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THE GAMBIA.

REPORT ON THE MEDICAL AND
HEALTH SERVICES FOR
THE YEAR 1946.



BATHURST:
PRINTED BY THE GOVERNMENT PRINTER,
1947.

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REPORT ON THE MEDICAL AND HEALTH SERVICES FOR THE YEAR 1946.

I. IMPORTANT EVENTS OF THE YEAR.

1. *Development.* While many improvements in organisation generally, including staff training, continue as a necessary preliminary to medical development, actual expansion has been largely limited to the continued recruitment of extra probationer staff and the opening of an additional number of sub-dispensaries. Funds for the drastic improvements and extensions required to the Victoria Hospital, Bathurst, (in lieu of the complete new unit earlier contemplated), and for all new units to be provided in the 1947/1955 period, must now be found from a further drastically reduced Colonial Welfare and Development Act allocation of £97,200 unless supplementary amounts can be found by economies from the estimated 1947 level of recurrent maintenance expenditure of approximately £67,600. But as the total annual maintenance costs for the remainder of the development period quoted, including upkeep of all new units created, must be found from within this £67,600 or less it will be seen that expansion must be severely restricted. It may be however that re-adjustment as between the capital and recurrent expenditure quoted may become possible. Doubtless maintenance economies can and will be found without serious detriment to the work of the Department but they can but be of limited amount, in danger of being more than offset by the increasing popularity of medical treatment, particularly in the insistent demand for more sub-dispensaries. This innovation of weekly clinics in fixed sub-centres has proved a most valuable and economical means of combatting endemic disease, notably sleeping sickness, which remains very prevalent throughout the Protectorate. As with other curative centres in the Gambia however the patronage of the undistinguishable French native is an ever-present and unsolved problem of economic importance.

Meantime staff recruitment is being scaled-down in view of the limited expansion possible, and for financial reasons also, designs already prepared for the various types of new units are being critically reviewed. Large-scale preventive measures in respect of tsetse, mosquito and leper control, and of an equally important health propaganda project, may have to be radically reduced in scope or postponed until economic solutions can be found. Indeed, even the limited development now seen to be possible must be linked-up primarily with the general economic short-term picture. To this end expenditure on curative or preventive measures must be arranged as much as possible in support of agricultural and other forms of development.

During the year major extensions and improvements to Bansang Hospital neared completion, including a large extension to the outpatient department with provision of outpatient latrines; radical improvements to the

septic tank system; erection of eight new staff quarters and major improvements to existing quarters; erection of 'temporary' male and female probationer hostels with lecture room etc., for the training of additional nursing staff required for development needs for which Victoria Hospital training facilities are inadequate; erection of a new Sister's quarters to replace the round mud huts previously utilised; and installation of a new waterpump.

2. *Nutrition.* Both this and other Colonies may derive great benefit from two separate but related projects of the Human Nutrition Research Unit of the Medical Research Council. The first, a "Field Working Party" consisting of a team of experts, plan a bold experiment to demonstrate that the day of "one man and his hoe" need no longer be accepted as the standard of agricultural production in potentially fertile areas of West Africa, nor equally backward methods in fisheries and other sources of valuable food. The comprehensive "combined operation" has been roughly envisaged in three stages. Stage 1 will include (a) a survey of health, food consumption and production, sociology, and economics, in a selected circumscribed area, together with (b), experimental work, including reclamation of salt lands, mechanisation of crop production, use of artificial fertilisers, fishing and fish culture, and methods of processing and storing foods. Ample local, if not general need, for bold experiment on these lines was previously confirmed from valuable data obtained from an earlier Nutrition Survey in the Protectorate undertaken by Mrs. Doughty, a Nutrition Officer of Professor Platt's Unit, in 1945-46. Stage 1 (a) is essential to obtain a 'base-line' for reference, and as a guide to elements in African life which may be developed in later stages. Much of Stage 1 (b) will be taken over by the Gambia Agricultural Department in the first phase. Stage 2 is reckoned to be a three-year period in which the experiment will be taken a step further by attempting to graft adopted methods on to the rural community, and has been called a 'type-development unit'. Stage 3 will be concerned with extension of development to further areas. The criteria of success are to be improvement of health and well-being of the people, a rise in the standards of living and of food-production, and, it is emphasised, accurate costings will be maintained from the outset as part of an insistence that the enterprise must eventually 'pay its way'.

The second major project of the Human Nutrition Research Unit, in an earlier stage of planning, is the establishment of a Field Research Station on the lines of a complementary Colonial extension of the United Kingdom laboratories. In some aspects however the Gambia establishment, with a wealth of clinical material, will be able to intensify investigation at the human end of the chain of problems, and already hopes are being entertained that the enterprise will develop on broad lines into an important teaching centre not only of nutrition but of a wider range of tropical subjects.

