypi—			
Rectal	1	„	Single polyp size of cherry in rectum of child of 7.
Intra-uterine	1	Curetted	
Adenomata—			
Cystic adenoma of thyroid	3	Enucleation (1), Hemi-thyroid-ectomy (2)	Fulani woman, 1; Hausa woman, 1; Hausa man, 1.
Parenchymatous goitre ...	1	Hemi-thyroid-ectomy	Asaba man.
Uterine fibro-myomata—			
Sub-peritoneal	3	Sub-total hysterec-tomy, 2; Enu-cleation, 1	Coast women, 2; Fulani woman, 1.
Sub-mucous	1	Panhysterectomy	Tumour size of cocoanut by broad base from posterior wall, presenting at Os. Death from pneumonia on 8th day.
Goundou	1	Excision	Asaba girl aged 9; both sides, from nasal processes maxil-læ, with broad base and spur outwards on to cheek.
Chondroma	1	... ...	Of metacarpal bone.
Myxo-chondro-endothe-lioma—			
Of submaxillary gland ...	2	„	
Of naso-labial fold ...	1	„	See note below.
Accessory Auricle ...	1	„	Accessory auricle with core of cartilage anterior to tragus.
Ganglion	6	„	
Ch. teno-synovitis... ...	3	„	? Tuberculous.
Ranula	1	„	
Broad ligament cyst ...	1	„	Also subperitoneal fibroids (excised) and hydrosalpinx.
Dermoid cysts—			
Implantation	1	„	Of foot.
Sequestration	1	„	Of neck.
Filaria Volvulus Cysts ...	2	„	Both infected on R. Benue or R. Niger.
Dental cysts	1	„	See note below.
Epithelial odontome ...	1	Excision of jaw ...	„ „

TUMOURS OF SPECIAL INTEREST:—

(1) *Myxo-Chondro-endothelioma growing from naso-labial fold*:—

Hausa woman aged 25. Three years smooth swelling at side of nose, gradually increasing in size. On admission the tumour was the size of a walnut, pedunculated with a broad base. The skin was adherent over the apex of the tumour. Excised easily and found to be growing from connective tissue deep to the naso-labial fold. The tumour contained bone. This was sent to Prof. S. G. Shattock, who very kindly examined it and reported as follows:—

> "It is a tumour of the mixed kind found in parotid and "submaxillary, etc.; and consists of fibrous tissue, softer "mucous tissue, areas of cartilage, and columns of endothelial "cells found in the so-called parotid tumour. The skin is "intact and is not involved in the growth.....The position "of such a kind of tumour is outside my experience. I "decalcified a portion to examine the bone; as you surmised, "it is true cancellous bone, with fat in its spaces. The bone "occurs in small isolated nodules developing in the fibrous "element of the neoplasm."

(2) *Dental Cyst*:—

Hausa woman aged 22. History of 12 years swelling of lower jaw on the left side. A huge swelling was present, with expansion of the whole horizontal ramus of lower jaw on left side. Egg-shell crackling obtainable over the tumour. The first premolar tooth was missing, and a large misplaced canine tooth occupied its place in the gum. Other teeth normal. Operation on 12th April, 1920, under chloroform; excision of cyst with expanded bone over it, leaving the inner table of the mandible: muscle sutured over bare bone: healed perpriman with practically no deformity. The cyst consisted of a tough membrane containing clear fluid. The bone was thinned to a mere shell. Embedded in the wall of the cyst was the premolar tooth missing from the mouth.

(3) *Epithelial odontome of lower jaw*:—

Gold Coast native, aged 35. Previous operation at Lagos in 1918 when apparently a local excision was made from outside the mouth, but the growth had recurred. On admission there was a large swelling of the lower jaw on the left side. The growth appeared to have infiltrated the gum, which was firmly adherent to it, and a thin, purulent discharge from the tumour was being poured into the mouth at the side of the molar teeth. The growth involved the whole horizontal ramus, and the bone was greatly thickened.

Operation 24th November, 1920, under chloroform: incision from symphysis to angle of jaw, and growth exposed. In places the bone had entirely disappeared, leaving tumour and cystic spaces under the skin and muscle. The centre of the tumour within the mandible consisted of necrotic tissue with thin, foul-smelling pus. The solid growth extended nearly to the symphysis and extended beyond the angle of the jaw into the ascending ramus. Both inner and outer tables of the bone had been totally destroyed in places. The jaw was divided between the incisor and canine teeth, and the whole growth was removed together with the jaw by disarticulating at the temporomandibular joint. The mouth was closed by suturing the mucous membrane of the cheek to the floor of the mouth at the side of tongue and the external wound was closed without drainage. Suppuration occurred within the mouth, but the external wound healed well.

CASES OF FEVER OF THE DENGUE GROUP OCCURRING IN NIGERIA, NORTHERN PROVINCES.

By W. B. Johnson, M.B., BS., F.R.C.S., etc. and
L. Wynne Davies, M.D., etc.

During the months of July to October, 1920, cases occurred at Kaduna, Kano, Zaria and Naraguta, of a fever which showed many similarities to Dengue Fever. Ten cases are shown below.

All had a rash typical of Dengue, and quite unlike a rash of the Typhoid group. This rash appeared on the 4th—6th day of illness, and was visible, though fading, for some weeks.

Bowel symptoms were not marked—usually some constipation, without vomiting or abdominal tenderness or distension—and there was no marked enlargement of liver or spleen.

Prominent symptoms were severe headache, intractable insomnia, and pain or weakness of back and loins. Unlike typical Dengue there was no intense suffusion of face or eyes during the early stages of illness.

Taken generally the pyrexia was not typical of Dengue. There was no sudden onset, and no true remission of fever and symptoms, although half the cases had a slight remission on the 4th or 5th days of illness. Usually the pyrexia was at its maximum from the 5th to 7th day, and subsided by lysis, the whole period of pyrexia lasting from 10 to 13 days. The fever might, therefore, be called a Twelve-day Fever.

Most cases showed albuminuria, which cleared up on subsidence of the fever.

Blood examination showed slight leucopenia, and a marked disappearance of eosinophiles. Serum tests (Widal) to typhoid group were positive to Paratyphosus B in 3 cases, and to all the typhoid in 1 case, and negative in 2 cases. The positive cases had all either had enteric or been inoculated, with the possible exception of one native case who may have been inoculated in East Africa.

A native case (case No. 4) occurred with exactly similar symptoms as the European cases. This boy was servant to case No. 2 and his illness commenced 11 days after the onset of his master's illness.

No fatal cases occurred. Temperature charts and tables of symptoms and blood examinations are shown below.

SUPPLEMENTARY NOTES.

By L. Wynne Davies, M.D., etc.

I have seen in all about 9 or 10 cases lasting from July to the beginning of November. My last case was during the first days of November in a British subject who lived in a house where there had been another case (British lady) a fortnight previously. I quite concur that these cases should be classified under "Twelve days Fever" (Dengue group).

1. One of the most consistent symptoms was the intense pain at the back of the eyes. One patient described it as though "his eyes were being forcibly pushed to the back of his head." Another as though "he had been studying hard for six months without any sleep." The conjunctivae were not injected to any great extent, neither were the eyeballs intensely painful to palpation. Intraocular tension was not increased. There was no coryza such as one gets in measles.

2. Some complained of muscular pains only, *e.g.*, thighs, calves of legs especially, back muscles, and arms. Others were more definite in stating that their pains were bone pains, of a dengue type. These lasted roughly in an acute form for 48 hours, but persisted more dully for a week or ten days.

3. The rash appeared usually from the 4th–6th day, but in one lady I noted it on the neck and extensor surface of the arms on the 3rd day. It somewhat resembled measles in the form of the eruption, and lasted for at least two weeks, and could be seen later in a faded form. It was not haemorrhagic. In both British ladies treated the face was more affected than in the case of the men.

4. The action on the generative organs of the two females above mentioned was as follows :—

In one, the menstrual function, which was usually profuse, became very scanty, and the blood discharged was quite black. In the other there was intense left ovarian pain for 48 hours at the onset of the pyrexia (unusual in her ordinary state of health), relieved only by opium.

5. There was mental irritability, nerve jumpiness, depression, and insomnia in all the cases. In one there was actual delirium for 3 nights.

There has been no recurrence of muscle or bone pains after convalescence. Neurasthenia has resulted in some cases, while in one the neurotic manifestations have increased with bouts of insomnia. Knee jerks were diminished during the attack.

6. Constipation was a feature in all the cases. There was no abdominal pain. There was considerable anorexia, but no vomiting. Tongue was thickly coated and furred. There was no jaundice in any of the cases. I noted a deep pharyngeal congestion with a glairy secretion. There was no pain in deglutition.

7. I did not make records of the urine.

8. There was no definite swelling of palpable glands and I could not make out any spleen enlargements.

9. The blood of all showed a slight leucopenia with an increase of the small mononuclear leucocytes. I could find no organism in the blood, and in swabs from the throat I was not able to isolate anything definite.

10. There was nothing striking in the incidence as far as the areas affected. The first cases occurred in the trading sites, the second in the Mounted Infantry Lines, and the third in the trading sites, the fourth in the Residential Area, and the remainder in the trading sites. Two cases occurred in a house where there were three English children, of ages respectively of 9, 7, 5 years : none of the latter were affected, although they mixed freely with the affected people. Only three of my cases came to hospital. The disease is not, therefore, a very contagious one, and I think must be carried by some biting insect. The bug or flea can be excluded, I think, as there was no evidence of such biting in the Europeans affected. One has to decide, therefore, between a mosquito or a sandfly. Most of my patients had been heavily bitten by mosquitoes (Culex) and also with the sandfly. The onset symptoms very much resemble the sandfly fever (3-day fever) which the troops suffered from so badly in Mesopotamia during the months from May to October, 1916–1917. I myself had two attacks and can testify to the great eye and limb pains. There was, however, no distinctive rash in that form of fever ; the insomnia and depression are, however, similar.

The incidence of the fever now being described coincided more or less with the rainy season in the Northern Provinces. Kano had a more prolonged and a heavier rainy season than it has had for many years.

11. As for treatment, after experience I found the best results accrued from an early drastic aperient of calomel or vegetable laxative with Mist. Alba the following morning. An initial dose of Dover's powder, 5–10 grains, then Sod. Salicylate grs. 15 and Sod. Bicarb. grs. 10 every four hours, plus asperin grs. 5 every four hours for the headache. I found that quinine had no influence whatever on the pyrexia and increased the mental irritability, the nerve tremblings, and possibly also exaggerated the muscle and bone pains. Bromidia drs. 1½ at night was sufficient to induce sleep, and was eagerly asked for.*

12. There has been no recurrence in any of the cases, and no fatalities.

13. I believe there have been cases among the natives up here, as one has seen the prolonged pyrexias not yielding to quinine. It is difficult to make out rashes in the native† but I definitely remember two cases with rashes, both in coast natives.

14. I was away from Kano during the whole of September, otherwise my list might have been more complete and more extensive.

SUMMARY OF SYMPTOMS.

Pyrexia.—Lasts from 10 to 13 days, subsiding by lysis. Slight remission on 4th–5th days in some cases. No relapses. Quinine has no effect on pyrexia.

Pulse.—Usually slow for degree of pyrexia.

Rash.—Ruboelar, slightly raised. General distribution all over body, including face, hands and feet. Rash very profuse. Appears from 4th–6th day of illness, lasting at least two weeks. Flushing of face not marked.

Digestive System.—Anorexia with furred tongue. No vomiting. Deep pharyngeal congestion. Constipation usual. No marked enlargement of liver or spleen. No jaundice.

Urine.—Albuminuria, slight in amount, common from 2nd–4th day.

Nervous System.—Intense headache and pain at back of eyes. Insomnia a marked feature. Reflexes (K.J's.) diminished. Muscular pains common, often described as "bone pains." Pain and weakness in back common. Nervous irritability and depression. Tends to leave neurasthenic condition in convalescence.

Complications.—Rheumatic pains (noted in one case). Iritis (noted n one case).

Blood.—Leucopenia. Disappearance of Eosinophiles in early stage of fever. Small mononuclear increase noted in some cases: serum positive to Paratyphosus B in a few cases, but all previously inoculated with exception of one case in which inoculation doubtful.

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* Cases treated at Kaduna required more powerful hypnotics, sulphonal or paraldehyde.—W.B.J.

† The one native case seen at Kaduna (but infected at Naraguta) showed a very definite raised rash.—W.B.J.

Number.	Name.	Race.	Place of Onset.	Period of Pyrexia in days.	Remissions.	Relapses.	Day of disease when rash appeared.	Rash.			Jaundice.	Symptoms.							Complication.	Result.
								Character.	Distribution.	Urine.		Headache.	Insomnia.	Muscular Pains.	Pains in back.	Flushing face.	Motophobia.	Suffusion of Conjunctivæ.		
1	Capt. E.	British	Kaduna South	13	None	None	5th	Raised papular	Extensor surfaces, thighs, abdomen, chest, arms, few on face.	Albumin from 3rd day	—	×	×	Some	Some	—	× / —	× / —	Nil. 3 cordy lobis hervae in skins	Recovered.
2	Mr. T.	„	Naraguta	13	None	None	6th	Raised papular	First on lower chest and abdomen: later all over body including face.	Albuminuria on admission - 10th day	—	×	×	Some	Some	—	× / —	× / —	Nil.	Recovered.
3	Sgt. H.	„	Kaduna North	11	Slight on 4th	Slight rise on 4th day	5th	Raised papular	Chiefly on legs and arms.	Albuminuria on admission (2nd day)	—	×	×	Severe pain left thighs and buttock no visible cause.	Not marked	—	—	—	Nil.	Recovered.
4	James	Asaba Native	Kaduna, but probably infected at Naraguta (Servant to case 2)	11	Partial on 4th day	None	4th	Raised papular	Very extensive all over body, limbs and face.	Albuminuria	—	×	×	Weakness of legs, unable to stand	Marked	—	× / —	× / —	Nil.	Recovered.
5	Dr. W.	British	Kaduna North	10	None	None	5th	Raised papular	Scattered; arms, face, abdomen, back, not profuse.	Albuminuria from 4th day	—	×	×	Some in limbs	Moderately severe	—	× / —	—	Nil.	Recovered.
6	Mrs. G.	„	Kano	12	Slight on 5th morning	None	5th	Raised papular	Very profuse extensor surface, arms, legs, face, neck, and very extensive on the back.	Albuminuria from 5th day contaminated owing to concurrent menstrual period	—	×	×	Severe pains in arms, legs especially in calves, also in eye muscles	Severe in lower sacral coccygeal regions	×	—	× / —	Rheumatic pain in left arm and neck some weeks after attack	Recovered.
7	—	„	Zaria, but probably infected at Kano	12	Slight on 14th day	None but irregular pyrexia from 13th–16th day due to B. Pneumonia.	5th	Raised papular	Very profuse on all parts body and limbs. Rt. Conjunctiva also inflamed by eruption.	None when tested on 6th day	—	×	×	Some	Severe back felt like jelly	× / —	× / —	—	Conjunctivitis iritis	Recovered.

× = Present.
× / — = Slight.
— = Absent.

Blood Examinations of cases of Dengue Group of Fever.

Number.	Name.	Race	Blood Examination.									Serum Test (which) to Typhosus group (made at Yaba.)			
			Date examined (day of disease)	Leucocyte Count.	Differential Leucocyte Count.						Mast.	Parasites.	Day of disease on which Serum taken	Result of Test.	Previous inoculation to Typhoid Group.
					Poly.	Lymph		L. mons.	Trans.	Eosin.					
1	Capt. E.	British	4th day and subsequently.	Total count not done, but apparent Leucopenia.	Counts except and disappeared.		lost but slight appearance	not L. Mons; increase of Eosinophiles.	nothing of note		—	None	14th	Positive to Paratyphosus B.	Had been inoculated to Typhoid Group. Strong reaction when inoculated with para. A. & B.
2	Mr. T.	„	—	—	—	—	—	—	—	—	—	None	16th	Positive to Paratyphosus B.	Last inoculated about 2 years ago.
3	Sgt. H.	„	2nd day onwards.	—	No Eosinophiles seen during the first 3 or 4 days.						—	None	12th	Positive to all Typhoid Group	Inoculated about 2 years ago.
4	James	Asaba Native.	4th day	Apparent slight Leucopenia.	—	—	—	—	—	—	—	None	13th	Positive to Paratyphosus B.	Had possibly been inoculated to Typhoid Group in East Africa.
5	Dr. W.	British	4th day	Apparent Leucopenia	67·5	5·0	21·0	6·5	—	—	—	None	12th	Negative	Had Enteric 20 years ago.
6	Mrs. G.	„	5th day	Definite Leucopenia.	Small Mononuclear increase.						—	None	Not taken	—	Did not ascertain.
7	—	„	6th day	Slight Leucopenia (10, 770 per c.m.)	80·0	6·0	9·0	5·0	—	—	—	None	15th	Practically negative at 1 in 30, totally negative at 1 in 60 dilution.	Inoculated to Typhoid Group in 1914 or 1915.

MALIGNANT DISEASE—(NATIVE).

By H. R. M. Ferguson, M.D., B.CH., ETC.