3. *Mosquito Control.* Following on the appointment of Mr. R. W. H. Campbell as Medical Entomologist (or Malariologist), intensive investigation revealed that some 75 per cent or more of the malarial transmitters in the

Island of St. Mary and adjacent Kombo districts is the salt-water breeder, *A. gambiae* var. *melas*, and the remainder nearly all *A. gambiae*. It was therefore appreciated that swamp reclamation on the lines of Watson's work in Malaya, (and Gilroy's in Lagos) was likely to provide the best solution of dealing with the former, leaving control of *A. gambiae* as a routine task in the most important areas of a country where an average rainfall of about 40 inches occurs in a well-defined rainy season extending usually from June to October. Mr. Campbell, by the sample reclamation of some 600 acres of typical breeding area, has now demonstrated the absence of any peculiar local features resistant to this method of control, and drying-out of the area was effected to a degree which killed off crabs and mangrove and ended culicine breeding. Plans are now being hopefully formulated for the similar treatment of much larger areas which it is claimed would also give valuable, if long-term, economic return in the form of greater air-field protection, increase in much-needed farming land, improved road communications, and possibly mullet fisheries on lines said to have been developed with much success in Egypt. Over and above these advantages however the climate and health of the large areas concerned might well become comparable to that of North Africa and compel a new conception of the merits of the Atlantic borders of the Gambia. It remains to be seen if funds can be found for the project however.

4. *Aerodromes*. Half-Die seaplane base, said to be the finest in Western Africa, remains unused as such in consequence of the present trend in favour of land-based aircraft, and special health measures in the area are in abeyance. A claim has been made and is under consideration to have the Island of St. Mary declared a non-endemic zone in respect of yellow fever for Air Convention requirements.

Yundum Airfield passed to Government control in October following the departure of the Royal Air Force, and while its future status (trans-Atlantic base or West African lines terminal) remains undecided, energetic steps were taken to avoid any possible adverse health criticisms. These steps included compulsory yellow fever inoculation, small-pox vaccination, and malarial prophylaxis of all personnel connected with air travel, measures in which B.O.A.C. gave the fullest co-operation.

5. *Bathurst Town*. Three important events were recorded. The major surface-water drainage scheme, long contemplated, commenced. Bathurst Local Authority was replaced on 1st January 1947 by a Town Council with greater powers and responsibilities. Lastly, and not of least importance, for the first time the verified *Aedes* index has been nil, and has remained at this level for several months. This notable achievement should be regarded as the culmination of many years effort commencing with the 1934 yellow fever outbreak when larval indices of fifty and sixty were commonplace, and to the intensification of control following the appointment of the Entomologist.

6. *Medical Surveys.* Plans were completed during the year for a sample medical survey in 1947 of three separate widely-distant areas, in each of which mixed population groups of some 5,000 will be systematically examined in an effort to ascertain with greater accuracy the incidence of leprosy, yaws, hookworm, malaria, and sleeping sickness. To lead the team, Nigeria will loan the services of Dr. Ross of the Leprosy Service.

7. *Anglo-French Conference.* The Gambia was represented at this Conference and subscribed to the valuable conclusions reached. The promise of greater international co-operation in West Africa in the future is of particular importance to this Colony by reason of its peculiar geographic and ethnographic relationship to surrounding French territory.

II. ADMINISTRATION.

A. STAFF.

8. The following staff changes were recorded:—

Dr. C. W. F. Mackay, Senior Medical Officer, was on leave in the United Kingdom from 21st March to 17th August. Dr. T. P. Eddy Medical Officer of Health acted in his absence.

Dr. D. W. Horn returned from leave on 12th May and took over Victoria Hospital from Dr. E. I. Garratt, who proceeded on leave on 20th June and subsequently resigned his post. Dr. D. W. Horn acted as Medical Officer of Health from 13th May to 17th June.

Mr. R. A. J. Walton, Sanitary Superintendent, returned from leave on the 17th September.

Dr. T. P. Eddy, after handing over the Department to Dr. Mackay, proceeded on leave to the United Kingdom on 1st October.

Miss M. M. Wordley, Nursing Sister, assumed duty on first appointment on 9th March. Miss M. M. Shepherd, Nursing Sister, assumed duty on first appointment on the 12th May. Miss F. K. Walker, Senior Nursing Sister, returned from leave on 11th June. Miss V. Challenger and Mrs. J. Newman successively acted as Senior Nursing Sister during the absence of Miss F. K. Walker on leave. Miss Challenger proceeded on leave to the United Kingdom on 28th August prior to leaving the service on marriage. Mrs. Newman proceeded on leave to the United Kingdom on 9th July having also resigned from the service on marriage. Miss P. M. Hill, Nursing Sister, assumed duty on first appointment on 17th July.

9. While the supply of Nursing Sisters shows signs of satisfactory improvement, the establishment of Sanitary Superintendents remains seriously low with four vacancies out of a total of six posts. The cadre of Medical Officer is now short of one European appointment, and it is hoped to fill the vacancy by an officer with surgical qualifications.

10. Favourable reports continue to be received on Mr. A. M. N'Jie, awarded a Dental Scholarship in 1944. He should become available for duty

in 1949. This year Mr. S. J. Palmer was similarly awarded a Medical Scholarship. Meantime there are no 'qualified' Specialists in the Department; all duties, including teaching, dentistry and surgery being undertaken by the general duty staff. With increasing treatment demands generally, including the arrival of European wives and children in ever-increasing numbers, it will be necessary to accept the need for considerable improvement in existing facilities, both in relation to staff and accommodation.