Two cases were observed during the year:

(1) Small round-celled Sarcoma (specimen examined at Yaba). Multiple fast-growing tumours in the groin, and parietal peritoneum.

(2) An epithelioma of foot with secondary growth in the groin. Seen in consultation with Dr. Maples.

NOTES ON CASES OF DEEP ABSCESSES.

By J. W. Thomson, M.B., CH.B., ETC.

During the year 32 cases of abscess were seen. Thirteen of these were of a type quite apart from the ordinary abscess, so apart that one feels they should be classed as a separate disease, and as a serious disease, because, of the thirteen cases referred to, 6 died.

These cases when first seen usually present a brawny swelling situated over any muscular part, often the thigh. The temperature runs about 101 or 102 in the evening. The swelling becomes slowly larger. If it is cut down on pus is met deep down in the muscles. It seems as if the abscess was actually in the muscle and bound in by the muscle sheath, which is thickened. The pus itself is thick and creamy and does not look very noxious: it reminds one of the old term "Laudable pus." The abscess cavity is usually large and smooth-walled without diverticular. Once or twice I have cleared the cavity thoroughly, wiped it out with iodine and sewn the whole thing up again with complete success: no further collection occurred there.

Usually, however, pus continues to be discharged and if the opening has been closed it has to be re-opened. Usually other similar abscesses appear in other parts. They often seem to come very quickly and quietly. One man was put on the table to have one abscess opened, five unsuspected ones were discovered and opened while he was under the anæsthetic.

The process of developing abscesses goes on a sort of pyæmia of the muscles. In one case of the series 20 deep abscesses developed. Gradually the patient weakens and dies from exhaustion, or septicaemia or some intercurrent disease, *e.g.*, pneumonia.

No treatment seems to affect the course of the disease.

One case appeared to improve when put on a course of mixed polyvalent antistaphylococcic vaccine: another did not. Potassium Iodide has no effect: antistaphylococcic serum is without effect. The only thing to do seems to be to go on opening the abscesses and trying to maintain the patient's strength by general hygienic and tonic measures. He may recover and he may not. The cases run on for months.

Usually when one sees these cases a large deep abscess is well developed. I have seen one where first of all an ordinary abscess appeared in the foot as the result of an injury. It pursued the usual course, to be followed by a deep abscess in the psoas.

The psoas is a favourite site for one of the abscesses to appear and these cases are very hopeless.

I sent some pus from one of these deep abscesses to Dr. Connal, of the Medical Research Institute. He reported a pure staphylococcic infection but told me that some French writers had described some specific diplococcus as being found in these cases and had classed this as specific disease. (La pyomyosite).

Dr. Connal stated that he had never been able to demonstrate the coccus. Clinically I should think the French writers are right. I have seen one or two of these cases in each of my former tours but never so many as this tour. Seeing a series of them their clinical similarity is striking and they present features in common that make one feel they are not ordinary abscesses but that some specific element exists.

THOS. E. RICE,
Director of Medical and Sanitary Service.

SANITATION.—1919–1920–1921.

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

(I).—Administration.

This is the first occasion in Nigerian history on which a Sanitary report for the amalgamated Nigerias has been submitted by one reporter alone. There are various reasons—some of them more convincing than others, but none of them unsound—why this should be the case; but the history of Nigeria is now so well known, to those immediately concerned, that it would be superfluous to go into these reasons here. It is good that this report should not, in this instance, be an annual one, but a report for the combined years, 1919–1920–1921: these three years constitute the triennium immediately succeeding the termination of the Great War; in all the victorious allied countries, this triennium began with a boom followed by a slump—and, it is hoped, ended on the beginning of an upward curve; Nigeria constituted no exception to this state of affairs; and the fortunes of her Sanitary Department reflected faithfully the general fortunes of Nigeria herself. When it is remembered, to how large an extent, sanitation is a matter of money, it becomes evident how intimately the efficiency of sanitation in Nigeria is involved in Nigeria's financial prosperity. The War had curtailed the material resources, and reduced the high personnel, on which sanitation, to be effective, depended; the succeeding boom seemed to warrant the full restoration—even the increase—of the former, although the hopes of early restoration of the latter became progressively more lukewarm; and the slump saw a slowly recovering personnel almost keeping pace with the failing of the material resources upon which it was dependent for much of its efficiency: in presence of these two movements in opposite directions, the attachment of that part of Kameruns (brought under British Mandate during the period now under review) to Nigeria, could hardly be regarded as entirely a helpful tertium quid.

2. The triennium began with the subsidence of the great pandemic (1918) of Influenza in the body, together with its ultimate arrival at the extreme landward periphery of Nigeria; and with the pandemic sounding an echo in the South, in the form of that seeming recurrence which appears to follow, by way of aftermath, in the wake of every pandemic. The second notable event in the history of the public health of the period was a severe epidemic of Small-pox in the Southern Provinces: an epidemic which filled a large part of the Sanitary stage from the end of 1919 until well into the Spring of 1920. This epidemic was a very general one throughout the Southern Provinces; but it

excited most anxiety around the Enugu district on the Eastern Railway System: the Enugu district being the centre of the coal-mining industry; a going concern of pronounced public importance, the integrity of which stood to be gravely threatened by an epidemic visitation calculated to hamper the recruiting of labour and the production of food-stuffs. The abnormal anxiety excited, prompted an exceptionally intensive campaign of vaccinating activity: this intensive campaign concentrated at various points, was especially so concentrated at and around Enugu; and the natural subsidence, always expected and generally realised with the establishment of the rains, was anticipated. The heavy mortality attending such visitations is discounted to some extent by the moral effect which the preventive measures taken have upon the Natives: such measures tend to make them more accustomed to, and less shy of, European Medical and Sanitary activity.

The third notable event was a memorably disastrous epidemic of Cerebro-Spinal Meningitis which broke out in the North-Western region of the Northern Provinces at the beginning of 1921. It had threatened the eastern and the western borders of the Northern Provinces a year before; but the preventive measures taken at that time seemed to have proven themselves successful: at all events no evidence of successful invasion had been collected. But either a few cases must have successfully crossed the North-western border at the end of 1920, or a few of the normally endemic cases must have been accumulating explosive virulence then; for, when first reported by the European Male Nurse, stationed at Birnin Kebbi, in January, 1921, and when Dr. Moiser, the Provincial Medical Officer at Sokoto, had confirmed the diagnosis in the same month, it was found that the epidemic had already assumed alarming proportions. Fortunately, however, the ravages of the disease were confined to the western half of the Sokoto Province, and to that Northern strip of the Kontagora Province marching therewith. The case mortality was very high: as usually is the case with this disease, it took its heaviest toll from among the poorer, and therefore more overcrowded, classes; and from among the young rather than the old. It raged during the height of the cold, dusty Harmattan (the cold dry wind which sweeps over the Sahara from the North-East, or North of East, during the centre of the dry season), when the people tend to close up all ventilative openings even more than they usually do, when every market-place is covered by a cloud of germ-laden dust, and when every movement of men or of animals raises still more dust. The only preventive measures possible were taken: large gatherings were prohibited; and His Excellency the Governor—very reluctantly, and greatly to the disappointment of the local magnates concerned and of their people as well—wisely abandoned his projected tour of the affected region in order that the materially increased danger of the spread of the infection, incidental to the inevitably dense collections of people assembled to greet him at his various halts, might be avoided. Medical Officers, Residents, Station Magistrates and the leading Railway Authorities were appealed to and their help was enlisted for the carrying out of such measures as the following:—The daily damping, so far as this was practicable, of markets and caravanserais, of railway stations and passenger rolling-stock; the damping of house-floors and of compounds prior to sweeping; the avoiding of overcrowding; the free admission of sunlight to houses; free ventilation, etc. The members of the Administrative Staff did yeoman service in inducing the Native Administrations to construct segregation camps and to induce the people to adopt the precautions outlined above.

The advent of the rains in May completely closed down the epidemic—the usual experience in such epidemics. At the instigation of Dr. Moiser, however, who wisely anticipated a recrudescence with the return of the dry weather, specially instructed malams (educated Natives) were sent out from Sokoto along the trade routes in order that they might instruct the people in preventive measures, and have

the towns and villages thoroughly cleaned while everything was damp. Up till the close of the year, there had been no recrudescence: the subject will have to be adverted to again in the next report, however; but, there is reason to hope, in a more passing manner.

So far as active treatment was concerned, it all fell on the shoulders of Dr. Moiser working from Sokoto, with the assistance of the European Male Nurse working from Birnin Kebbi, about 90 miles away, or more: the work of both was as strenuous as it was effective wherever it could be felt.

3. During the period under review, the entire Railway System, including all the railway stations and the precincts thereof, were systematically inspected by sanitary officers. In the course of their travelling, the sanitary officers made frequent inspections of passenger rolling-stock, of restaurant cars and of railway restaurants. But more numerous systematic inspections of the Railway System (or, more correctly, Railway Systems) are called for; this, however, must remain a pious aspiration for some time to come and it will probably result in the posting of at least one sanitary officer to railway duty solely, what time the return of financial prosperity may warrant the achievement. The desirability of this becomes obvious when it is remembered how epidemic disease makes its way along the trade routes, and how the Railway has become the most crowded, as well as the most rapidly followed, of all the trade routes.

4. At the end of the period, the earth-works of the Eastern Railway (already running as declared "open line" from Port Harcourt to Enugu, a distance of 151 miles), running northward from Enugu, were rapidly approaching the South (left) bank of the Benue at Munshi Narrows—Benue Bridge. The Tsetse-Fly Investigation Commission had arranged to take, in one of its traverses, the line from Kukuri, near Kaduna, to Benue Bridge, through which the new railway would eventually run. Dr. Johnson kindly promised to send, to the present reporter, a rough report of the distribution of fly along that line; a promise faithfully implemented by him less than a month after the close of the period. The expert information contained in Dr. Johnson's report will be of great value when the earth-works shall have begun to advance northward of the river and it shall have become necessary to apply preventive measures for the protection of labour employed on construction.

5. Far-reaching administrative military changes resulted in a rearrangement of the territorial distribution of the troops. In the course of 1919, the special service troops were disbanded; this meant the reduction of the townships of Zungeru and Baro, at each of which a battalion of the West African Service Brigade had been quartered, well nigh to vanishing point; and the reduction of the directly administered population of Zaria, where another battalion had been accommodated, by over 1,200. The military authorities having decided to concentrate a larger number of troops in each of a smaller number of stations, the beginning of 1921 saw various posts, which had, up till then, been the stations of garrisons, entirely evacuated by the military. In addition to this, the Mounted Infantry, the military pride of the North, which, less than half-way through its brief history (*i.e.*, some years before the advent of the War), had been cut down from a full, to a half battalion, was finally disbanded; while the other arms were materially retrenched. To enlarge on the effect of military garrisons on the people and country around them, constitutes a very compelling attraction to the sanitary reporter: this temptation had already been yielded to before it was decided that, on the present occasion in any case, this report would have to be made as concise as it could be made

consistently with a true representation of the state of affairs. It may suffice to end by stating that the disbandments and retrenchments indicated have added to the minor problems of Nigeria a considerable number of masterless men, many of the number, each attended by a larger or smaller following.

6. The setting-out of new settlements and the remodelling of old ones went quietly but steadily on throughout the period. Towards the end of the triennium, the question of degrading certain settlements (temporarily, anyhow) from the rank of Townships had come to be seriously entertained: the reason for this was that, for the time being at least, the administrative machinery necessary for running them as townships was not available; but the period ended without any definite decision having been reached.

7. During the War and for some time after the Armistice, in addition to the serious curtailment of the personnel of the medical staff in consequence of so many of the members thereof having been seconded for military duties in various fields furth of Nigeria, the sanitary branch had been obliged to surrender the services of part of its personnel for seconding to purely medical duty. This state of affairs made itself much more pronouncedly felt in the Northern than it did in the Southern Provinces: in the latter, the sanitary branch was never at any time well nigh out of action, for most practical purposes. It was otherwise in the Northern Provinces, where, although the sanitary personnel was much smaller (less than one half, as a matter of fact), one of the two sanitary officers had been seconded to purely medical duty from shortly after the outbreak of the War until the end of April, 1920; while, throughout the same period, the other, besides maintaining the routine of the sanitary branch so far as he could, was spending about half of his time on medical duty. The additional sanitary officer earmarked for duty in the Northern Provinces, provision for whom has appeared in the sanctioned Estimates for the past two years, has not yet been appointed. The administrative sanitary service was thus gravely impaired, as must be obvious from the facts now stated. Towards the end of the first half of the triennium, however, the entire sanitary personnel had been finally set free to concentrate its full energy on its own special department of duty, and while, at the end of the period, much remained to be desired, the Sanitary could not justly complain of its limitations *vis-à-vis* those of the Medical Department.

8. *Legislation.*—During the triennium, the legislation concerned here assumed the form of Ordinances to amend, and of rules and regulations made under the Public Health, the Townships, the Quarantine, and other Ordinances bearing upon sanitation and the public health generally.

As all of this legislation has already been published officially and as ready access to it is within easy reach of all those whose duty it is to invoke the help of it, no good purpose seems likely to be served by the recapitulation thereof *in extenso* here.

9. *Progress Made.*—During the first year of the triennium, the habitual use by Europeans of canoe transport on the river Benue, as the ordinary means of travelling to places formerly approached by that river, had nearly ceased. Except at high water, such riparian stations as Munshi Narrows, Katsina Allah, Abinsi, Ibi, Lau, Jalingo, Numan and Yola, are now reached by rail and road. At high water, such places are still reached, or approached, by river steamers; but, at that time, the fly danger is reduced to a minimum. Travelling to such regions as Bauchi and Bornu, *via* the Benue, had been given up over eight years before. This very material progress was due, primarily, to the construction of the Railway, and, in the second place, to the extension of the Northern system of roads. The Benue has always had an evil reputation for the

prevalence of Sleeping Sickness in its valley and several of the recorded cases of Trypanosomiasis in Europeans have been undoubtedly traced to travelling on the river by canoe. The professional canoe people of the Benue and a large stretch of the Niger continue to enjoy the reputation of being more or less immune to Sleeping Sickness, a reputation certainly not shared by the corresponding riparian people. Whether this reputation be truly based on complete, or on relative immunity, or whether it be traceable to systematic concealment, has not been settled. In the Southern Provinces likewise, the extension and consolidation of good roads and the increasing use of motor transport have largely curtailed the habitual use of water transport. This is all to the good, as a temporary phase of the history of Nigerian transport anyhow, so far as the sanitary outlook is concerned: increasing attention is being directed to the habits of the Tsetse Fly; during the period under review, steady progress has been made towards the successful treatment of human, and of animal trypanosomiasis; and it may be that, what time water transport shall have been resumed and extended (as it undoubtedly shall be), the Tsetse Fly shall have had its sting removed, to all practical intents and purposes. That water transport is likely to hold its own however, is indicated by the fact that the mercantile community betrays no intention of reducing its service. In 1921, a tsetse fly investigation commission, under Dr. Johnson, got to work: the work already accomplished by it inspires the sanitary looker-on with the hope of acquiring a substantially increased knowledge of the fly and its habits; and so of becoming able to apply his energies to much greater advantage, than has been the case hitherto, in combating the evil activities of the fly.

10. Despite narrow means during the third year of the period, the maintenance and extension of roads and (particularly in the Southern Provinces) of bridges, has gone on steadily. Apart altogether from constituting a valuable defence against fly, rapid transport, whether by rail or by road, diminishes to a pronounced extent the dangers arising from insect-borne and water-borne disease: the shorter exposure to their attentions whilst traversing the haunts of noxious insects, together with the smaller number of questionable sources of water supply tapped, cannot fail to have this result. At one time, a very short time ago relatively, it was the usual fate of newcomers, who had to travel any considerable distance inland immediately after arrival in the country, to arrive at their destinations with the malarial plasmodium already in their blood, and, not infrequently harbouring the seeds of Dysentery in one of its forms, or the filaria, *e.g.*, as well. In those days, a man who had not had his first "go of fever" within his first two, or at the most three, months in the country, was regarded as an exception and congratulated accordingly: now, such cases have practically ceased to excite remark. Europeans, in increasing numbers, when travelling by road with human carrier transport, themselves cover the stages between the well-cleared rest-camps by motor, leaving their loads to come on behind.