11. Regarding subordinate staff, the new training schemes noted in the 1945 Annual Report are proving very successful. It is pleasant to acknowledge the donation by the Gambia Women War Workers of an annual silver medal to the best probationer nurse completing training. Nurse Frances Bidwell, the first winner, was personally congratulated by Miss Udell, Chief Nursing Officer, during her visit here.

Two second grade posts for female nurses, to be filled in 1947, were created for the first time.

12. In this small Colony all medical probationers, male and female, on completion of the new three-years basic nursing course, are now required to undertake a post-graduate course of one year. The males, (now "Dressers") take a "Medical Aide" course fitting them to take either out-station dispensary or hospital ward duty, as necessary, and are subsequently termed "Dresser-Dispensers". Treatment standards in out-stations are thus unusually high. Female probationers undertake midwifery, and from "Nurse" may graduate to the title of "Nurse-Midwife". Certification and Registration is in operation for both sexes. More advanced training arrangements are not yet in general operation, although as in the case of one woman now taking a further midwifery course in the United Kingdom, selected candidates may be chosen from time to time for training out of the Colony. It is noteworthy however that recently several young Gambia women proceeded independently to the United Kingdom for nursing training and it is possible their services may later become available to the Department.

13. Training in pharmacy to local qualification standards continues to be undertaken by the Department without the aid of specialist teachers or adequate facilities, but hopes are entertained that the project of a Central School of Pharmacy for West Africa, as recommended at the 1945 Conference of Directors, may yet materialise.

14. In the Health Service a minimum probationary training period of four years is also required, and as teaching arrangements and entrants' educational qualifications permit, it is intended to adopt Royal Sanitary Institute standards as accepted in certain of the larger West African Colonies. Two second grade posts for Sanitary Inspectors were created for the first time in the Health Service. One officer thus promoted proceeded to the United Kingdom for three months on a study course sponsored by the British Council and it is hoped that others may later obtain this valuable experience. Two further second grade posts are anticipated in 1947.

B. LEGISLATION.

*List of Ordinances, Regulations, etc., affecting
Public Health during the year 1946.*

Serial No.	Date.	Short Title.	Provision.
ORDINANCES.			
4	15.7.46	The Lunatics Detention (Amendment) Ordinance, 1946.	Amending Section 3 and Schedule of the Principal Ordinance.
1	3.7.46	The Bathurst Town Council Ordinance, 1946.	Establishment of local Government for Bathurst.
REGULATIONS.			
4	2.5.46	The Hospital and Dispensaries Fees (Amendment) Regulations, 1946.	Fees rebate for technical staff of Medical Service.
5	2.4.46	The Quarantine (Aerial Navigation) (Amendment) Regulations, 1946.	Amending fifth schedule of Principal Regulations relating to fees for boarding of Aircraft.
NOTIFICATIONS.			
6	12.11.46	—	Amending Schedules to Regulations 1 of 1943.
7	12.11.46	—	do.
8	25.11.46	—	Replacement and Amendment of Schedule to Protectorate Markets Ordinance, 1933.
9	26.11.46	—	Amending Schedule to Protectorate Building Regulations 1943.
11	13.12.46	—	Amendment of Protectorate Markets Ordinance, 1933.

C. FINANCE.

Medical and Health Services.

			Estimated.	Actual.			Increase.			Decrease.		
			£	£	s.	d.	£	s.	d.	£	s.	d.
Revenue	...	...	3,610	4,803	15	5	1,193	15	5	—		
Expenditure	...	...	60,714	55,033	6	5	—			5,680	13	7

Miscellaneous Services.

			Estimated.	Actual.			Increase.			Decrease.		
			£	£	s.	d.	£	s.	d.	£	s.	d.
Contribution to Medical Associations and Schools			261	184	13	5	—			76	6	7

Colony.

				Estimated.	Actual.		
Total Revenue	...	...	...	£524,000	£616,327	19	11
Total Expenditure	...	...	...	534,366	£545,853	10	6

Percentage expenditure on Medical and Health Services 9.92%.

D. MEDICAL SUPPLIES.

15. The small margin of reserve supplies stocked, combined with home production and carriage difficulties, created very inconvenient if not serious problems. More disturbing however is the recently intimated heavy cost of British yellow fever vaccine in the immediate future: the problem will demand early solution.

The Medical Store was efficiently reorganised during the year by Mr. Bell, Inspecting Pharmacist, kindly lent for the purpose by the Nigerian Government.

III. PUBLIC HEALTH.

A. HOSPITAL AND DISPENSARY STATISTICS.

16. Patients treated in the past three years are compared:—

Year.	Hospital Inpatients.	Hospital Outpatients.	Health Centres and Dispensaries.
1944	1,995	37,342	33,642
1945	2,371	57,918	36,171
1946	2,903	(a) 37,830	(b) 52,608

(a) The comparative decrease is due to (i) cessation of special school children daily clinics at Victoria Hospital, Bathurst, in favour of first-aid treatment in Schools, (ii) modification in scheme for free treatment of venereal disease to reduce abuse, and (iii) appreciable post-war decrease of certain elements of Bathurst population.

(b) The marked increase is due to greater numbers and increasing popularity of sub-dispensaries.

17. Curative units in operation in the past three years are compared:—

	Part-time Dispensaries.	Full-time Dispensaries.	Health Centres.	Hospitals.	Total.
1944	6	8	1	3	18
1945	12	7	2	2	23
1946	15	12	2	2	31

18. In the part-time Dispensary group are included centres visited weekly from a 'parent' unit or by a mobile team. Simple but adequate accommodation is provided at each place, and the term "Lock-up" Dispensary has been discarded in favour of "Sub-Dispensary" in deference to local wish. Centres visited by the mobile team (or Bwiam Circuit) have not been recorded separately in the past, but are now also shown in the following unit-distribution list.

B. 1946 UNIT DISTRIBUTION.
(In reorganised Divisional Areas).

Division	Hospitals	Health Centres	Dispensaries	Sub-Dispensaries or mobile team centres.
Colony	Victoria	...	...	...
Kombo	...	Bakau	...	...
Western	...	...	Sukuta (Yundum Aerodrome (a) Bwiam Kerewan Mobile Team weekly circuit	... Bondali Kuntair Jawara Faraba Kassang Besseh Brikama Gunjur Yundum Village
Central	...	...	Kaiaff Farafeni Kaur	Bureng (b) Illiassa Dankunku
MacCarthy Island	Bansang	...	Kuntaur Georgetown	Kudang Brikama-ba
Upper River	...	Basse	... Diabugu (c) Kristikunda (c) Kumbul	Badjakunda

(a) Bwiam Hospital status now reduced to that of Dispensary.

(b) Balingho Dispensary closed and replaced by Farafeni with a sub-dispensary at Illiassa.

(c) Anglican Mission Dispensaries.

Additional Sub-dispensaries will shortly be opened at Sika and Bafoloto in Western, Pakali N'Ding in Central, and Bakadaji in Upper River Division. The type of unit to be erected in support of the middle-river major nutrition project remains under consideration. Ante-natal and Infant Welfare Centres are shewn separately on page 20.

C. GENERAL REMARKS.

19. It will be appreciated that the state of the public health as evidenced by patients treated at Government units is far from being a complete picture. The great bulk of sickness is seen by unqualified staff in out-station units, and while the standards of diagnosis and treatment are relatively higher than in most dispensaries in West African territories owing to the staff training system described in page 5, the diagnostic range is necessarily limited. Recognition of most diseases of epidemic importance seen can however be accepted as tolerably accurate. The cosmopolitan atmosphere of the Gambia imposed by its shape and environment leads to additional pitfalls. An unascertainable number of French subjects, indistinguishable from Gambians, continue to seek treatment in this territory, many of them known to be sufferers from Sleeping Sickness. One estimate puts this type of case at twenty-five per cent of the total treated in certain units. Again native systems of medicine retain some degree of popularity, often observed by the Department as tragic end-results serving to swell the total of hospital deaths.

20. *European health.* (Average population 300). There was no significant change from recent years. Nearly all live in the vicinity of the Atlantic border and the chief illness, sub-tertian malaria, steadily decreases in incidence, as a result of improved prophylaxis and increasingly effective mosquito control. In the Return of Diseases in Appendix A Syrians are grouped as Europeans and they continue to exhibit a disproportionate amount of malarial infections which adversely affects the total recorded incidence.

21. An average of approximately 101 Europeans and 200 Syrians were in residence during the year, and it is noted that the numbers of women and children are rapidly increasing in the former group, a disquieting circumstance when viewed against the limited medical facilities available.

22. *African Health.* (Population approximately 248,000). The extension of the sub-dispensary innovation has been responsible for a great increase in outpatients treated and this year's recorded diseases incidence is therefore more comprehensive.

23. *General diseases.* The commonest disease groups recorded were in the following order: Digestive System; Skin, Cellular tissue, and organs of locomotion; respiratory system; eye and adnexa, and non-venereal diseases.

of the genito-urinary organs. A closer analysis of all group figures concerned as given in Appendix A is of little value however owing to the wide variety and often insignificant components in each group, particularly those from non-hospital sources. In the Digestive System groups only a very small fraction merited more than simple out-patient treatment, including constipation and "indigestion". Diseases of skin etc., can be dismissed in similar terms: scabies and "craw-craw" are common but not unduly so. In diseases of the respiratory system the commonest diagnosis is "bronchitis", but a persistent percentage of pneumonias, as specifically noted by qualified practitioners, cannot unfortunately be singled out with accuracy in minor units. The importance of this killing disease often escapes the greater attention it warrants as a cause of African mortality. In 1946, of 86 cases of broncho-pneumonia observed, there were twenty-four deaths, nearly a quarter of the total, mostly in children; and of 176 cases of the lobar variety 28 deaths were recorded. (See also comment under Vital Statistics section). The most important contributory causes of the high mortality are delays in seeking treatment, and the frequent terminal and superimposed nature of the affection in many children's diseases. In the high prevalence of diseases of the eye, trachoma is recognised as a common factor, but fortunately the disease usually runs a mild if recurrent course, unless complicated by the commoner septic infections which not infrequently masks the underlying condition. It is more difficult to assess the significant components of the large "non-venereal diseases of the genito-urinary system" groups. (2,789 cases). One important cause is certainly the inability of unqualified staff to differentiate between certain varieties and complications of venereal and non-venereal disease, and in these circumstances it is wiser that they should be non-committal. The large "Ill-defined" group (8,016) can be regarded variously as representing honesty on the part of subordinate staff and/or difficulty in finding a category in the limited classification entrusted to them. It may be accepted that diseases of significant public health importance are not concealed in the total.