11. It is impossible to deal with the triennium without alluding frequently to the boom and the slump, which constitute its characteristic features. The period opened with prosperity reigning everywhere, with the exception of the cattle country, where a widespread epidemic of Rinderpest, by virtue of its heavy case mortality, took heavy toll from many of the herds—and caused a pronounced incidence of sickness among the consumers of infected meat, despite the published cautions against retaining beef as an article of food during the outbreak. The boom raised high hopes in the sanitary worker, who fancied he could foresee the achievement, at an early date, of much necessary work which had hung fire for years. But, although the boom was full of encouragement for him in one way, it was depressing in others: the medical and sanitary personnel was attenuated; the difficulty in obtaining sanitary labour at many

places was exceedingly great, in consequence of the merchants outbidding the Sanitary Department in the labour market by offering higher pay for easier and less objectionable work; and many imported materials reached prices which were practically prohibitive. Suddenly, at the end of 1920, mercantile activity fell to zero, and thousands of labourers were paid off at the tin mines alone: a feeling of unreality seemed to spread everywhere. This latter state of affairs made labour for sanitary purposes much more easily procurable, but full advantage could not be taken of this, on account of the falling revenue. Sanitary activity had necessarily to be restricted to matters of routine, and even those were not always effected satisfactorily; for at many places, sanitary arrears accumulated, just as cumulative poisons do in the animal economy. Taking a broad view of affairs in retrospect, however, the slump has not been, and is not, all loss, any more than the boom was all gain. The people of Nigeria as a whole—with the exception of the non-productive middlemen, who, after all, constitute but a tiny moiety of the population—have taken little or no skaith: as a matter of fact, there is much reason for believing that the health of the people has profited by the slump; their physical health certainly has. The real truth is that, so far as her own people are concerned, Nigeria is a self-supporting country and, in all true essentials, is independent of the outer world. At the great centres of European activity (mercantile and mining), the boom established an unnatural set of conditions which exercised an influence far from healthy on the indigenous Natives. Speculation was feverish; the speculators in their eager desire for rapid turnover offered extravagant wages for relatively light labour; the strong and active were in many regions seduced from productive, to extravagantly paid non-productive labour; and, where this was the case, the cultivation of the land was, in great part, left to old people, the immature, and the women. Suddenly possessed of (what to them was) wealth, the men concerned, whose natural wants were small, squandered it largely on the vices of crowded populations. Many young women, whose proper sphere was domestic duty and motherhood in the clean country followed the men folk to the big centres: forsaking their natural environment for the more hectic, but less wholesome one presented by the settlements. In addition to this, the idle hanger-on, the lazy vagabond without visible means of support, was visible everywhere. The physical and moral results of all this are too obvious to call for elaboration. The observer, all through the slump period—the country has not yet emerged from it,—who has been travelling along the landward trade routes away from the railway, knows very well that there is no slump in the internal trade of the country: it is true that not nearly so much imported material—cotton goods, hardware and the like—is seen in the markets; but many native industries, which had become moribund, have become all alive again; the ancient trade routes are as thronged as they ever were; and, although in many cases cash dealings have given place to barter, the effect of this is felt in the falling revenue—not in diminished prosperity of the people themselves. In most regions, the people are well nourished; they are well clad, and increasingly well clad; the professional beggar is as flourishing as he ever was, and knows nothing about any slump; and the appearance of the happy children simply inspires the observer with regret that there are not more of them; for any idea of adequate provision for them not being available, does not enter his mind. All this goes to show that, what time the trade of the outer world shall have recovered, there can be found as much scope for mercantile enterprise in Nigeria, as she has ever afforded at any period of her history. The people now having less cash in their possession, have less encouragement to bestow upon the idle vagabond (as distinguished from the professional beggar, who usually suffers from some bodily or mental infirmity) and many useless, and often criminal, hangers-on have, since the advent of the slump, been by way of earning an honest living,

after years of parasitic idleness. Nigeria is one of those happy countries in which none need starve who is willing to work: those genuinely unable to work need not starve either; so habitually charitable are, as a whole, the people of most races in the country. The only thing which causes starvation is famine due to drought, or some other natural cause of failure of the crops: and then people are liable to starve whether they be industrious or not. Were this not the case, the equivalent of the British soup-kitchen (run by Government) would be in evidence everywhere at present; whereas it has been quite unnecessary to contemplate even the probability of the necessity for any such expedients. Even as things are, the number of well-fed idlers going about, who are manifestly not earning their own living, yields ample evidence of the fact that the slump does not mean local scarcity. It is true that the European alien finds such local products (food-stuffs, *e.g.*), as he has need of, expensive; but he pays in cash which is the equivalent of imported goods, and imported goods are at present too dear for the native to buy much of; but, were the alien to enter the bartering arena, he would find local products, and living generally, quite cheap. The fact that recently—if not even now—Manchester cloth could be bought more cheaply in Nigeria than in Manchester itself, gives eloquent testimony to the truth of this. Nothing written here must be taken as a welcoming of the slump, which is a sad misfortune to Government and to the mercantile community and an agent of obstruction to the effort of every European in the country; but this is not a report on economics: it is a report on the public health; sober, progressive prosperity has always a salutary influence on the public health, and, however paradoxical the statement may sound, there can be little doubt that in many ways the slump has been attended by very genuine progress. For piping, draining, water-supplies, scavenging, conservancy, anti-mosquito measures and the like, do not make up the whole of sanitation; although, under the conditions to which the European has been accustomed for so many years (gauging most things ultimately in terms of money), these have appealed to him as the paramount sanitary necessities of this region of the Empire. It is forgotten, however, that here we have no problem equivalent to that of feeding and clothing school children at home; that a "Class III" physical standard is seldom or never traceable to food deficiency; and that, in tackling the local public health everywhere outside of the Government Gaols, the question of the public food supplies, may be completely and safely ignored; for there is no considerable section of the community habitually hovering over, or just under "Subsistence Level."

12. For a considerable time anterior to the triennium now under review, the heavy mortality in many of the Government prisons of the Southern Provinces had been the source of much anxiety: an anxiety which, to the knowledge of the present reporter, had been intermittently assuming the acute form from so long ago as 1907. The cause of this had been carefully searched for on various occasions: food deficiency had not been lost sight of; but, fifteen years ago, Beri Beri, *e.g.*, to which much of the mortality was at that time ascribed, was not so well understood as it is to-day. Towards the end of 1920, Dr. Clark, one of the sanitary officers, was seconded to the special duty of making a prolonged inquiry into the cause, or causes, of this mortality. Dr. Clark, in the course of that inquiry, went carefully into the internal economy of various typical gaols: his results demonstrated conclusively that the predominant cause of the mortality was food deficiency, a deficiency traceable chiefly to pilfering and other forms of rascality. Emergency action was taken on Dr. Clark's findings. Later, a carefully constructed report, drawn up by the Director of Medical and Sanitary Service, was adopted as the basis of systematic action: in an almost incredibly short time, the mortality subsided at most of the prisons concerned. Early on in the triennium, there had also been anxiety in the Northern Provinces

on account of the mortality in the Government prisons there. Careful observations conducted by Dr. Inness, of the Sanitary Department (chiefly at the Central Gaol at Kaduna) had demonstrated food deficiency in the North also; a drop in mortality followed dietetic reform there likewise; and, at Kaduna Central Gaol, the triennium ended without a single death for over a year. Such reform is much more easily effected in the Northern, than it is in the Southern Provinces, for the Northern Provinces possess a lingua franca, in the shape of the Hausa language, which is easily acquired by Europeans and can be applied by them well nigh everywhere. There is no such lingua franca in the Southern Provinces. The consequence of this is that, in the Southern Provinces, the European is seriously handicapped by the necessity for working through interpreters and other intermediaries. But, in North and South alike, the prison food supplies present unsleeping temptation to any peculator who can contrive to take a hand therein: the chief difference being, that the absence of a lingua franca in the South renders the European worker there, through no fault of his own, more imposed on by organised rascality than is his colleague of the North. Grim evidence of the truth of this can always be obtained from the Native Administration Gaols of the Northern Provinces: many of those gaols are much more insanitary, overcrowded, etc., than are the Government gaols, but their mortality is nevertheless lighter, and this is almost entirely due to the elimination of rascality in connection with the food supplies—the Native Administrations are practically rascal-proof, so far as such matters are concerned.

13. With the end of December, 1921, the first instalment of a Native Hospital inside of the city of Katsina was nearing completion. By the term "first instalment," is meant enough to make a beginning with and leaving ample room for such future expansion of this intramural hospital as future requirements may call for. The Director of Medical and Sanitary Service had, at last, seen his way to posting a medical officer to Katsina again, after an interregnum of some ten years or more: the medical officer has actually been posted since the end of the period. The Katsina Hospital is situated at a point within the city in the vicinity of the collegiate and of the provincial schools, and where it is easy of access to the Katsina people themselves. It is hoped that the hospital will not only meet the needs of the schools and of the Katsina people, but may serve also the purpose of making a beginning of the systematic training of indigenous Native medical and sanitary workers. Such a scheme is fraught with very material possibilities of sanitary progress; for experience teaches that indigenous Natives who have become accustomed to medical treatment are unusually open to the reception of sanitary principles.

14. An increase of touring on inspection was undertaken by a section of the Sanitary Staff, but considerably more progress will have to be made in this direction before it shall have become possible for those concerned to regard this, by far the most important part of their work, with anything approaching complacency. This question will receive mention again before the ending of this report.

15. The planning of townships and other mixed settlements, the arrangement of them in reservations, localities and neutral zones, and the topographical disposal of the European, *vis-á-vis* the non-European population, are problems the tackling of which has not always been kept separate from considerations not germane to it at all. A certain amount of feeling has been brought to bear upon this purely sanitary problem, which demands dispassionate handling above all things; and common sense recognition of the physiological idiosyncrasies which differ between different races, has been regarded as synonymous with the exclusiveness of caste, or with racial arrogance. This is a state of affairs which will gradually give way before the wider diffusion of the

teaching of modern science. Meanwhile, the world has to move on. There never has been any real difference of opinion between the various individuals immediately concerned with these problems, but there has been some superficial difference in the minor matter of definition. This has not caused any material difficulty to arise, but there has been lacking, in some directions, a definite rule of the road. No material difficulty attends new townships, or new settlements: it is otherwise with old established ones, for there, the wise man who will aim at half a loaf (when he knows he cannot get a whole loaf), rather than go without bread, is anathema, alike to the academic doctrinaire who will have either the whole loaf or no bread at all, and to the stolid obstructionist who will obstruct everything except things as they are and as they may become in the direction of progressive deterioration. While they were in England in 1921, His Excellency the Governor, together with the Director of Medical and Sanitary Service, discussed the whole question with the appropriate authorities at the Colonial Office. The result of this was a *modus vivendi* by virtue of which, given candour and goodwill on the part of those concerned, there is nothing to excuse any controversy in connection with the topographical arrangement of any township or settlement, old or new. At the end of the triennium, all that remained to be done was to arrange all existing townships and settlements in categories and to prescribe how the *modus vivendi* should be applied to each category respectively. This shall be done during 1922, and the fact may with propriety constitute one of the progressive achievements announced in the next report, unless, indeed, by that time, it may already have become so much a matter of course as to be no longer considered remarkable.

16. Two new European Sanitary Inspectors were appointed for service in the Northern Provinces: these were the first appointments of the kind made for service there, although such officials had already been an established institution of the Southern Provinces for years. The two officials appointed had previously done some years of service in the Northern Medical Department as British Non-Commissioned Officers seconded from the Royal Army Medical Corps, and they were selected for appointment in consequence of the aptitude for sanitary work which they had shown while doing medical duty. Their services (the one assumed duty at the end of 1920; the other, in the spring of 1921), have been highly appreciated by all concerned, at Kano, at Kaduna and at Jos, where they have officiated. The non-medical European communities concerned have formally intimated their appreciation in writing, and, when the first of the two went on leave, the Local Authority of Kano forwarded a representation, endorsed fully by himself, from the Advisory Committee of the Township, to the effect that, as the result of his activity, the sanitary condition of the Township had been greatly improved and that it would be a most regrettable state of affairs were the Inspector, during his leave, not replaced by another similar functionary. Of course, it was impossible to comply with the desire so expressed; but it is gratifying to be able to offer such convincing evidence of the wisdom of making the appointments, so soon after the event. The usefulness of the services of such officials has almost become ancient history already in the Southern Provinces, where there are four of them. Until the outbreak of war, or shortly before, the Southern Provinces had been incomparably the wealthier of the two divisions of Nigeria, so far as revenue was concerned; the Sanitary, like all other Departments, naturally reflected this prosperous state of public affairs, and the expenditure on the Government sanitary service of the Southern, was to that of the Northern Provinces pretty much as that on the public health service of an English county is to that of a rural district sanitary authority. This condition of things persists, for, as the Northern Provinces became self-supporting and naturally looked forward to fruitful expansion of their sanitary, in common with their other public services, the war broke out and, until the making of the two appointments now recorded, all that they could hope to do, and that

often with difficulty, was to maintain the integrity of the *status quo*. The end of the triennium saw the final accomplishment of the amalgamation of the Medical and Sanitary Departments of the Northern and of the Southern Provinces respectively. Like all newly assembled machines, this one will have to run for some time with a certain amount of friction and rattle before the mutual adaptation of all its parts and the smoothing of its bearings shall have attained that ease of running in which silence spells efficiency; but the scheme has been exceedingly well thought out, and its sole deficiency is a certain lack of horse-power, so to speak, which can only be supplied by the restoration of the medical and sanitary personnel to its full, authorised establishment. Meanwhile, each set of Provinces has something to learn from the other; for each has limitations peculiar to itself, as well as practices which the other may copy with advantage.

INFECTIOUS AND EPIDEMIC DISEASES.

17. *Cerebro-Spinal Meningitis.*—The present reporter has always been confident of the endemicity of this infection in the northern peripheral group of the Northern Provinces. In 1921, after he had made a traverse of the north-western region in which it had assumed a murderously epidemic form, he had occasion to visit Katsina: there, in the course of conversation with the Emir, he found that the latter was quite well acquainted with the disease under its local name: "Dan Kanoma," and recognised its endemicity and its periodical assumption of the epidemic form. That the Emir realised the nature of the disease he was talking about was quite evident, from his clear enumeration of its more prominent symptoms. He gave the same story about it as the Emir of Gwando, whose emirate (Headquarters: Birnin-Kebbi) was in the epidemic area, had told to Mr. H. F. Backwell, the District Officer of the Gwando Division of Sokoto Province, at the beginning of the year. The story was like this:—Somewhere between thirty and thirty-five years before the epidemic of 1921, the Chief of Kanoma had got to hear that the present Emir of Kontagora was about to raid his territory and attack his town. Upon hearing this, Kanoma invoked the aid of another Chief (his personal friend) to beat back Kontagora: the other Chief, having come to Kanoma's assistance, the two with their combined forces did drive Kontagora back. But, shortly thereafter, the disease (almost without doubt, Cerebro-Spinal Meningitis) assumed epidemic form among the Kanoma people and their allies, and, ever since, the disease has been known locally as dan Kanoma (literally, son of Kanoma). The Emir of Katsina harbours no delusions on the subject: he believes that it was not a new disease then, but that, the majority of the people having forgotten the epidemic (*i.e.* the last one) of possibly more than a generation before, it was regarded as a new visitation and was christened accordingly. This is well nigh certainly the truth. After having heard this story at Birnin-Kebbi, the present reporter marched down southward through Kontagora, where he met and conversed with the Emir, whom he had known for years: although he was very keen on obtaining first-hand evidence from the Emir of Kontagora, he abstained from questioning him—persuaded to observe this self-denying ordinance by the Resident of the Province, who reminded him of the fact, that the Emir, together with the Emir his father, before him, having had a lurid past, disliked having it raked up. That the disease is probably endemic, not in the extreme North alone, is hinted at in a memorandum, by Dr. Maples of Calabar, written since the close of the triennium, in which he states, *inter alia*: "I may say I usually see two or three sporadic cases of Cerebro-Spinal Fever in Calabar each tour." But, even if the disease be endemic in the South, no such combination of spreading agents for it is to be found there as is present in the far North annually: in the North, far greater cold is experienced, at the height of the dry season, than is experienced in the Southern Provinces, and the cold is accompanied with a drastic diurnal variation of temperature—

sometimes so extreme as over 100° in the shade by day and the low forties, or even the thirties, by night—high wind and clouds of dust, which prompt the people to huddle together in small, dark huts for warmth and to close the ventilative openings. It will be interesting to ascertain later (unfortunately not in time for the purpose of this report) from Dr. Maples, whether the sporadic cases which he reports from Calabar have occurred in stationary people there or in wanderers from without, for if the cases have occurred among the latter, the patients may be carriers who have happened to be overtaken by the disease assuming its active form while they happened to be halted at Calabar. Cerebro-Spinal Meningitis, in the matter of case mortality, rivals influenza at its worst, but it spreads after a different fashion: a pandemic of Influenza sweeps over the country like the hordes of Attila; but an epidemic of Cerebro-Spinal Meningitis advances like a Roman Legion; it invades and takes effective possession of a province; goes into summer—not winter—quarters, and, unless successfully encountered while at rest, moves on to the next province for the succeeding winter campaign.

The last really considerable epidemic of the disease had also occurred in the Sokoto Province, where it had been observed and notified by the late Dr. Twomey sixteen years before: that epidemic had covered a wider area, but the total mortality was more indefinite than that of the one now under consideration, for, at that time, the country had hardly been effectively occupied by the British Administration—the Satiru rising happened after the subsidence of the epidemic. This fact may afford some indication of the difficulty attending the acquisition of the historical statistics of any disease in the region concerned.