24. *Communicable Diseases.* The incidence of communicable diseases of particular public health importance in the Colony can be briefly discussed as follows:--

- (i) *Malaria.* The total of 5,394 cases shown should be accepted with caution as although the incidence is known to be high the very great majority of these were not confirmed by microscopic examination, and in the absence of this check, a percentage of non-malarial pyrexias is probably included.

All staff in charge of dispensaries etc., are now trained in elementary slide-room methods, including microscopic recognition of easily identifiable disease agents, but it has not yet been possible to provide microscopes for the minor units.

- (ii) *Sleeping Sickness*. 2,128 cases. Despite microscopic examination deficiencies there is less room for diagnostic fallacy here and failure of recognition is much more probable than improper inclusion. The quiescent nature of most infections must also be remembered. Cases coming for treatment are therefore often of the severe variety or are detected in examination for some other purpose. The actual incidence is many times greater than clinical records demonstrate. This year's recorded total is somewhat higher than usual owing to departmental expansion.
- (iii) *Cerebro-spinal fever*. 160 cases. A very moderate incidence occurring in the usual small sporadic outbreaks. The thirty-three deaths recorded were mainly due to late treatment. All dispensaries now carry a stock of sulphonamides in solution.
- (iv) *Dysenteries*. The bacillary form is predominant, and of the 253 unclassified cases the great majority were probably of this type.
- (v) *Smallpox*. 15 cases. A very good year. It is hoped that the effect of French mass combined inoculation (Yellow Fever and Smallpox) will further limit epidemic spread.
- (vi) *Tetanus*. 17 cases and 6 deaths. Bathurst in particular is a persistent source of infection demanding constant careful prophylaxis.
- (vii) *Tuberculosis*. 259 cases and 14 deaths. A disturbing incidence particularly as these represent Hospital diagnoses only. Actually a total of 22 deaths from this cause were registered in Bathurst.
- (viii) *Leprosy*. 163 cases. All of these are not new cases, and the incidence will be better known on completion of next year's 'sample' survey.
- (ix) *Venereal diseases*. These continue to be rife, particularly gonorrhoea. (3,617 cases in contrast with 118 syphilis and 316 "other venereal diseases"). Very many gonorrhoea cases are sulphonamide-resistant, and increasing recognition of this situation, coupled with abuse of the free treatment clinic facilities instituted in Bathurst in 1945 has determined a drastic reduction of expenditure for this purpose. Selected out-patient cases only are now treated with sulphonamides, and penicillin treatment or hospitalisation are resorted to whenever possible. The venereal granulomatous condition is far from uncommon.
- (x) *Yaws*. 3,655 cases. The incidence remains high despite treatment at all centres and a heavy annual expenditure on drugs. Improved housing and hygiene is a necessary concomitant to drugs.

- (xi) *Measles*. This year the usually mild annual visitant was often succeeded by a virulent gastro-enteritis or broncho-pneumonia which significantly raised the Bathurst infantile mortality rate. (See Vital Statistic section). Unfortunately home-remedies were persisted with in many cases until the complications had taken a firm hold making subsequent treatment relatively ineffective.

Other Diseases.

- (i) *Helminthic diseases*. (Ankylostomiasis 929, Schistosomiasis 242 other helminthic diseases mainly composed of ascaris and taenia 4,354). Bilharzia is mainly concentrated in Upper River Division, while the others are universal. It is noteworthy that dracontiasis (guineaworm) is a rare infection in this Colony.
- (ii) *Rheumatic Conditions*. (8,222 cases). A diagnostic waste-paper basket. Very many are undoubtedly manifestations of yaws or venereal disease.

IV. VITAL STATISTICS.

(Bathurst only).

25.	1944.	1945.	1946.
Population (1944 census) ...	21,152	21,152	21,152
Births (live)	592	546	*735
Total Deaths	423	401	†482
Total Still Births	73	75	88
Deaths under 1 year	77	84	76
Birth rate per 1,000 population	27.987	25.81	34.7
Death rate per 1,000 population	19.99	18.95	22.78
Infant Mortality Rate per			
1,000 live births	130.06	153.84	*103.40
Still Birth rate per 1,000			
live births	123.3	137.5	119.7

26. Previous reports indicated certain unsatisfactory aspects of registration in Bathurst, and laxity continues to be brought to light. This year with compulsory notification to Medical Officer of Health of births attended by midwives, the number of live births notified was found to exceed the total number registered. The correction for unregistered births has greatly reduced the infantile mortality rate and increased the birth rate in comparison with previous years.

*Revised figure.

†Excludes twenty-three European air-accident deaths at Yundum and includes one European drowning at Fajara.

27. It is considered probable that the high still birth rate recorded is in part due to inaccurate registration of a number of infant deaths as still-births. Suspicions were aroused by the observance of midwives' certificates notifying "still-births" when in fact the infants concerned had lived for brief periods. Steps are being taken to correct these sources of fallacy.

28. The increase in the death rate for the year is attributable to an epidemic of measles which occurred in the months of September, October and November. The epidemic was associated with a high incidence of gastro-enteritis, infantile diarrhoea and broncho-pneumonia. These complications caused a large number of deaths in children of the age group 1—4 years. 129 children of this age group died during the year, which is about one quarter of the total deaths registered. Of this number 88 died in the three months September to November. The effect is shown in the following tables:—

Age Group.	Population at age 1944 Census.	Total deaths 1946.	Death rate per 1,000 population at age		
			1946.	1945.	1944.
Under 5	2,028	205	101.1	66.5	75.0
5 — 9	1,845	21	11.4	6.5	7.0
10 — 14	1,890	11	5.8	8.5	4.2
15 — 19	2,139	7	3.3	5.1	4.2
20 — 29	5,044	52	10.3	10.7	6.9
30 — 39	3,279	50	15.2	16.8	16.2
40 — 49	2,595	43	16.6	12.0	20.5
50 — 59	1,305	33	25.3	23.8	29.9
60 & over	1,037	60	57.9	54.0	57.9

29. Chief causes of death were:—

All ages.		Under 1 year.		1 — 4 years.	
Broncho-pneumonia	55	Broncho-pneumonia	15	Br.-pneumonia	36
Infantile diarrhoea (under 2 years)	36	Inf. diarrhoea	10	Inf. diarrhoea	26
Diarrhoea and Enteritis	21	Enteritis	2	Diarrhoea and Enteritis	17
Malaria	34	Malaria	13	Malaria	14
Pulmonary T.B.	22	Prematurity	9	Ascariasis	6
Cerebro-spinal Fever	17	Marasmus	6	—	—
Tetanus	9	—	—	—	—
Diseases of the heart	23	—	—	—	—
Lobar-pneumonia	28				

V. HYGIENE AND SANITATION.

30. Although mosquito control measures were notably improved following the appointment of a whole-time Entomologist, hygiene and sanitation progress was again hindered by executive staff shortages. In particular

teaching of junior staff suffered, and the formation of the proposed mobile propaganda and demonstration unit was again postponed until European recruitment improves adequately.

A. PREVENTIVE MEASURES.

31. (i) Mosquito and other insect-borne diseases.

- (a) *Malaria*. The chief mosquito control project has been described (page 2). In addition routine control of Bathurst and the adjacent Bakau and Fajara areas, now under the care of the Entomologist, was greatly improved. The reduction of the *Aedes* index in Bathurst to nil in the dry season has been referred to in connection with Bathurst events (page 3), and a drastic improvement in the Bakau area was a consequence of the reclamation of the 600-acre adjacent swamp also noted at page 3. The European residential area of Fajara, long infested by anophelines from the nearby complex water-course system known as the Kotu stream received special attention. The chief anti-malarial measure here was the cutting of a drain through the sand bar at the mouth of the stream at low-water after spring tides. By this means the whole water level of the stream was lowered by more than a foot, and there was a coincident remarkable reduction in anopheline infestation which appeared to be quite independent of the use of D.D.T. It was possible by these crude means to obtain considerable control over anophelines even during the rains. All official quarters here (as in Bathurst and the Protectorate) were sprayed periodically with D.D.T. solution. Opinions on the efficiency of this measure after the elapse of a few days interval varied greatly however and the later observations of Muirhead Thomson in Lagos on the residual effect of D.D.T. now appear to be pertinent. Earlier plans for greater control of the numerous Kotu breeding areas were critically reviewed and there is general agreement that a scheme now proposed by Campbell, involving a fraction of the expenditure estimated previously, should effect a radical cure. Implementation of the scheme has been delayed by the delay in arrival of the Drainage and Irrigation Engineer, from whom confirmation of the soundness of the proposals is required before an application for the necessary Colonial Development and Welfare funds can be accepted by the Secretary of State. This Engineer has now arrived, and it is hoped that further delays in coming to a decision will not arise.

A rapid survey of the Protectorate was also undertaken by Mr. Campbell, in consequence of which several schemes of increased control combined with associated soil conservation measures are receiving attention.

- (b) *Yellow Fever*. No cases recorded. Immunisation of the Bathurst population continued, but some uncertainty about ability to continue this measure in the future has been created by transference of manufacture from the Rockefeller Foundation (from which supplies were received gratis) to a British commercial firm. Present indications are that future costs of vaccine from this source may be prohibitive in price.
 - (c) *Trypanosomiasis*. No anti-tsetse measures were instituted pending receipt of expert decisions on Dr. Nash's report of his fact-finding mission in 1945.
 - (d) *Plague*. No cases reported, nor were any cases from adjacent territories notified.
- (ii) Epidemic diseases.
- (a) *Small Pox*. 7,283 vaccinations performed.
 - (b) *Cerebro-spinal fever*. See page 12.
- (iii) Other diseases.
- These have been dealt with in the previous sections of this report.