18. *Influenza and Pneumonia.*—With the subsidence of the great pandemic of 1918, these two closely allied (if not identical, for Nigerian purposes) diseases seem to have shot their bolt for the time being. Strictly localised epidemics of them recur at some one district or another annually: during the triennium they followed what may be called their normal endemic routine. The fact that they are endemic probably accounts, partly at least, for the slow but steady advance of imported pulmonary tuberculosis. It may not be out of place here to reiterate the fact, that one of the many protean manifestations of Influenza is a close imitation of Cerebro-Spinal Meningitis—a most important point to be remembered in regions where both diseases are endemic.

19. *Dysentery.*—The cases which come under European observation are but a minute fraction: in the Northern Provinces, it is hardly possible to encounter an intelligent Native who cannot give a history of at least one personal attack of the disease and the long odds are that the same holds good in the Southern Provinces likewise.—The present reporter, who has been in the country for over twenty years and has always had his domestics in his service for relatively prolonged periods, has never had a servant who did not have Dysentery at one time or another. As the result of domestic experience, he is in a position to indicate how easily preventable this disease is: all his servants are carefully instructed how to avoid it; they receive every facility for cooking their food and drink; they know that a second attack contracted while they are in his service means dismissal therefrom, and, although his avocations have constantly taken himself and his servants into and through all sorts of country, he has never had occasion to dismiss any of them on this ground. The amoebic form is much the more prevalent; but recent investigation tends to the impression that the bacillary form is not so rare as it has hitherto been believed to be.

20. *Enteric Fever.*—The small number of cases of this infection which come to light is altogether out of proportion to the large number of carriers of it, which there is conclusive reason for believing are always wandering about the country. With the settling down of Wadai and Darfur, a largely increased number of carriers may be expected: they will enter Nigeria in the Chad region, bringing the infection with them from Egypt and the Egyptian Sudan.

21. *Tuberculosis.*—This invasion makes slow but steady progress: it is much more prevalent in the Southern, than it is in the Northern Provinces; in the Southern Provinces, it is more common on the coast than it is inland, and it appears to be more prevalent in Lagos than it is at any other point on the coast, but statistics are less unreliable at Lagos than they are anywhere else in Nigeria: as a matter of fact, the figures of the last few years, taken superficially, would seem to indicate a relative decrease in its prevalence in Lagos.

22. *Leprosy.*—No fresh departure in the tackling of this disease has been made for years—certainly not during the triennium now under review. The reasons for this lack of progress in later years are too well known to call for mention.

So far as the Northern Provinces—especially the Northern two-thirds of them—are concerned, Leprosy fills much the same place as Tuberculosis does in Europe: this may not be true of the Southern Provinces, where, however, the infection is widely prevalent.

23. *Malarial and Blackwater Fever.*—Considering the nature of the population, recorded cases may be regarded as pretty uniform for the three years concerned. It has already been stated that sanitary activity (preventive measures included) has succeeded in effecting little, if any, more than the maintenance of routine. Greater experience among the older residents tends to be balanced by lack of experience among the newcomers, who are numerous.

Many cases among people resident in the bush away from Doctors reach the ken of the Medical Department through hearsay only and such remote sufferers often ascribe their attacks to other causes, such as "Sun," and the like.

24. *Rabies.*—This infection is not at all uncommon among dogs in the Northern Provinces: it may be so in the Southern Provinces also, but, in the latter, observers do not enjoy such numerous opportunities of interesting themselves in mammalian life.

25. *Tetanus.*—As formerly reported, this disease is not at all uncommon in the Northern Provinces, where, however, it is generally concealed, the people dreading it so much that they shrink even from the mention of it. It is difficult not to think that pretty much the same state of things prevails in the Southern Provinces as well.

26. *Small-Pox.*—The epidemic which has already been mentioned above as causing so much stir around the colliery region at Enugu was part of a general outbreak which permeated the greater part of the Southern Provinces: it was severe in type and one case of the hæmorrhagic type, which occurred in an European at Enugu, proved rapidly fatal.

For the purpose of combating this epidemic in the Southern Provinces, the personnel of the African Vaccination Staff, numbering 50 individuals, was nearly doubled; in 1920, in addition to the sum of £2,060 provided for lymph supply in the regular routine sanctioned Estimates, an additional sum of £8,178 was expended; special vaccination campaigns were organised at Enugu, Lagos, Ubiaja, Warri, Ijebu-Ode, Ilaro and at other centres; special medical officers were detailed to

conduct some of those campaigns, and quarantine was declared against the ports of Lagos, Warri, Degema and Abonnema, Port Harcourt and Calabar.

It has long been the view of the present reporter that the members of the African Vaccination Staff require much closer supervision than they receive at present: this view is shared by many of his professional colleagues. The fact, that it is by no means uncommon for an African Vaccinator to return a percentage of successful vaccinations greater than that secured by the average duly qualified medical officer, seems to speak for itself.

In the Northern Provinces, which cover an enormously larger area than do the Southern, and where a special African Vaccination Staff does not exist, such an effort as that alluded to above has always been out of the question, for even a miniature imitation of it has always been a financial impossibility. Nevertheless, although, in the Northern Provinces, endemic small-pox assumes the epidemic form at some places every year, those epidemics do not appear to be any more severe, or relatively larger, than those to which the Southern Provinces are accustomed.

The maintenance of the potency of Vaccine Lymph constitutes an exceedingly difficult problem all over Nigeria but, at times, an almost insoluble one in the hot dry North with its great distances. Were the instructions, sent out from England, touching the precautions necessary for the maintenance of its potency, an absolute *sine qua non*, there would hardly be any successful vaccinations in Nigeria at all. Dr. Inness, the Senior Sanitary Officer, Northern Provinces, reports, *inter alia*, as follows: "The maintenance of the potency of the Anti-Variolous Vaccine "received from England when transmitted to the distant stations in the "arid north received serious consideration. In spite of every possible "precaution to protect it from excessive heat—the lymph is placed on "ice at Lagos immediately on arrival by the mail steamer and is sent to "Kaduna in a travelling ice-chest; on arrival there it is placed in the "permanent ice-chest and kept there until requisitioned for by telegram, "when it is despatched to more distant out-stations in Thermos Flasks— "the percentage of successful results has been so small that Medical "Officers have become disinclined to vaccinate at all—fearing that "repeated failures would bring discredit upon the efficacy of vaccination "against Small-pox in the eyes of the Natives. It is curious and difficult "to explain that in spite of increased precautions against exposure to "heat the percentage successes from dried lymph have been getting "smaller for the last five years:—

1916	...	...	...	61·70%
1917	...	...	...	47·70 „
1918	...	...	..	51·81 „
1919	...	...	...	23·71 „
1920	...	...	...	36·10 „
1921	..	...	...	20·30 „

"Towards the end of the year (1921) lanolinated lymph was "substituted for the dried lymph, but up to the time of writing the "reports from the Medical Officers on the potency of the lanolinated "lymph are not very encouraging, although the results are somewhat "better than with the dried variety.

"The Natives of the Northern Provinces as a whole take very "kindly to vaccination and with an efficient lymph a vast amount of "good work could be done. As soon as possible after the financial "position permits, serious experiment should be undertaken with a view "to the establishment of a local centre for the production of Anti- "Variolous lymph."

This plea of Dr. Inness for the establishment of a local lymph supply is perfectly sound and it is applicable to the whole of Nigeria.

As the amount of vaccination overtaken in the Southern, exceeds so enormously that overtaken in the Northern Provinces, it appears but just to the Southern Provinces to show the respective returns separately.

VACCINATIONS.

Southern Provinces.

	1919.	1920.	1921.
Total number vaccinated ...	105,228	302,028	297,823
Successful	55,073	149,892	150,364
Percentage of success	54·5%	49·1%	50·48%

Northern Provinces.

	1919.	1920.	1921.
Total number vaccinated ...	9,773	7,396	15,731
Successful	2,318	2,672	3,203
Percentage of success	23·71%	36·10%	20·30%

The Northern figures given above represent returns sent in by Medical Officers, by whom all the successes were verified. All those labelled successful, therefore, were so: it is not so with the failures however, a considerable number of which represents vaccinations done on tour, never observed for results and therefore treated as unsuccessful. In addition to those, however, vaccinations were performed by a certain number of Natives (who had received training in the art from Medical Officers) working under their own Native Administrations. Of such vaccinations, 2,295 were done in 1919, 3,389 in 1920, and 5,118 in 1921. Some of the Vaccinators concerned with these were quite reliable and their recorded successes could be taken seriously, and some of their recorded failures were probably successes, when they represented cases which they had done on circuit and not afterwards observed. But not all the successes recorded in this category could be taken seriously.

It is greatly to be regretted that, as a general rule, arm-to-arm vaccinations cannot be done: the ramifications of Syphilis are so ubiquitous and often so treacherously concealed from the eye of the ordinary observer that, with carefully selected exceptions, such vaccinations have to be prohibited by any other than medical men, and few medical men will take the risk. In the few exceptional instances in which arm-to-arm vaccinations can safely be done, the results are strikingly successful: the present reporter once secured just over 98% of successes in a series of vaccinations performed by means of lymph taken from absolutely healthy infants whose parents had been carefully examined for the exclusion of syphilis.

27. *Chicken Pox.*—This infection may be observed throughout Nigeria. It is the rule, that, the farther North, and therefore the farther inland, it occurs, the milder are its manifestations. Near the coast (and far inland as well, but exceedingly rarely) very malignant manifestations are not uncommonly observed: there, it sometimes simulates Small-pox closely in its early appearance, and so much is this the case that, in Lagos, many of the cases are isolated in the Infectious Diseases Hospital, as a measure of safety.

28. *Trypanosomiasis.*—Among the European community, one case of this invasion in 1920 and two, in 1921, were recorded. The figures given for Natives cannot be taken seriously; for they represent

such a minute fraction of the whole. All the recognised preventive measures are employed against the invasion so far as the funds and other resources obtainable will permit.

29. *The Venereal Diseases.*—These constitute the gravest medical and sanitary problem of Nigeria. But it is not necessary to deal with them at length here, so fully has the state of affairs been set forth in former reports. It is necessary, however, to remind all the authorities concerned of the very strict limitations to which anti-venereal workers are restricted in Nigeria. The first limitation is the small staff of workers, the percentage of medical men to population, compared with the same proportion in England, is something like what a micro-organism is to an average insect, and all know how inadequate is anti-venereal machinery even in England. Furthermore, the anti-venereal worker in England is working among his own people, and he is, in this respect, in an altogether different world from that occupied by his fellow worker in Nigeria, who is lost in the multitude, and confused in his understanding by the congeries of divergent races, tongues, manners and customs and religions, which faces him. His problem does not consist in the acquisition of greater knowledge of the venereal diseases, especially in their more obscure manifestations: his difficulty is to get at the mass of gross material which hits him in the eye everywhere. Were the necessary funds available—it is hopeless to waste time dreaming about the possibility of this under existing conditions—a systematic course of action could be planned forthwith; for it is inconceivable that any medical man in Nigeria does not know perfectly well what the work done ought to be for the next century to come. For all really practical purposes, the only genuine prospect (so far as Syphilis is concerned anyhow) is the probability of gradual attenuation to extinction taking place: it has taken place in the world before.

So far as the infected human material which can be got at goes, treatment at least—and even prevention, to a certain extent—is a more effective form of activity than it was at the end of the first decade of the century. The reason for this is that, since then, the medical worker has not been hampered so much as he was formerly by "the British Public in one of its periodical fits of morality." For this, the medical worker has to thank, in the first place, the Royal Commission on Venereal Diseases: in the second, the "Great War." The more widely knowledge spreads, the more generally will the sufferers from those diseases submit themselves voluntarily to medical advice and treatment. This is all to the good and will be productive of steady progress, until progress be interrupted again by the next "fit." This does not apply to Europeans alone: since the "criming" (cutting of their pay) of the native soldiery for incapacity due to venereal disease was stopped some years ago, it is the general opinion of the medical officers that the grosser manifestations of venereal disease in barracks have decreased and incapacity arising therefrom has become pronouncedly less. This is what might have been expected: the diseased soldier is hardly enamoured of his disease, and he will avail himself of any means of getting rid of it, short of being punished or regarded as an outcast in consequence.

So notoriously disastrous are the ravages of these diseases that it would be superfluous to allude to them at all, were it not necessary to keep alive the fact—periodically forgotten—that the medical and sanitary staff is perfectly aware of their gravity and universality and is using every means at its disposal to cope with them.

30. *Yellow Fever.*—Only two cases of the infection were recorded during the triennium, both of them fatal: the one in an European in 1919, the other in a native in 1920. The Nigerian ports are very carefully watched and guarded by the Health Authorities. Although Lagos is the most carefully guarded and the most thoroughly inspected port and township in Nigeria, the Stegomyia Fasciata accounts for

more than 75% of the mosquitoes found therein. This is to be expected in so densely populated a settlement as Lagos is, and the rarity of cases of yellow fever may serve as some indication of the constant and effective harrying to which the mosquitoes are subjected. The machinery for the effecting of this is just sufficient: the Senior Sanitary Officer in charge of the township of Lagos and Ebute Metta and the port of Lagos is assisted by an European Inspector, a staff of Native Sanitary Inspectors, and by the Sanitary Inspectors-in-Training who attend the school run by him for training purposes. In writing that the machinery is just sufficient, what is meant is that the machinery is just sufficient relatively to other townships and ports in Nigeria; for there is no provision for a physical break-down of the Senior Sanitary Officer and a Medical Officer of Health is badly required for relief purposes and as a second line of defence.

31. *Vital Statistics of Lagos and Ebute Metta.*—Here, immediately following allusion to yellow fever, seems to be the stage appropriate to the introduction of these statistics. The registration of births and deaths of non-natives is compulsory throughout the Northern and Southern Provinces, but, over large regions, the term "non-native," is so loosely applied, and excludes so many of those who ought to be so designated, that the resulting figures are far from reliable and are not to be taken seriously.

But the area ring-fenced by the boundaries of Lagos and Ebute Metta is exceptional, inasmuch as it is the only one within the boundaries of which the registration of births and deaths is compulsory for the entire community, without exception of race or class or category.

Lagos and Ebute Metta.	1919.	1920.	1921.
Population	83,306	84,694	98,625
Number of Births	2,517	2,845	3,002
Birth rate	30·2	33·5	30·4
Number of Deaths	2,256	2,443	2,472
Death rate	27·0	26·5	25·06
Infantile Mortality	296·3	285·3	284·8

Even these statistics are qualified by the fact that very considerably less than half of the deaths registered are certified by registered medical practitioners. The prevalence of Tuberculosis and of Tetanus in Lagos bears out the opinions of the observer who has received his impressions and drawn his conclusions touching the incidence of these diseases from observation of the country generally. Lagos is the most cosmopolitan place in Nigeria: it follows from this, that many of its inhabitants have become more or less denationalised, and that, in becoming so, they have lost some, at least, of their pristine prejudices and superstitions. Inter alia, they seem to have lost (or many of them have lost) their ancient superstitious dread of making any direct reference to Tetanus. In dealing with the statistics of this disease for 1920, Dr. Foy, who was then the Senior Sanitary Officer of the Southern Provinces, after having dealt with certified deaths therefrom, wrote: "And apart from this many non-certified cases are registered as such by the Registrar of Vital Statistics." This means that the people are willing to divulge the facts. There is a very general opinion that Tetanus is exceptionally prevalent in Lagos: the present reporter does not share this opinion, but believes the truth to be that there is comparatively little concealment of it in Lagos. Although Dr. Foy believes that Tuberculosis is not undergoing any alarming increase in

Lagos, the infection is a fairly common one and, judging by the recorded certified deaths of the last ten years, its average share of the certified deaths amounts to over 8%.

32. *Helminthic Diseases.*—This invasion is general throughout the cattle country of the Northern Provinces, where nearly all the meat-eating people concerned being Mohammedans, Taenia Saginata is the parasite found. It is not uncommon to find this parasite in Englishmen, for the same reason as in the Natives: they will not forgo their underdone beef. The Native is very fond of raw beef, which he uses more as a stimulant than as a food: he is a very conservative person and centuries of education are no more likely to reform his habits in this direction, than has been the case in England. Plenty of the Northern Mohammedans take the same sort of half-concealed pride in harbouring this parasite as do Europeans of a certain type in suffering from Gout or from "Tennis Elbow."

Taenia Saginata is much rarer in the Southern Provinces, where meat-eating is nothing like so general as it is in the North. A small number of cases of Taenia Solium, occurring in Non-Mohammedans who eat the flesh of local pigs and seek medical aid, are recorded annually. The number of such recorded cases is likely to increase as the lower types of Natives, whose tastes are often catholic in the consumption of animal foods, come to seek medical aid in larger numbers than they do at present.

Ascaris.—Judging by the medical records, Ascaris is evidently infinitely more common in the Southern than it is in the Northern Provinces. This is probably traceable to the much greater number of children brought to the medical officers in the South than in the North. In the North, the majority of the people are Mohammedan: all the better class women live in seclusion and the children, of course, live with the women.

Guinea Worm.—This parasite has a wide distribution throughout most regions in Nigeria. Of course, it is a question of water-supply, in the widest sense of the term: education, or at least, knowledge, is extending more rapidly than is rigid attention to the integrity of water-supplies, and, for a long time to come, the "cooking" of water will be the most practical preventive measure to aim at. Guinea worm may almost be defined as the typical disease of the trade route.

Filariasis.—This is very common, and the recorded cases afford no true indication of its prevalence. The cases recorded in the Southern, greatly exceed those recorded in the Northern Provinces. The reason for this is well nigh certainly that the average medical officer of the Southern, has many more prisoners under his care than has his average colleague of the Northern Provinces.

Ankylostomiasis.—Many more cases are reported from the Southern, than from the Northern Provinces. But this does not give the truth. The invasion is exceedingly common among the more backward and furtive pagans of the North who are seldom seen by any medical officer. The best preventive measure is effective conservancy, but, unfortunately, it is among those most likely to be subjected to the invasion that reform in this direction is most difficult to effect.

(III).—GENERAL MEASURES.

33. Nigeria is a very large country: it stretches from the steamy relaxing coast of the old Bight of Benin in the South to the southern fringe of the Sahara Desert in the North. Between these limits are contained wide climatic and meteorological differences, which embrace, in particular, varied conditions of humidity and aridity, of diurnal variation of temperature, of elevation above the sea, of prevailing winds,

of sun qualified and unqualified by cloud, of vegetation and topographical distribution of water, of rain-fall, and of soil. Its people—allowance always being made for difference in kind—are as varied in race, in language, in grades of civilisation (imported civilisation not included), in manners and customs, and in religion, as are the people of Europe and while some sections of the population are essentially composed of producers and are in all senses of the term self-supporting, others are the reverse. Although these facts are all on record, they are apt to be forgotten, especially in these days when the pursuit of dead uniformity in practice is apt to choke originality in method, and it is wise to keep reiterating them, for it stands to reason, that in Nigeria, although they may be directed towards the same end, such domestic operations as those which now fall to be described, must vary in method, in continuity and in cost.

Clearance of Bush, Undergrowth, etc.

34. Much more public money is devoted to this purpose in the Southern, than in the Northern Provinces. The reason for this is two-fold: in the first place, take them all over, the dry season in the Southern Provinces is a relatively short one and this, together with the fact that grass and undergrowth have a long green life, renders clearing operations more arduous; but, in the second place, the Southern Provinces retain the traditions of their wealthy days when they could afford to, and did, devote large expenditure to their relatively small area, and, even now, their more numerous and longer established townships give them a moral right to retain going machinery not yet achieved by the more mushroom townships of the North. This representation is not meant to hint at undue expenditure on the Southern Provinces, where the money concerned has been as necessary as it has been well spent; but it is meant to constitute a precedent for the initiation of a levelling-up process in the Northern Provinces, so soon as returning prosperity may warrant it. As for the clearing operations themselves, in the Southern Provinces, large numbers of prisoners are regularly employed in maintaining the thoroughfares of stations and townships, the no-man's lands of their area, and their approaches, clear of long grass, and in combating the development of scrub. There is probably no month in the year during which prison labour is not applied to this purpose. In addition to the prison labour, a very considerable amount of free sanitary labour is employed at outstations and particularly at stations where there is no prison labour available. This free labour is paid out of funds under control of the Sanitary Department. The banks of streams in the vicinity of settlements are kept clear and, in addition to the keeping down or clearing away of undergrowth, the lopping of the unduly low branches of trees is constantly being carried on. But whether done by prison, or by free clearing, operations in the South are almost entirely effected by manual labour employing slow and clumsy methods. That the methods are costly as well as slow and clumsy, will be seen presently.

In the Northern Provinces, routine measures of this nature are carried on, during the rainy season alone, as effectively as the means available (funds, in the absence of sufficient prison labour) will permit. At many settlements, the extension of the area planted with dhub grass, is an annually recurring activity, and, annually likewise, with the establishment of the dry weather (trees, the value or usefulness of which renders their preservation desirable, having been safe-guarded), clearing at most settlements is effected by fire—a cheaply performed operation which disestablishes many objectionable forms of life besides undesirable vegetation. Again, in many cases, the grass is very effectively cleared before the annual burning comes off, for, in growing settlements, it is a valuable marketable commodity for thatching purposes. At many settlements again, the undergrowth is removed without cost. It is cut down, taken away, dried, and sold for fuel, which, in the northern half of the

Northern Provinces, tends to become a progressively scarcer and more expensive commodity: so much is this the case that, at Kaduna, for example, one of the greatest difficulties in connection with the clearing operations directed against the tsetse fly there, is to prevent the labourers devoting half of the time, for which they are paid, to collecting what they have cleared and carrying it to market for sale.

Both in the Southern, and in the Northern Provinces bush clearing by human labour is a most costly proceeding: than the labour so employed, it would be difficult to cite a more expensive form of labour anywhere. The well nigh exclusively used implement, whether for clearing grass or scrub, or for lopping or even cutting down trees, is the primitive machete, or matchet. The axe and the saw are so little used as to merit merely passing mention, while the scythe and the sickle are never seen. Some seven years ago, the present reporter had occasion to effect a large amount of emergency clearing at Kaduna. After the work had been completed (there had been no slacking, for it was carried out under his own eye), he worked out the cost per acre: it averaged well over ten shillings per acre for one non-recurrent clearing.

In the Southern Provinces, and in some places in the Northern Provinces as well, such clearing has to be effected more than once (in places, several times) a year. The average cost of clearing labour in the Southern Provinces is over fifty per cent higher than the labour on which the cost per acre given above was based. It is doubtful if agriculturists, practising the highest farming in Great Britain, could afford to pay, for productive harvesting labour, anything approaching the rates habitually paid in Nigeria for non-productive clearing-labour. It is true, that an area which has been successfully planted with dhub grass, calls for no further grass clearing, but the laying-down of dhub is a slow and expensive process: direct European supervision is required, for the dhub will not take effective possession of the ground until after the vegetation, which it is desired to disestablish, has been totally eradicated and Native labourers cannot be trusted to do such thorough work as this, when they are left without unremitting supervision.

35. *Disposal of Refuse.*—This continues to be effected by incineration, by ordinary open burning, and by burial. Unfortunately, during the present time of financial stringency, the particular method employed is not determined by what is most effective, but is conditioned by the narrowness of the funds available.

36. *Sewage Disposal and Conservancy.*—The methods employed in effecting this form of activity throughout Nigeria have been described in former reports from each set of Provinces; no change was introduced during the triennium under review, but the end of it saw the existing methods being maintained in their integrity with increasing difficulty.

37. *Drainage.*—Permanent drains are not numerous, and those that are in use are being maintained with no little difficulty. Open surface drainage is the rule, and it is effected by artificially cut channels, where natural channels do not suffice to serve the purpose efficiently. Fortunately, over the greater part of Nigeria, the ground lends itself to free and rapid percolation and, on open natural ground, collections of stagnant water constitute, infinitely more greatly, the exception than the rule.

All drainage channels within the boundaries of townships and settlements are kept free and clear of undesirable growth. At certain townships the systematic setting out of the open system of drainage channels calls urgently for the skill of a sanitary engineer. Of drainage, as of most forms of sanitary activity in Nigeria, it may be said truly that rural sanitation, as the term is understood in England, will always constitute a better model than any other for Nigeria as a whole to follow. Apart altogether from the question of obtaining the necessary

constant water supply for flushing purposes, a hidden sewer or a hidden drain is apt to constitute a secret malignant sore which can be ameliorated by total extirpation alone. Of course, there are a few exceptional places—Lagos is one of them—which are so water-logged and foul as to call for a forced system of piped drainage but such places owe their evil condition to an unlimited crowd having been allowed to squat on a strictly limited area. This is one of the mistakes of the past which it behoves all concerned to profit by, and to keep always in view for future guidance. Lagos is not the solitary exceptional settlement in Nigeria, at which, given a high pressure piped system of drainage and sewerage and a sufficiently secure foundation within reasonable depth, in the fulness of time the sky-scraper may make its appearance.

It is hardly needful to mention that the term "drainage," includes the evacuation of borrow-pits and other reservoirs of stagnant water—natural and artificial. In most parts of Nigeria, a native, whatsoever his race may be, never deems himself comfortably settled until he has constructed, at least, one borrow-pit. Many Europeans "out native" the Native himself in this sphere of activity: the majority of Europeans—so it seems to the jaundiced eyes of the sanitary officer—elevate borrow-pits to the dignity of sacraments; if they be not permitted to dig borrow-pits openly, they dig them surreptitiously, call them wells and say that they are necesary for gardening and for aesthetic purposes generally; and the sanitary officer (still livery, without doubt) comes to the conclusion that, finding that it is impossible for them to build, they have decided to dig enduring monuments in clay to their own memory. This a matter which calls for constant vigilance: everybody, who knows the tropics, knows how crowds of Native shacks will appear on forbidden ground in a night and borrow-pits make their appearance with equal celerity in Nigeria.

38. *Infectious Diseases Hospitals.*—There are five permanent hospitals of this type in the Southern Provinces; three fairly considerable ones at Lagos, Warri and Calabar; two smaller ones at Sapele and Abeokuta. It will be noticed that all of these stations, with the exception of Abeokuta, are ports. There ought to be permanent hospitals of this type at all Nigerian Ports, notably at Port Harcourt: the ports are well protected otherwise, but there are only two Quarantine Stations, one at Lagos and one at Bonny, and they cannot be maintained in proper repair, on account of lack of funds, but necessary expenditure on their repair at an early date has been envisaged. Infectious Diseases Hospitals, or at least permanent segregation camps, are necessary institutions at other stations as well as at Ports. They are urgently needed at some of the larger townships of the Northern Provinces, throughout which there are none. With the exception of the five townships named above, there are none in the Southern Provinces either. Except at these five places, when an epidemic of infectious disease breaks out at any settlement, a temporary segregation camp is run up and, after the final subsidence of the epidemic, it is burnt down. The funds set aside for this purpose envisage no possibility of extensive epidemic visitations in the landward regions of Nigeria.

39. *Sanitary Inspections (including Food Inspection), Markets and Slaughter Houses.*—Towards the end of the triennium, the resumption of some approach to anti-bellum activity in the matter of sanitary inspections had become possible: the final return of all the sanitary officers to their own proper duties exclusively, the gradual restoration of the personnel of the medical staff (and so of ex-officio Medical Officers of Health), and the appointment of the two new European Sanitary Inspectors already alluded to, were all tending to this end. When, as had been the case for years, the staff of Medical Officers of Health was inadequate, it followed that such activities as these concerned here could be effected neither so regularly nor so generally as were necessary or desirable. General sanitary inspections, which include in their scope markets and

food supplies, are now effective so far as they go, and they are steadily going farther and so becoming more effective. It stands to reason that they are much more effective at some centres than they are at others, for the necessary machinery is not yet adequate at all of them. Meat inspection stands by itself: it is carried out effectively at Lagos, where the machinery for the purpose really is adequate; but from Lagos as the head, it becomes gradually more attenuated until it reaches the tail, so to speak, where there is none at all. The reason for this is not far to seek: where there is no Health Officer on constant duty who is qualified to undertake such inspections regularly and punctually, it stands to reason that the often over-wrought ex-officio Medical Officer of Health cannot undertake to be present at the meat market and slaughtering ground daily between the hours of 6 and 8 a.m. when the animals are slaughtered and the meat is cut up for sale in the open market. The animals brought in for slaughter are inspected at various townships at which slaughtering is an affair of daily routine. Throughout the whole of Nigeria, markets consisting of permanent booths and stalls are exceptional: the number of markets consisting of such permanent fixtures is slowly increasing, but the reform calls for speeding-up; for no financial loss is likely to be incurred, where (as is generally the case in Nigeria) rents are obtainable sufficient to cover interest and capital, together with a sinking fund adequate to the meeting and making good of depreciation. Outside of Lagos, slaughter-houses do not exist; at the end of the period under review, the early completion of one was in sight at Port Harcourt, but, elsewhere, slaughtering grounds, more or less effectively adapted to the purpose which they are intended to serve, take the place of slaughter houses. The entire question of the regulation of the butchers has been under consideration for years; the Administration is fully informed touching the achievement necessary in this direction; and the forward move will be a rapid one, so soon as returning financial prosperity makes it possible to call upon the butchers to accept a scheme which they will have no valid excuse for declining.

40. *Regulation of Buildings.*—In the course of 1920, the Director of Medical and Sanitary Services devoted a considerable amount of attention to this question as it affected all the townships throughout both sets of Provinces. Although in recent years legislation directed to all townships throughout Nigeria had been practically identical, uniformity of practice, for obvious reasons (Northern and Southern Nigeria each being possessed of its own history and traditions, being the chief of these), had not always been the rule. Such central display of interest as that alluded to here is most wholesome, inasmuch as it tends to the elimination of such variations in local practice as are due to local complacency rather than to local expediency. The subject will probably demand very close attention indeed after mercantile prosperity shall have been re-established fully; for with the rapid appreciation of site values at the busier centres of trade, the tendency towards the extension of buildings upwards rather than superficially is likely to arise. In the non-European Reservations, the regulation of buildings themselves calls for constant vigilance; but this requirement is a simple one when compared with the overcrowding of the buildings, and the necessity for making sure that they do not become common lodging-houses in disguise. In townships, the caravansary does not exist, as it does in association with so many of the markets at Native towns, but visitors have to put up somewhere; and it is quite evident that they are habitually put up by the occupiers of premises in the non-European Reservations; for were they not so put up, there would be numerous common lodging houses. In the absence of a system of public lighting in these Reservations, it is practically impossible for the existing machinery to cope with this question.

41. *Town Planning.*—There has not been much scope for activity in this direction in recent years: the hands of the clock were inevitably put back during the war; during the phase of feverish activity which

characterised the boom, expansion assumed the form chiefly of temporary holdings out in the bush and in the neighbourhood of way-side railway stations, not that of expansion of proclaimed townships; and, since the advent of the slump, to mark time has been the order of the day. Trade has but to show signs of enduring revival however, for town-planning activity to become one of the most pronounced features of work, even more in connection with extensions of old townships and settlements than with new townships on the sanctioned model.

42. *Prosecutions.*—This is a subject which is likely to receive increasing reference in future reports. Prosecutions constitute a prominent feature of sanitary routine at Lagos and at certain other townships. During the period under review, also, and for several years before that, prosecutions had been instituted by fits and starts at various townships, but where the local sanitary routine was being overtaken with difficulty, there was not much energy to spare for the purpose of following cases of sanitary delict into court.

The keen health worker is sometimes apt to regret that sanitary sins of commission and of omission cannot be dealt with executively, instead of by the rather ponderous machinery of some of the courts.

43. *Water-Supply.*—The piped water-supplies of Nigeria have been described in former reports and, as no new installation falls to be described in this one, it seems superfluous to recapitulate them here. In the case of piped supplies, apart from safe-guarding the water in transit by insuring the integrity of the conducting pipes, the most difficult problem is how to eliminate wilful waste. In Lagos a very large amount of piped filtered water is wasted: it is difficult to prevent this, for the purpose of effective prevention a permanent police guard would be necessary at every public stand-pipe. At Kaduna and Lokoja also, there is much waste of piped water.

At Kaduna and at Kano, the permanent water-schemes have again fallen into abeyance pending the return of better times; at Kano and Zaria, the respective dams still exist, as it has been found inexpedient to disestablish them, and the water-supplies of the latter two, which are never above suspicion, call for constant vigilance. It is understood that, what time the present financial stringency shall have become relaxed the question of these water supplies shall be accorded preferential consideration.

The tapping of new sources of supply constitutes a pressing necessity at Port Harcourt and at Enugu also.

Constant care is bestowed upon wells and other sources of supply, and practically all the Europeans in the landward districts interest themselves in this activity. This is all to the good, even although (as happens occasionally) the notes made in rest house books touching the local supplies be so censorious as to be hardly practical or just.

With the advent of better times, a very practical question will arise, which is this: whether it may be expedient to set up Norton tube-wells (in cases in which the ground is suitable for them) near the markets of the towns along trade routes on which Guinea worm is prevalent. This invasion is a chronic pest along many of the most important trade routes in Nigeria; it is responsible for much suffering and for much loss of effective labour, and it seems a pity not to make some serious attempt to tackle it, more especially as it is so well understood, and preventable by comparatively simple means.

(B).—Measures taken to Spread Knowledge of Hygiene and Sanitation.

44. For this purpose, lectures in English unassociated with practical illustration in the field are not likely to achieve the acme of effectiveness, particularly among those whose Native language is not English. In England herself, for example, lectures on Botany and Zoology are hardly taken seriously, when they are not combined with regular excursions to the open country, the quarry, the cutting, the river valley, etc. And, in England, pupils listening to such lectures are not only enjoying the pull of being taught in their own vernacular, they have had their faculty of observation (in a very material percentage of cases anyhow) fostered before they have entered any schools at all, however elementary. But even so, they cannot be taught such subjects without repeated drilling in practical work. There is a well organised system of education in the Southern Provinces, and not only is English taught, but it constitutes the most common medium of instruction—if not the sole one—at many schools.