B. GENERAL MEASURES.

32. Following failure to popularise the use of compost, temporary resort has been made to the bore-hole system throughout the Protectorate. These are cheap and nuisance-free when properly covered and use limited to 8—10 persons. Provision of twin-holes is aimed at to permit periodical closure and 'settling' of one at a time. It is proposed to encourage or even subsidise installation in every compound, and to restrict communal latrines to markets, schools etc, as part of a 'sanitary site'. Primitive people, no less than the more sophisticated, prefer, and have a right to, such a private amenity, in preference to being unrealistically urged to patronise a communal latrine at a distance. Moreover private ownership does something to encourage proper use and care not often observed in a public convenience. Unfortunately the universal sandy soil will rarely permit provision of both a well and a bore-hole latrine within one compound, and until pipe-borne supplies become possible it will be necessary to insist on the use of safely-sited communal wells. It is fully recognised that the bore-hole system is a wasteful method in a country with poor soil, and it will be one of the principal tasks of the propaganda unit to endeavour to win the conservative native to an appreciation of the value of compost and to try and overcome the strong local dislike of preparation with human night-soil as an ingredient.

33. For Bathurst, preliminary plans and estimates were prepared to provide a water-borne sewage disposal system, already installed in Dakar. It was hoped that installation could be linked in some economical way with the major surface drainage project now commenced. Unfortunately the many obstacles encountered, both technical and financial, appear to render realisation improbable in the near future, but consideration has not been entirely dropped yet. A further important practical difficulty which must be overcome, however patiently, will be the education of the more primitive native to use a 'flush' system without deposition of the many remarkable substitutes for toilet paper, although in this connection it should be possible to devise a water-closet which would guard against the frequent blockages thus caused. The problem is being actively considered by the builders of the new river vessel.

34. Additional large swampy areas on the fringes of Bathurst continue to be reclaimed by use of the town's refuse and night-soil.

C. SCHOOL HYGIENE.

35. Systematic school inspection in Bathurst was again interrupted by Health Service staff shortage, but it was found possible to continue this measure in Protectorate schools, both Government and Mission, undertaken with the full co-operation of all concerned. The schools examined were the Government Armitage School at Georgetown, Anglican Mission Schools at Kristikunda (St. John's and Transfiguration), and at Kumbul, and the Roman Catholic Mission Schools at Mansanjang and Fula Bantang. In all some 338 pupils were seen, the great majority being boarders.

36. The reports reveal the primitive temporary accommodation and arrangements generally to be expected in the early pioneer phase of these invaluable enterprises, and note the full use and value being extracted in the Mission Schools in particular. The longer established and more elaborate Armitage School, lacking adequate supervision (now remedied) compared less favourably in some respects.

37. Chief criticism centres on malnutrition, and in this investigation the Department had the invaluable aid of Mrs. Doughty, the Nutrition Officer seconded from the Human Nutrition Research Unit. It may be accepted that the nutritional findings are a reflection of Protectorate conditions generally, and not dissimilar to observations in West Africa as a whole. Quantitatively, the caloric intake appears satisfactory although no recommendations as to the lower limit is yet possible owing to seasonal and other difficulties of computation. On the other hand the upper limit is wisely set for growing children at the "largest quantity which can be eaten heartily without wastage". Regarding quality, emphasis is laid on monotony of diet and poor cooking

standards. Deficiencies are noted in most requirements except vitamin A, and particular attention is drawn to inadequate protein, calcium, and vitamins B2 and C. Mrs. Doughty's comprehensive report and recommendations have been distributed to all concerned. While animal protein continues to be scarce and expensive, effort is being made to obtain greater dried fish supplies. The milk target has been set at eight ounces per pupil per day, but here also supplies of fresh milk are uncertain and seasonal. Most schools are now planting fruit trees and establishing vegetable gardens, and fortunately ground-nuts are plentiful, although oils from this source, and from the palm, are not sufficiently available. A very valuable addition to the noted deficiency of riboflavine would be a third of an ounce of yeast per day, but importation and cost offer difficulties, as they do with skimmed milk powder which could also be utilised with very great advantage to supplement the scanty fresh milk source of calcium etc.

38. Regarding the condition presented by the pupils at medical examination it is interesting to note the increased well-being of boarders in comparison with day-boys, an improvement noted particularly after residence of one year or more. Boys under 10 years of age tend to be less well nourished than in older age groups, an observation frequently confirmed in infant welfare clinics. Up to the 'toddler' stage there is evidence of special maternal or family attention, but after this phase until the child can help to fend for himself, there is often a notable deterioration.

39. The symptoms of malnutrition most often observed are chalky and carious teeth, "crackle" skin, leg ulcers (active and healed), mouth symptoms such as spongy gums, stomatitis, and 'magenta' tongue. Surprisingly enough eye-symptoms are not often recorded beyond "excess eye tissue". In general girth and fat suffer rather than height.

40. Apart from nutritional defects, goitre is not uncommon particularly in the Fula Bantang area, where recently iodides have been experimentally added to well-water. In Basse, bilharzia is more often observed, while the Armitage School boys reveal a high incidence of quiescent trypanosomiasis. Enlarged spleen rates are universal ranging from 10 to 35 per cent of school boys examined, and helminthiasis, bilharzia apart, remains a subject for closer investigation.

41. It is pleasant to record a steady definite health improvement in the Protectorate Schools since medical inspection seriously commenced in 1945, largely due to the continued interest and co-operation of school authorities.

42. In Bathurst, schemes to provide daily 'snacks' to school children of half-a-pint of skimmed milk mixture with $\frac{1}{4}$ — $\frac{1}{3}$ oz. of yeast remain under consideration. Meantime a daily "bulk" meal (not really necessary) continues to be given gratis to fifty selected children in the Mohammedan School.