The idiomatic knowledge of English is not at all a common accomplishment among Natives of Nigeria who habitually write and talk "English"; and this becomes evident at once, so soon as one gets away from mere copying, repetition and the working out of sums in Arabic numerals. The average European, in regarding "English-speaking" and "English-writing" Natives, is apt to credit them with a much less inaccurate knowledge of English than is really theirs: in addition to this, he is liable to mistake lettering for education—a mistake made quite as commonly in England herself as in Nigeria. It is universally admitted that in Rome herself—even in the Augustan age—the literary language of Cicero and of Ceasar was not the language of common life: it was certainly not the language in which the affairs of common life were discussed. But the English language by means of which education is conducted in Nigeria, is liable to be to elementary English what the diction of Cicero was to the talk of the common people of Italy. This becomes evident when the average lettered Native expresses himself on paper about common subjects.

All this must be remembered, when the statement is made, that Hygiene and Sanitation constitutes a part of the curriculum at most Government Schools. All that is done, is done verbally: it must be so in the nature of things at the schools concerned, wherein those pupils who submit themselves to "education" longest, have their eyes directed exclusively to those examinations which constitute the portals through which they may carry their lettering to market: a knowledge of things themselves is quite a secondary consideration, and not to realise this, is to take too seriously the knowledge of Hygiene and Sanitation imparted in the Government Schools. In religious circles, a distinction is drawn between the eloquent preacher and the "faithful pastor," and some of the less orthodox maintain that the latter effects the most good work: changing the illustration in the obvious way, this is emphatically true of the teaching of hygiene and sanitation, and the spread of the boy-scout movement to the Nigerian schools affords hope of a move forward in practical sanitation—of the time when understanding of the subject shall rival the existing knowledge thereof.

In the schools of the Northern Provinces, elementary teaching of the subject is conveyed through the medium of the vernacular, and the results are often quite encouraging.

In both sets of Provinces, most good is done by homely practical lessons taught on the spot; in the Townships, by the ex-officio Medical Officers of Health and by the sanitary inspectors; in the landward regions by the sanitary officers on tour—a very cogent reason for constantly going on tour.

The type of life, take it all over, can generally be elevated to, or reduced to, the patriarchal; most Africans of most races have a weakness for "taking the floor," so to speak, and quite a lot of useful sanitation can be, and often is, affected by working through this weakness. Something new confided to a representative Native is not likely to be kept to himself provided he be left to dispense the facts in his own way—that is, as originating with himself and bestowed out of his philanthropy and by his authority on his neighbours.

By such and kindred means sanitary knowledge is spreading steadily, and understanding and practical application are not lagging so very far behind. But it must be understood, that to expect greater rapidity of reform in the African than is expected in the European is futile and fraught with inevitable disappointment.

(c).—Recommendations for Future Work.

45. So much unaccomplished work long overdue remains to be done, that one shrinks from putting much forward here. The question is not primarily what the sanitary staff ought to do or can do, but what the funds available will allow them to do. Still, a few recommendations may be set down with advantage. These are:—

(1) Greatly increased going on tour by the Sanitary Officers. Really effective work can be accomplished nowhere but on the ground concerned. Pious expressions of opinion and solemn injunctions directed from a stool in a headquarters office is apt to be productive of peripheral irritation rather than of sanitary efficiency.

(2) For the accomplishment of (1), paper work should be cut down so far as possible.

(3) The general harnessing of motor transport for the more effective carrying on of conservancy and disposal of rubbish and refuse at the larger centres.

(4) Improvement of the accommodation, and more effective arrangements, for the slaughtering of animals for human food. Included with this are the erection of properly appointed slaughter-houses, together with accommodation for the hanging-up of carcases, and wire-gauze protected vehicles for the transport of meat to market, at the larger townships: the exposure of meat for sale at markets to be restricted to booths protected from flies by wire gauze.

(5) A drastic reform in the practice of Vaccination: this involves primarily a material improvement in the potency of lymph, and, in the second place, more intimate supervision of the work of the African Vaccinators.

(6) The maintenance of more regular and more intimate inspections of the various townships, with special reference to those people who convert their premises into unauthorised common lodging-houses, who are very difficult to detect, but who are responsible for much overcrowding, together with its baneful consequences. This activity, of course, includes a much closer supervision of the proportion of site area covered by buildings, than has been possible in recent years.

(7) The early appointment of the additional Sanitary Officers already provided for in the sanctioned Estimates, and when funds permit, the appointment of two whole-time Medical Officers of Health.

M. CAMERON BLAIR,
Deputy Director of Sanitary Service.

TABLE VI.

RETURN OF DISEASES AND DEATHS OF EUROPEANS FOR THE YEARS 1919, 1920, 1921. NIGERIA.

Diseases.	Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
Infective Diseases.													
Beri-Beri	...	...	...	...	...	...	...	...	...	...	...	...	...
Cerebro-Spinal Fever	...	...	2	...	...	1	3	...	...	...	...	...	...
Chicken Pox	...	...	...	...	...	...	...	...	...	1	...	...	...
Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...
Dengue	...	...	1	...	...	3	8	...	..	1	2	...	...
Diphtheria	...	...	...	...	...	...	...	...	...	...	...	...	...
Dysentery:—													
(*a*) Amœbic	...	2	20	35	1	...	34	68	1	1	8	30	...
(*b*) Bacillary	...	...	7	5	1	...	3	2	...	...	...	2	...
(*c*) Type not determined	...	...	1	18	...	...	9	4	...	1	13	14	...
Endocarditis-infective	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric	...	...	2	2	3	...	2	3	...	..	4	2	...
Erysipelas	...	...	1	...	...	...	...	4	...	...	...	3	...
Gonorrhœa	...	...	3	99	...	...	2	111	...	...	1	112	...
Influenza	...	4	2	18	...	...	5	27	...	1	1	15	...
Kala-Azar	...	...	...	...	...	...	...	...	...	...	...	...	...
Leprosy:—													
(*a*) Nodular	...	...	...	...	...	...	...	...	...	...	...	...	...
(*b*) Anaesthetic	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaria:—													
(*a*) Tertian	...	...	12	...	...	...	3	...	...	9	5	...	...
(*b*) Quartan	...	...	1	...	...	...	1	...	...	...	...	...	...
(*c*) Aestivo-autumnal	...	4	210	905	7	6	352	1,011	2	5	287	957	1	4
(*d*) Chronic	...	...	1	34	...	...	8	6	...	...	5	14	1	1
(*e*) Type not determined	...	...	...	6	...	...	...	2	...	...	...	4	...	...
Blackwater Fever	...	...	17	21	10	2	20	13	8	2	27	14	10	...
Measles	...	...	...	1	..	...	...	1	...	...	...	...	...	...
Papataci Fever	...	...	...	...	...	...	...	2	...	...	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pneumonia	...	...	1	4	...	...	2	3	...	...	7	21	1	...
Pyrexia of uncertain origin	...	...	4	7	...	...	3	15	...	...	1	9	1	...
Rabies	...	...	...	...	...	..	...	...	...	...	...	...	...	...
Relapsing Fever	...	..	...	...	...	...	1	...	...	...	...	...	...	...
Rheumatic Fever	...	...	...	3	...	...	1	1	...	...	...	2	...	...
Septicaemia	...	...	1	...	1	...	...	3	...	...	...	...	...	...
Small-Pox	...	...	1	...	...	...	1	...	1	...	...	...	...	...
Syphilis (*a*) Primary	...	...	4	38	...	...	4	23	...	...	23	22	...	1
(*b*) Secondary*	...	...	2	8	...	...	1	11	...	...	...	2	...	...
(*c*) Inherited	...	...	...	...	..	...	...	...	...	...	...	...	...	...
Tetanus	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trypanosomiasis (Sleeping Sickness)	...	..	...	...	...	...	1	...	...	...	...	2	...	...
Tuberculosis	...	...	4	3	...	...	4	4	1	...	2	...	...	...
Undulant Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	..
Whooping Cough	...	...	...	1	1	...	...	...	...	...	...	...	...	..
Yaws	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Yellow Fever	...	...	1	...	1	...	...	...	...	...	...	...	...	...
Other Diseases	...	...	3	8	...	1	6	14	...	1	4	19	1	...
Intoxications.													
Alcoholism	...	...	6	14	..	...	6	13	1	...	7	6	1	...
Morphinism	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Other Intoxications	...	...	1	6	...	...	...	1	...	...	...	1	...	...
Carried forward	...	10	292	1,252	25	9	469	1,358	14	11	401	1,258	16	6

TABLE VI.—RETURN OF DISEASES AND DEATHS OF EUROPEANS FOR THE YEARS 1919, 1920, 1921—*continued.* NIGERIA.

Diseases.	Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
General Diseases.													
Brought forward ...	10	292	1,252	25	9	469	1,358	14	11	401	1,258	16	6
Anæmia	...	4	182	...	1	18	175	...	...	14	191	...	...
Anæmia-Pernicious	...	7	9	...	...	...	1	...	...	...	...	...	...
Diabetes	...	1	2	...	...	...1	...	...	...	...	...	...	...
Exophthalmic goitre... ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gout	...	1	7	...	...	1	7	...	...	1	13	...	...
Leucocythæmia	...	...	...	...	...	...	...	...	...	...	...	...	...
Lymphadenoma	...	...	...	...	...	...	...	...	...	...	...	...	...
Myxœdema	...	...	...	...	...	...	...	...	...	...	...	...	...
Purpura	...	...	...	...	...	...	1	...	..	...	...	...	...
Rickets...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scurvy	...	...	...	...	...	..	...	...	...	...	2	...	...
Other Diseases	1	4	60	...	...	...	36	...	...	7	57	...	...
Local Diseases.													
DISEASES OF THE NERVOUS SYSTEM.													
Sub-section 1.—Diseases of the Nerves:—													
Neuritis	...	2	12	...	...	12	26	1	...	13	15	...	...
Meningitis	...	2	4	...	...	1	1	1	...	1	...	...	...
Myelitis	...	...	...	...	...	...	...	...	...	...	...	...	...
Hydrocephalus	...	...	...	...	...	...	...	...	...	...	...	...	...
Encephalitis	...	1	...	..	...	...	...	...	...	...	...	...	...
Abscess of brain... ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Congestion of brain ...	...	...	2	...	...	...	1	...	...	..	1	...	...
Other Diseases	...	1	32	...	...	5	47	1	...	4	38	1	...
Sub-section 2.—Nervous Disorders and Diseases of Undetermined Nature:—													
Apoplexy	...	1	1	1	...	...	...	..	...	1	...	1	...
Paralysis	...	2	1	1	...	1	...	...	...	1	...	...	...
Chorea	...	...	...	...	...	...	...	...	..	...	...	...	...
Epilepsy	...	2	5	...	...	...	1	...	...	1	...	...	...
Neuralgia	...	3	72	...	...	4	69	...	...	...	89	...	...
Hysteria	...	1	2	...	...	...	5	...	...	1	4	...	...
Other Diseases	1	24	39	...	...	10	83	...	...	18	77	1	...
Sub-section 3.—Mental Diseases:—													
Idiocy	...	...	...	...	...	...	...	..	...	...	...	...	...
Mania	...	...	...	...	...	2	1	...	...	...	...	...	...
Melancholia	...	2	1	...	...	...	...	...	...	...	...	...	...
Dementia	...	...	...	...	...	...	...	...	...	...	...	...	...
Delusional Insanity ...	...	1	1	...	...	...	...	...	...	4	...	...	...
Other Diseases	...	...	...	...	...	2	4	...	...	1	...	...	...
DISEASES OF THE EYE.													
Conjunctivitis	...	...	37	...	...	2	36	...	...	...	44	...	...
Keratitis	...	...	1	...	...	...	3	...	...	1	4	...	...
Ulceration of cornea ...	...	...	2	...	...	...	3	...	...	...	3	...	..
Iritis	...	1	7	...	...	3	5	..	...	3	4	...	1
Optic neuritis	...	...	...	...	...	...	...	...	...	...	...	...	...
Cataract	..	...	...	...	...	...	3	...	...	...	...	...	...
Other Diseases	...	...	13	...	...	2	7	...	...	...	25	...	...
Carried forward ...	12	352	1,744	27	10	532	1,873	17	11	472	1,825	19	7

TABLE VI.—RETURN OF DISEASES AND DEATHS OF EUROPEANS FOR THE YEARS 1919, 1920, 1921—*continued.* NIGERIA.

Diseases.	1919. Remaining in Hospital at end of 1918	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	1920. Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	1921. Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921
Local Diseases—*contd.*													
Brought forward ...	12	352	1,744	27	10	532	1,873	17	11	472	1,825	19	7
DISEASES OF THE EAR.													
Inflammation	...	...	57	...	...	3	43	...	...	2	40	...	...
Other Diseases	...	1	41	...	...	1	72	...	...	1	63	...	...
DISEASES OF THE NOSE.													
Inflammation	...	..	8	...	...	...	6	...	...	...	22	...	...
Other Diseases	...	...	6	...	...	...	23	...	...	1	26	...	...
DISEASES OF THE CIRCULATORY SYSTEM.													
Pericarditis	...	1	1	...	...	1	1	...	...	..	1	..	...
Endocarditis	...	2	...	...	...	...	...	...	...	...	...	...	...
Valvular Disease:—													
(1) Mitral	...	1	3	...	...	1	12	1	...	2	6	...	...
(2) Aortic	...	...	3	...	...	1	2	...	...	1	1	...	...
(3) Tricuspid	...	...	...	...	...	...	...	...	...	...	1	...	...
(4) Pulmonary	...	...	...	...	...	1	1	1	...	...	...	...	...
Arterial sclerosis ...	...	3	2	...	...	2	...	...	...	1	2	1	...
Aneurism	...	...	3	1	...	...	3	1	...	...	...	...	...
Other Diseases	...	4	17	3	...	5	25	1	..	6	17	1	...
DISEASES OF THE RESPIRATORY SYSTEM.													
Laryngitis	...	3	72	...	...	2	37	...	...	1	12	...	...
Bronchitis	...	7	125	1	1	18	124	...	2	8	232	...	1
Broncho-pneumonia ...	2	6	1	...	...	...	33	...	...	1	...	...	...
Abscess of Lung ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gangrene of Lung ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Emphysema	...	...	...	...	...	...	...	...	...	...	...	...	...
Pleurisy	1	3	3	...	...	2	6	...	...	4	13	...	...
Empyema	...	...	...	...	...	...	...	...	...	1	...	...	...
Other Diseases	...	5	50	1	...	6	63	...	1	4	54	...	...
DISEASES OF THE DIGESTIVE SYSTEM.													
Stomatitis	...	...	11	...	...	2	23	...	...	5	11	...	...
Caries of teeth	...	1	83	...	...	1	129	...	...	...	105	...	...
Pyorrhœa alveolaris ...	...	2	21	...	...	...	19	...	...	...	12	...	...
Glossitis	...	...	...	...	...	...	4	...	...	...	5	...	...
Sore throat	...	1	39	...	...	2	37	...	...	...	10	...	...
Inflammation of tonsils	...	4	56	...	...	9	67	...	...	7	71	...	1
Gastritis	1	14	157	...	...	33	174	...	...	12	245	...	...
Ulceration of stomach ...	...	4	4	...	...	...	2	...	...	1	4	1	..
Hæmatemesis	...	...	1	...	...	...	1	...	...	1	...	..	1
Dilatation of stomach ...	...	1	...	...	...	1	1	...	...	1	1	...	1
Stricture of stomach ..	...	...	1	...	...	...	2	...	...	...	...	...	...
Dyspepsia	...	3	170	...	...	10	171	...	1	9	197	...	1
Enteritis	...	15	41	...	...	22	47	...	...	14	40	1	...
Appendicitis	...	8	11	...	...	4	11	...	...	7	4	...	...
Colitis	...	2	30	...	...	7	17	...	...	6	18	...	...
Ulceration of intestines	...	1	2	...	...	...	...	...	...	...	1	...	...
Sprue	...	...	2	...	...	...	...	...	...	...	...	...	...
Hernia	...	2	21	...	...	3	7	...	...	3	32	...	...
Diarrhœa	...	13	147	...	...	15	162	1	...	11	128	...	...
Carried forward ...	16	459	2,933	33	11	684	3,198	22	15	582	3,229	23	12

TABLE VI.—RETURN OF DISEASES AND DEATHS OF EUROPEANS FOR THE YEARS 1919, 1920, 1921—*continued.* NIGERIA.

Diseases.	Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
Local Diseases—*contd.*													
Brought forward ...	16	459	2,933	33	11	684	3,198	22	15	582	3,229	23	12
DISEASES OF THE DIGESTIVE SYSTEM—*continued.*													
Constipation	1	5	78	...	...	2	83	...	...	1	54	...	...
Colic	...	1	29	...	...	2	39	...	...	5	35	...	...
Hæmorrhoids	...	7	32	...	...	6	37	...	...	4	40	...	...
Pancreatitis	...	...	...	...	...	...	2	...	...	...	1	...	...
Hepatitis—Acute ...	1	9	20	..	...	9	32	...	...	3	32	...	...
Abscess	...	2	...	...	...	3	1	1	...	...	...	...	...
Cirrhosis	...	1	...	...	...	1	...	...	...	1	1	...	...
Jaundice	...	2	7	...	...	6	3	...	1	4	5	1	...
Peritonitis	...	...	...	...	...	...	1	..	...	...	...	...	...
Ascites	...	...	...	...	...	...	3	...	...	...	...	...	...
Other Diseases	...	9	42	...	...	16	45	...	1	15	55	...	...
DISEASES OF THE LYMPHATIC SYSTEM.													
Splenitis	...	3	15	...	...	2	9	...	...	4	10	...	...
Inflammation of lymphatic gland	1	5	25	..	...	9	25	...	2	15	34	...	...
Suppuration of lymphatic gland	...	5	6	...	...	5	8	...	...	9	10	...	...
Lymphangitis	...	1	5	...	...	...	1	...	...	...	7	...	...
Elephantiasis	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases	...	2	...	...	...	1	5	...	...	1	...	...	...
DISEASES OF THE URINARY SYSTEM.													
Acute nephritis	...	3	1	2	...	2	6	...	...	2	6	...	1
Bright's Disease... ...	...	...	2	...	...	1	2	...	...	...	3	...	...
Pyelitis	...	...	1	...	...	...	...	...	...	...	...	...	...
Calculus	...	4	...	...	...	1	3	...	...	2	6	...	...
Renal colic	...	2	1	...	...	...	3	...	...	...	6	...	...
Cystitis	...	5	25	...	...	4	15	...	...	6	16	...	...
Vesical calculus... ...	...	...	...	...	...	...	...	...	...	2	6	...	...
Suppression	...	...	...	...	...	...	...	...	...	...	...	...	...
Hæmaturia	...	2	3	...	...	1	4	...	...	...	1	...	...
Chyluria	...	...	...	...	...	...	...	...	...	...	...	..	...
Other Diseases	...	3	3	...	...	3	3	1	1	4	11	...	...
DISEASES OF THE GENERATIVE SYSTEM.													
Male Organs:—													
Urethritis...	...	...	38	...	...	...	32	...	...	2	40	...	...
Gleet	...	...	5	...	...	...	5	...	...	...	2	...	...
Stricture	...	2	6	...	1	1	6	...	...	1	1	...	...
Prostatitis	...	...	4	...	...	1	12	...	...	1	5	...	...
Soft chancre	...	1	18	...	...	5	31	...	...	1	31	...	...
Condyloma	...	...	...	...	...	...	...	...	...	...	1	...	...
Inflammation of scrotum	...	...	1	...	...	...	...	...	...	...	1	...	...
Hydrocele	...	...	1	...	...	2	1	...	...	...	1	...	...
Orchitis	...	2	7	...	...	5	10	...	...	1	15	...	...
Epididymitis	...	5	11	...	...	3	7	...	1	2	10	...	...
Abscess of testicle ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases	...	3	13	...	...	9	12	...	1	4	7	...	...
Carried forward ...	19	543	3,332	35	12	784	3,644	24	22	672	3,682	24	13

TABLE VI.—RETURN OF DISEASES AND DEATHS OF EUROPEANS FOR THE YEARS 1919, 1920, 1921—*continued.* NIGERIA.

Diseases.	1919. Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	1920. Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	1921. Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
Local Diseases—*contd.*													
Brought forward ...	19	543	3,332	35	12	784	3,644	24	22	672	3,682	24	13
DISEASES OF THE GENERATIVE SYSTEM—*continued.*													
Female Organs:—													
Ovaritis	...	...	...	...	...	...	...	...	...	...	...	...	...
Ovarian cyst	...	...	...	...	...	...	...	...	...	...	...	...	...
Endometritis	...	...	...	...	...	2	1	...	...	...	...	...	...
Displacement of uterus	...	...	...	...	...	...	...	...	...	...	1	...	...
Vaginitis	...	...	...	...	...	...	...	...	...	...	2	...	...
Amenorrhœa	...	...	3	...	...	...	...	...	...	...	...	...	...
Dysmonorrhœa	...	...	1	...	...	...	4	...	...	...	3	...	...
Menorrhagia	...	...	1	...	...	..	2	...	...	...	2	...	...
Leucorrhœa	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases	...	...	1	...	...	...	...	...	..	1	1	...	...
AFFECTIONS CONNECTED WITH PREGNANCY.													
Abortion	...	...	1	...	...	1	1	...	...	...	...	...	...
Other Affections ...	...	...	1	...	...	1	1	...	...	3	...	...	...
AFFECTIONS CONNECTED WITH PARTURITION.													
Delayed Labour	...	...	...	...	...	...	...	...	...	...	...	...	...
Retained placenta ...	...	...	...	...	..	...	...	...	...	...	...	...	...
Premature Birth ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Affections ...	...	...	...	...	...	...	...	...	...	...	...	...	...
AFFECTIONS CONSEQUENT ON PARTURITION.													
Post-partum hæmorrhage	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal septicæmia ...	...	...	..	...	...	...	...	...	...	...	...	...	...
Mastitis	...	...	...	...	...	...	...	...	...	...	1	...	...
Abscess of breast ...	...	...	..	...	...	...	...	...	...	...	...	...	...
Other Affections ...	...	...	...	...	...	...	1	...	...	...	...	...	...
DISEASES OF ORGANS OF LOCOMOTION.													
Osteitis	...	...	3	...	...	1	2	...	...	...	1	...	...
Arthritis	1	3	24	...	...	4	14	...	...	1	21	...	...
Spondylitis	...	...	...	...	...	...	...	...	...	...	...	...	...
Bursitis	...	...	2	...	...	...	4	...	...	1	3	...	...
Myalgia	...	3	62	...	...	7	82	...	...	5	62	...	...
Other Diseases	...	1	25	...	...	7	39	...	1	5	41	...	...
DISEASES OF CONNECTIVE TISSUE.													
Cellulitis	1	2	17	...	...	9	27	...	1	12	20	...	...
Abscess	...	11	41	...	...	8	45	...	...	9	43	...	...
Other Diseases	1	2	4	...	...	...	1	...	...	2	7	1	...
Carried forward ...	22	565	3,518	35	12	824	3,868	24	24	711	3,890	25	13

TABLE VI.—RETURN OF DISEASES AND DEATHS OF EUROPEANS FOR THE YEARS 1919, 1920, 1921—*continued.* NIGERIA.

Diseases.	Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
Local Diseaes—*contd.*													
Brought forward ...	22	565	3,518	35	12	824	3,868	24	27	711	3,890	25	13
DISEASES OF THE SKIN.													
Ulcer	...	2	71	...	...	15	75	...	2	24	93	...	2
Urticaria	...	...	19	...	..	4	20	...	...	2	20	...	...
Eczema	...	5	57	...	...	1	42	...	...	1	58	...	...
Boil...	...	7	120	...	...	7	90	...	1	20	164	...	3
Carbuncle	...	1	4	...	...	2	7	1	...	5	6	...	1
Herpes	...	...	6	...	...	...	12	...	...	1	21	...	...
Psoriasis	...	...	2	...	...	2	1	...	...	4	3	...	...
Oriental sore	...	...	...	...	...	...	4	...	...	...	...	...	..
Tinea	...	..	72	...	...	...	101	...	...	...	145	...	...
Scabies	..	...	11	...	...	...	23	...	...	1	26	...	...
Acne	...	...	5	...	...	...	6	...	...	..	8	...	...
Prickly heat	...	...	37	...	...	3	49	...	...	...	48	...	...
Other Diseases	..	9	95	...	...	5	74	...	...	8	90	...	...
INJURIES.													
General	...	5	27	1	...	2	18	1	...	16	11	2	...
Local	2	21	197	...	1	42	283	1	...	36	379	...	...
TUMOURS.													
Benign	...	1	4	...	...	...	12	...	...	2	11	...	...
Malignant	...	...	...	...	...	...	...	...	...	1	...	...	...
MALFORMATIONS ...	...	...	...	...	...	...	1	...	...	...	3	...	...
POISONS.													
Vegetable	...	...	...	...	...	2	2	...	...	...	1	...	...
Animal	...	1	...	...	...	...	8	...	...	...	2	...	...
Other Poisons	...	1	6	...	...	1	21	...	...	2	16	...	...
PARASITES. ANIMAL PARASITES.													
Protozoa	...	...	1	...	...	...	...	...	...	...	...	...	...
Trematoda (Flukes) ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cestoda :—													
Tænia solium	...	...	4	...	...	...	2	...	...	...	1	...	...
Tænia sagninata... ...	...	...	7	...	...	...	3	...	...	...	6	...	...
Other Cestodes	...	...	...	...	...	...	1	...	...	...	...	...	...
Nematoda :—													
Ascaris	...	...	2	...	...	3	4	...	...	...	2	...	...
Tricocephalus dispar ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichina	...	...	...	...	...	...	...	...	...	...	...	...	...
Dracunculus	...	...	1	...	...	...	...	...	...	...	2	...	...
Filaria ... ... *Loa	...	...	5	...	...	*1	20	...	...	...	6	...	...
Strongylus	...	...	...	...	...	...	...	...	...	...	...	...	...
Ankylostomum	...	...	...	...	...	...	...	...	...	1	2	...	...
Oxyuris	...	...	2	...	...	...	...	...	...	...	1	...	...
Other Nematodes ...	...	...	...	...	...	...	1	...	...	...	1	...	...
Insecta :—													
Insects producing myiasis	...	1	...	...	...	...	3	...	...	1	13	...	...
Dematophilus penetrans	...	...	2	...	...	...	13	...	...	...	10	...	...
Other Insects	...	2	13	...	...	...	5	...	...	...	25	...	...
Total	24	621	4,288	36	13	914	4,769	27	27	836	5,064	27	19

TABLE VII.

RETURN OF DISEASES AND DEATHS OF NATIVES FOR THE YEARS 1919, 1920, 1921. NIGERIA.

Diseases.	1919. Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	1920. Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	1921. Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921
Infective Diseases.													
Beri-Beri	...	3	21	...	1	6	...	1	...	18	1	9	...
Cerebro-Spinal Fever ...	...	3	...	3	...	10	...	1	...	77	91	2	5
Chicken Pox	38	1,352	93	4	79	968	309	14	27	520	150	3	33
Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...
Dengue	...	1	...	...	...	...	1	...	...	...	1	...	...
Diphtheria	...	...	...	...	...	...	...	...	...	1	...	1	...
Dysentery:—													
(*a*) Amœbic	12	540	410	51	5	429	254	97	7	397	512	67	3
(*b*) Bacillary	6	168	60	19	6	56	63	10	...	25	18	7	1
(*c*) Type not determined	..	61	108	11	1	119	249	24	...	74	230	7	...
Endocarditis-infective ...	...	1	1	...	...	...	...	...	..	5	...	2	...
Enteric	...	3	...	...	...	5	...	1	1	8	...	4	...
Erysipelas	...	1	2	...	...	7	19	...	...	...	18	...	...
Gonorrhœa	24	640	2,251	1	42	732	1,878	3	24	745	2,541	2	23
Influenza	30	208	107	17	...	47	42	2	7	46	76	3	1
Kala-Azar	...	...	...	...	...	...		...	...	...	...	...	...
Leprosy:—													
(*a*) Nodular	510	59	12	48	502	525	32	48	35	488	36	26	432
(*b*) Anaesthetic	1	3	5	...	...	...	...	...	...	36	13	...	14
Malaria:—													
(*a*) Tertian	...	167	238	4	5	154	399	...	...	34	140	...	...
(*b*) Quartan	1	16	201	1	..	...	1	...	...	...	...	...	...
(*c*) Aestivo-autumnal ...	17	1,989	10,416	19	31	1,579	10,981	17	13	1,628	11,250	28	23
(*d*) Chronic	...	1	260	...	...	10	264	...	...	23	152	4	...
(*e*) Type not determined	...	16	33	...	...	15	200	..	...	36	722	3	...
Blackwater Fever	...	2	1	...	...	2	4	...	...	2	3	1	...
Measles...	...	14	24	1	1	25	64	...	...	14	44	...	...
Papataci Fever	...	...	...	...	...	...	...	...	...	...	...	...	...
Plague	...	...	...	...	...	...	6	...	...	..	...	...	...
Pneumonia	26	555	272	151	13	761	311	206	16	790	316	172	20
Pyrexia of uncertain origin...	...	29	98	1	...	61	175	...	1	116	881	1	2
Rabies	...	...	...	...	...	...	3	...	...	...	2	...	...
Relapsing Fever	...	1	1	...	...	...	...	...	...	...	...	...	...
Rheumatic Fever	...	18	14	1	4	9	23	1	...	11	77	...	...
Septicaemia	...	30	4	25	...	26	8	17	1	23	1	16	...
Small-pox	5	145	136	30	11	1,682	59	341	48	991	40	182	26
Syphilis (*a*) Primary ...	...	111	162	4	7	115	220	1	3	144	270	1	7
(*b*) Secondary* ...	29	232	373	5	30	400	412	12	30	373	486	19	43
(*c*) Inherited ...	...	2	16	...	...	5	33	1	...	6	23	1	...
Tetanus...	...	23	10	12	3	29	13	19	2	29	9	16	.
Trypanosomiasis (Sleeping Sickness)	17	9	1	1	...	17	...	4	1	21	5	6	1
Tuberculosis	6	79	109	43	8	116	141	50	4	169	104	62	14
Undulant Fever	...	...	4	...	...	2	11	...	...	...	...	...	...
Whooping Cough	...	..	28	...	...	...	86	...	...	1	42	1	...
Yaws	10	127	471	1	6	187	672	1	3	230	909	4	5
Yellow Fever	...	...	...	...	...	1	...	1	...	...	...	...	...
Other Diseases	...	38	250	5	...	46	189	2	1	67	144	9	15
Carried forward ...	732	6,647	16,192	458	775	8,146	17,122	874	224	7,148	19,307	659	668

TABLE VII.—RETURN OF DISEASES AND DEATHS OF NATIVES FOR THE YEARS 1919, 1920, 1921—*continued.* NIGERIA.

Diseases.	Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
Intoxications.													
Brought forward ...	732	6,647	16,192	458	775	8,146	17,122	874	224	7,148	19,307	659	668
Alcoholism	...	3	2	...	...	...	2	...	...	3	3	...	...
Morphinism	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Intoxications	2	...	...	...	...	1	...	...	...	2	8	1	...
General Diseases.													
Anæmia	4	93	1,038	17	...	95	992	9	10	90	1,559	3	6
Anæmia-Pernicious	...	1	6	...	...	1	...	1	...	...	...	...	...
Diabetes	...	...	4	...	...	1	1	1	...	2	3	...	...
Exophthalmic goitre... ...	...	1	3	...	...	2	3	...	...	...	1	...	...
Gout	...	...	1	...	..	...	3	...	...	...	2	...	...
Leucocythæmia	...	1	...	...	...	1	...	...	...	1	1	1	..
Lymphadenoma	...	1	...	1	...	...	...	...	...	...	...	...	...
Myxœdema	...	...	...	...	...	...	...	...	...	..	...	...	...
Purpura...	...	...	...	...	...	1	1	1	...	...	...	...	...
Rickets...	...	...	4	...	...	...	7	...	...	...	1	...	...
Scurvy	1	...	4	...	...	...	12	...	...	1	1	...	...
Other Diseases	2	167	2,268	15	2	197	2,455	15	8	149	1,369	6	4
Local Diseases.													
DISEASES OF THE NERVOUS SYSTEM.													
Sub-section 1.—Diseases of the Nerves:—													
Neuritis	...	7	118	...	...	25	104	...	5	28	100	...	1
Meningitis	...	9	3	8	...	8	6	6	..	14	5	13	1
Myelitis	...	...	1	...	...	1	...	...	...	1	2	1	...
Hydrocephalus	...	...	...	...	...	...	1	...	...	...	1	...	...
Encephalitis	...	...	1	...	...	...	...	...	...	6	...	4	...
Abscess of brain ...	...	...	...	...	...	1	...	...	...	2	...	2	...
Congestion of brain ...	...	...	...	...	...	1	1	1	...	2	61	...	...
Other Diseases	1	21	42	3	1	21	80	8	...	7	...	3	...
Sub-section 2.—Nervous Disorders and Diseases of Undetermined Nature:—													
Apoplexy	...	7	4	5	...	1	1	1	...	2	2	1	...
Paralysis	3	35	26	5	5	29	30	8	...	48	30	18	4
Chorea	...	...	...	...	...	...	3	1	...	1	1	...	...
Epilepsy	2	20	54	...	1	17	43	1	1	24	26	2	1
Neuralgia	1	223	2,609	...	3	161	2,315	...	1	217	2,197	...	1
Hysteria	1	7	44	1	...	4	...	...	...	6	6	1	...
Other Diseases	1	19	153	4	...	12	162	...	1	17	156	4	...
Sub-section 3.—Mental Diseases:—													
Idiocy	1	...	...	...	...	1	...	...	...	..	...	...	...
Mania	18	3	3	5	15	21	2	3	10	21	2	3	9
Melancholia	50	8	3	6	45	9	...	...	9	12	4	...	8
Dementia	...	2	3	...	...	9	8	1	2	13	3	4	1
Delusional Insanity ...	3	13	5	4	6	6	3	..	1	5	4	...	2
Other Diseases	...	4	1	2	...	9	1	...	...	2	2	...	...
Carried forward ...	822	7,295	22,592	534	833	8,781	23,358	931	272	7,824	24,857	726	706

TABLE VII.—RETURN OF DISEASES AND DEATHS OF NATIVES FOR THE YEARS 1919, 1920, 1921—*continued.* NIGERIA.

Diseases.	Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	1920. Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	1921. Remaining at end of 1920.	1921. In patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
Local Diseases—*contd.*													
Brought forward ...	822	7,295	22,592	534	833	8,781	23,358	931	272	7,824	24,857	726	706
DISEASES OF THE EYE.													
Conjunctivitis	3	165	2,825	...	6	148	2,481	...	4	154	2,718	...	...
Keratitis	...	6	39	..	...	13	112	...	...	6	33	...	...
Ulceration of cornea ...	1	11	59	...	...	9	36	...	...	21	101	...	...
Iritis	...	10	40	...	1	8	19	...	...	11	42	...	...
Optic neuritis	1	1	10	...	...	1	4	...	...	2	1	...	...
Cataract	...	6	15	...	1	19	76	...	...	13	26	...	2
Other Diseases	..	19	309	...	1	31	238	...	2	32	229	...	1
DISEASES OF THE EAR.													
Inflammation	1	34	1,080	...	...	48	1,278	...	...	42	1,673	...	2
Other Diseases	...	14	839	1	...	5	540	...	...	16	694	1	...
DISEASES OF THE NOSE.													
Inflammation	...	10	51	...	...	3	42	...	...	5	33	...	...
Other Diseases	...	2	107	...	...	7	44	...	...	10	115	...	...
DISEASES OF THE CIRCULATORY SYSTEM.													
Pericarditis	1	9	31	4	...	6	7	3	1	9	1	7	...
Endocarditis	...	7	18	3	...	7	25	2	...	8	20	7	...
Valvular Disease:—													
(1) Mitral	...	43	290	19	2	40	236	8	2	91	257	17	...
(2) Aortic	...	20	31	6	2	18	56	6	1	115	407	6	...
(3) Tricuspid	...	...	...	...	...	...	...	...	...	...	...	...	...
(4) Pulmonary	...	...	...	...	...	2	4	2	...	1	...	1	...
Arterial sclerosis		2	5	1	..	1	2	1	...	1	4	...	...
Aneurism	...	7	5	4	...	5	9	2	...	6	5	...	...
Other Diseases	...	42	43	17	1	33	63	6	1	25	136	6	1
DISEASES OF THE RESPIRATORY SYSTEM.													
Laryngitis	...	7	203	...	...	40	175	...	...	7	159	.	...
Bronchitis	26	957	13,529	31	34	719	12,524	19	15	1,161	13,979	15	9
Broncho-pneumonia ...	4	95	78	36	4	152	420	19	1	84	164	14	...
Abscess of Lung... ...	...	...	1	...	...	1	1	...	...	...	...	..	...
Gangrene of Lung ...	...	...	...	...	...	...	...	...	...	...	1	...	...
Emphysema	...	2	2	...	1	2	4	...	...	...	...	...	...
Pleurisy	6	134	237	12	11	127	275	11	4	165	412	6	1
Empyema	1	2	2	2	1	8	40	2	2	5	4	2	...
Other Diseases	...	61	426	4	2	56	245	...	3	35	298	3	1
DISEASES OF THE DIGESTIVE SYSTEM.													
Stomatitis	...	18	598	...	...	20	611	1	...	33	601	1	...
Caries of teeth	...	21	1,271	...	...	24	1,235	...	...	30	1,382	..	...
Pyorrhœa alveolaris ...	1	3	123	...	...	11	121	...	...	13	145	2	...
Glossitis	...	2	69	...	...	5	128	...	...	2	157	...	...
Sore throat	1	12	236	...	1	16	223	1	...	7	218	...	...
Inflammation of tonsils	...	17	278	...	1	17	327	...	...	25	479	...	...
Carried forward ...	868	9,034	45,442	674	902	10,383	44,959	1,014	308	9,959	49,352	814	723

TABLE VII.—RETURN OF DISEASES AND DEATHS OF NATIVES FOR THE YEARS 1919, 1920, 1921—*continued.* NIGERIA.

Diseases.	Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
Local Diseases—*contd.*													
Brought forward ...	868	9,034	45,442	674	902	10,383	44,959	1,014	308	9,959	49,352	814	723
DISEASES OF THE DIGESTIVE SYSTEM—*continued.*													
Gastritis	...	174	653	2	4	67	744	...	2	65	841	...	2
Ulceration of stomach ...	...	2	7	1	...	...	2	...	...	...	23	...	...
Hæmatemesis	...	...	1	...	...	...	3	...	...	2	1	...	...
Dilatation of stomach ...	...	...	1	...	...	..	...	...	...	1	...	...	...
Stricture of stomach ...	...	...	...	...	...	1	12	1	...	2	3	...	...
Dyspepsia	...	24	1,336	..	1	26	1,496	...	...	29	5,810	...	...
Enteritis	1	42	138	9	...	54	146	25	2	40	115	12	...
Appendicitis	...	7	3	...	...	11	22	2	...	9	10	...	1
Colitis	...	23	181	7	...	38	138	5	1	39	186	2	...
Ulceration of intestines	...	2	...	1	...	...	...	...	...	3	52	2	...
Sprue	...	...	...	...	...	...	...	...	...	...	...	...	...
Hernia	7	337	262	13	25	393	297	14	16	414	252	19	18
Diarrhœa	18	1,405	3,200	157	15	969	2,958	85	14	904	2,734	41	3
Constipation	6	139	11,917	...	...	134	9,662	...	1	148	10,214	...	...
Colic	2	165	3,107	1	2	157	2,298	...	2	208	3,250	2	1
Hæmorrhoids	1	35	242	...	1	42	258	..	...	35	286	1	1
Pancreatitis	...	...	1	...	...	2	1	...	...	...	5	...	...
Hepatitis—Acute ...	...	22	80	1	...	36	58	6	...	35	113	4	...
Abscess	...	7	45	...	1	9	2	5	1	8	19	3	...
Cirrhosis	...	9	2	9	...	11	4	4	...	14	5	4	1
Jaundice	...	24	20	...	...	15	19	3	...	16	20	1	1
Peritonitis	...	14	8	11	...	17	23	9	1	24	15	13	...
Ascites	2	62	44	8	1	22	16	11	2	47	22	9	4
Other Diseases	1	85	153	19	13	68	211	9	2	42	340	8	2
DISEASES OF THE LYMPHATIC SYSTEM.													
Splenitis	2	9	334	2	...	14	474	...	...	28	584	2	...
Inflammation of lymphatic gland	7	253	1,081	1	8	167	959	...	3	221	1,241	...	7
Suppuration of lymphatic gland	2	74	124	...	6	101	331	1	...	86	272	...	3
Lymphangitis	...	15	113	...	...	7	50	...	...	12	87	...	1
Elephantiasis	...	55	39	2	9	82	51	1	3	85	75	2	2
Other Diseases	1	11	38	1	3	17	78	1	1	17	45	1	1
DISEASES OF THE URINARY SYSTEM.													
Acute nephritis	...	32	41	14	3	28	49	9	...	28	25	5	...
Bright's Disease ...	...	12	17	6	...	12	5	6	...	21	18	8	3
Pyelitis	...	...	4	...	...	1	...	...	...	1	...	1	...
Calculus	...	...	2	...	...	...	...	...	...	...	...	...	...
Renal colic	...	1	2	...	...	1	3	...	...	...	...	...	...
Cystitis	...	22	139	...	...	30	114	5	...	37	129	2	...
Vesical calculus	...	...	1	...	...	...	2	...	...	1	1	...	...
Suppression	...	7	1	2	...	...	2	...	...	2	1	...	...
Hæmaturia	...	1	7	...	...	7	13	...	...	2	6	...	...
Chyluria	...	2	2	...	...	...	...	...	...	...	1	...	...
Other Diseases	2	13	17	...	...	11	18	4	...	12	27	3	...
Carried forward ...	920	12,119	68,805	941	994	12,033	65,478	1,220	359	12,597	76,180	959	774

TABLE VII.—RETURN OF DISEASES AND DEATHS OF NATIVES FOR THE YEARS 1919, 1920, 1921—*continued.* NIGERIA.

Diseases.	1919. Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	1920. Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	1921. Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
Local Diseases—*contd.*													
Brought forward ...	920	12,119	68,805	941	994	12,933	65,478	1,220	359	12,597	76,180	959	774
DISEASES OF THE GENERATIVE SYSTEM.													
Male Organs:—													
Urethritis	...	10	49	...	...	9	42	...	1	7	52	...	...
Gleet	...	1	23	...	...	3	46	...	...	4	49	...	...
Stricture	2	71	72	1	3	73	112	5	6	95	201	9	8
Prostatitis	...	3	11	...	...	5	45	...	...	5	3	...	...
Soft chancre	4	85	190	1	4	81	219	...	7	78	222	...	8
Condyloma	...	3	2	...	1	1	8	...	...	2	1	...	...
Inflammation of scrotum	...	7	19	1	...	8	22	...	1	9	10	...	2
Hydrocele	1	91	89	...	1	118	96	1	4	136	98	1	5
Orchitis	2	59	203	...	3	91	213	...	2	81	207	1	1
Epididymitis	...	16	49	...	2	30	79	...	1	52	110	...	...
Abscess of testicle ...	...	3	3	...	...	4	12	...	...	3	19	...	1
Other Diseases	...	44	89	...	1	62	88	1	1	79	101	1	1
Female Organs:—													
Ovaritis	...	1	18	...	...	1	11	...	...	4	31	..	...
Ovarian cyst	...	3	3	...	...	3	4	1	...	3	11	...	...
Endometritis	...	6	30	...	...	33	83	...	1	15	140	...	...
Displacement of uterus	...	4	4	...	...	8	9	...	...	3	9	1	1
Vaginitis	...	6	18	...	...	9	15	...	...	3	50	...	...
Amenorrhœa	...	...	72	...	...	1	80	...	1	3	94	...	...
Dysmenorrhœa	...	3	124	...	...	3	84	...	...	11	117	...	...
Menorrhagia	...	4	50	...	1	3	97	..	...	7	48	...	...
Leucorrhœa	...	...	33	...	...	2	36	...	...	1	44	...	...
Other Diseases	...	12	89	2	2	25	44	4	1	26	88	...	...
AFFECTIONS CONNECTED WITH PREGNANCY.													
Abortion	...	18	41	...	...	15	39	...	1	11	54	1	...
Other Affections ...	...	8	18	...	...	3	41	...	...	5	50	2	...
AFFECTIONS CONNECTED WITH PARTURITION.													
Delayed Labour	...	10	1	5	...	36	3	8	..	20	14	7	...
Retained placenta ...	...	8	3	1	...	7	2	2	...	6	6	2	...
Premature Birth ...	...	5	1	...	...	5	5	2	...	3	9	...	1
Other Affections ...	...	9	2	1	...	4	10	...	...	8	12	...	...
AFFECTIONS CONSEQUENT ON PARTURITION.													
Post-partum hæmorrhage	...	1	1	...	...	...	2	...	..	1	1	...	...
Puerperal septicæmia ...	...	4	...	2	...	4	...	3	...	2	4	2	...
Mastitis	...	3	60	...	...	7	59	...	...	3	69	...	...
Abscess of breast ...	...	5	14	...	...	1	8	...	...	2	9	...	...
Other Affections ...	...	17	31	4	...	6	30	...	...	1	23	...	...
Carried forward ...	929	12,639	70,217	959	1,012	13,594	67,122	1,247	386	13,286	78,136	986	802

TABLE VII.—RETURN OF DISEASES AND DEATHS OF NATIVES FOR THE YEARS 1919, 1920, 1921—*contd.* NIGERIA.

Diseases.	Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
Local Diseases—*contd.*													
Brought forward ...	929	12,639	70,217	959	1,012	13,594	67,122	1,247	386	13,286	78,136	986	802
DISEASES OF ORGANS OF LOCOMOTION.													
Osteitis	1	22	120	...	4	22	97	...	3	32	309	1	3
Arthritis	17	370	2,661	3	7	330	2,783	2	10	476	2,477	...	3
Spondylitis	...	9	2	...	...	...	7	...	...	1	...	...	...
Bursitis	1	15	75	...	...	13	95	...	...	33	96	...	...
Myalgia	6	313	8,902	2	7	239	6,016	...	3	436	7,304	1	5
Other Diseases	4	87	957	1	6	144	933	4	10	124	1,065	2	1
DISEASES OF CONNECTIVE TISSUE.													
Cellulitis	9	345	1,662	5	15	295	1,394	4	7	369	1,686	2	24
Abscess	16	834	2,564	13	23	673	2,346	8	21	810	2,947	13	23
Other Diseases	...	19	118	2	2	76	124	...	...	8	242	1	2
DISEASES OF THE SKIN.													
Ulcer	46	1,305	13,605	11	52	1,321	16,195	3	45	1,523	14,957	3	58
Urticaria	...	5	161	...	...	6	109	...	...	2	109	...	...
Eczema	6	134	2,695	...	3	155	1,796	...	1	57	1,628	...	...
Boil	...	127	1,460	1	2	106	1,463	...	...	120	1,648	...	3
Carbuncle	...	3	10	...	...	7	18	...	...	7	8	...	...
Herpes	...	5	78	...	...	6	64	...	...	3	92	...	...
Psoriasis	...	...	3	...	...	2	18	...	...	1	55	...	1
Oriental sore	...	...	...	...	...	...	...	...	...	...	...	...	...
Tinea	...	45	1,564	...	1	34	1,753	...	...	48	2,314	...	...
Scabies	...	48	1,561	...	1	53	1,962	...	5	104	3,200	...	...
Acne	...	...	6	...	...	1	5	...	...		14	...	...
Prickly heat	...	1	23	...	...	1	49	...	1	2	8	...	...
Other Diseases	1	99	1,631	...	8	70	1,168	2	5	69	1,433	1	1
INJURIES.													
General	5	89	968	17	6	63	238	17	1	49	92	19	4
Local	70	1,562	22,462	41	66	1,638	22,096	43	54	2,148	25,542	40	70
TUMOURS.													
Benign	...	69	152	2	5	87	149	1	4	128	188	3	6
Malignant	1	9	5	3	...	12	17	...	1	35	24	3	1
MALFORMATIONS ...	1	6	5	1	...	6	10	...	...	7	14	1	...
POISONS.													
Vegetable	...	2	1	2	...	4	3	2	...	4	2	...	...
Animal	...	7	35	...	...	31	58	1	...	13	44	3	2
Other Poisons	...	8	32	...	...	16	38	2	...	10	34	1	...
PARASITES.													
ANIMAL PARASITES.													
Protozoa	...	1	8	...	...	...	...	...	..	...	2	...	...
Trematoda (Flukes) ...	...	7	6	...	...	6	7	...	...	7	4	...	...
Carried forward ...	1,113	18,185	133,749	1,063	1,220	19,011	128,133	1,336	557	19,912	145,674	1,080	1,009

TABLE VII.—RETURN OF DISEASES AND DEATHS OF NATIVES FOR THE YEARS 1919, 1920, 1921—*continued*. NIGERIA.

Diseases.	Remaining in Hospital at end of 1918.	1919. In Patients. Total Admissions.	1919. Out Patients. Total Admissions.	1919. Deaths.	Remaining at end of 1919.	1920. In Patients. Total Admissions.	1920. Out Patients. Total Admissions.	1920. Deaths.	Remaining at end of 1920.	1921. In Patients. Total Admissions.	1921. Out Patients. Total Admissions.	1921. Deaths.	Remaining at end of 1921.
Local Diseases—*contd.*													
Brought forward ...	1,113	18,185	133,749	1,063	1,220	19,011	128,133	1,336	557	19,912	145,674	1,080	1,009
Cestoda:—													
Tænia solium	...	48	342	...	1	89	274	...	...	9	144	1	...
Tænia sagninata ...	...	147	1,103	...	...	112	1,148	1	..	68	1,168	...	...
Other Cestodes	..	...	18	...	...	4	1	...	...	...	43	...	...
Nematoda:—													
Ascaris	...	44	2,123	1	1	137	2,565	3	1	90	2,908	...	1
Tricocephalus dispar ...	...	...	16	...	...	...	...	...	...	...	...	...	...
Trichina	...	...	..	...	...	...	2	...	...	.	1	...	...
Dracunculus	4	326	706	...	9	282	736	...	4	244	596	1	8
Filaria	1	4	81	...	1	29	136	1	...	36	232	...	1
Strongylus	...	...	1	...	...	15	1	2	...	...	...	...	1
Ankylostomum	5	1,021	483	262	63	776	299	158	8	197	187	30	6
Oxyuris	...	2	13	...	...	6	28	...	...	...	8	...	...
Other Nematodes ...	...	11	42	1	...	23	8	1	...	13	17	1	1
Insecta:													
Insects producing myiasis	...	...	3	...	...	...	22	...	...	...	5	...	...
Dematophilus penetrans	...	4	78	...	1	13	33	1		8	161	..	...
Other Insects	1	...	51	...	...	4	70	...	...	7	82	1	...
Total ...	1,124	19,792	138,809	1,327	1,296	20,501	133,456	1,503	570	20,584	151,226	1,114	1,027

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