D. LABOUR AND HOUSING CONDITIONS.

43. With the appointment of a whole-time Labour Officer, labour conditions generally are under special review.

44. There is no significant change in housing conditions in the Protectorate recently described in the 1946 Annual Colony Report. The following figures from the Senior Commissioner's "Annual Census of the Protectorate 1945" (Sessional Paper No. 5 of 1946) are informative:—

Protectorate area	...	...	...	Approx. 4,005 sq. miles
Population	...	...	...	228,114
Density per sq. mile	...	...	...	56.9
Houses	...	...	...	107,190
Persons per house	...	...	...	2.1

The population is shown as comprising 77,063 male, and 71,689 female adults with 40,744 boys and 38,609 girls: the unusual excess of males will be noted. The definition of a boy or girl is a person under marriageable age.

45. In this section, reference must be made to the valuable "Report of the Committee appointed to consider remedial measures to be adopted to deal with over-crowding in Bathurst" presided over by the Medical Officer of Health, and published as Sessional Paper No. 18 of 1946. The Report disclosed an estimated African population of 18,000 to 20,000 (1944 census 21,152) and careful room counts undertaken in five random representative areas indicated that out of a total of 1,390 persons, 730 are living more than two to one room, giving an extremely high over-crowding index of 52.5% with an average density per acre of 193.

46. In a further survey of 65 houses considered by the Health Department to be grossly over-crowded, it was found that 146 persons were occupying living rooms with a total area of 3,218 sq. feet, giving an average of 22 sq. feet of living room per person.

The largest area per person in this group was 43.75 sq. feet and the lowest 11 sq. feet, being one room of 55 sq. feet occupied by two adults and three children. Despite the very different significance of a living-room in tropical and temperate climates, it will be seen that a serious problem exists. The minimum permissible room area per person is considered by Health authorities to be 50 sq. feet, and recently the Bathurst Bulding Regulations were amended to require 12 by 10 feet as the future minimum area permitted for a living-room.

47. The Committee agreed that the problem had been seriously aggravated by the demands of the services and an influx of workers from the Protectorate in war time, but nevertheless the normal natural increase to be anticipated, apart from special causes, demanded solution. Recommenda-

tions for remedial measures included early completion of plans for the re-development of Bathurst, a re-housing scheme to utilise the restricted areas still available for building in and near the town, and creation of a satellite town out of, but near, Bathurst, for the population which the present available space in the town cannot accommodate. The full Report should be read by those specially interested in this subject.

E. FOOD IN RELATION TO HEALTH & DISEASE.

48. Part I and Section C of Part V of this Annual Report describe current activities for the improvement of nutrition standards. The "hungry" season often experienced in the Protectorate was less in evidence this year, and good rice crops, the favourite staple cereal of the country, were harvested. In contrast the rains finished early in Eastern areas and a shortage of some maize crops resulted. Ground-nuts (the cash crop) and a valuable supplement to the local diet, had a good year, but various commercial complications hinder estimates of purely local production. The development of fisheries has not made notable progress, and the supply of beef and milk continues to be a fickle business influenced by rain-distribution, international monetary exchange and the supply of textiles. Market-gardening, particularly in the vicinity of Bathurst and North Kombo, continues to develop.

F. PORT HEALTH WORK & ADMINISTRATION.

49. Airports at Half Die and Yundum have been referred to in Part I. There were no notable changes at the seaport, and no cases of major infectious disease importance were observed. Rodent Plague investigation measures continue and no case of infection was found.

G. MATERNAL AND CHILD WELFARE.

50. (a) Ante Natal and Child Welfare Clinics.

Centres in Bathurst (2), Bakau, Sukuta, Brikama, Georgetown and Basse, remained popular. Comparative figures for the past three years are given:—

Year.	No. of centres.	Attendances.
1944	6	21,057
1945	6	20,341
1946	7*	21,755

(b) Maternity Hospital, Bathurst.

Acceptance of this unit at Victoria Hospital by the conservative population after closure of the Leman Street lying-in clinic in 1945 is only slowly gained, despite the greatly improved amenities and supervision offered.

*A centre on fuller lines is now in operation at Georgetown, following the reposting of a Nursing Sister to Bansang Hospital.

			1945.	1946.
<i>Total admissions.</i>	...	...	324	315
Confinements	...	...	202	172
Ante-natal & post-natal affections	...	...	26	30
Abortions	...	...	18	11
<i>Deaths.</i> Maternal	...	...	5	9
Infant	...	...	15	14
Still births	...	...	26	29

It is hoped to analyse the maternity statistics more adequately in future years. Two successful Caesarean sections were performed, one in a European.

District midwives supervised additional confinements as follows:—

			1945.	1946.
Bathurst	...	...	369	412
Bakau, Sukuta, and Brikama	...	...	175	209
Basse	...	...	50	40

C. W. F. MACKAY,
Senior Medical Officer.

APPENDIX A. RETURN OF DISEASES.

		GENERAL HOSPITAL STATISTICS.						DISPENSARIES.
No.	Disease.	EUROPEANS.			AFRICANS.			
		In-patients	In-patient deaths	Out-patients	In-patients	In-patient deaths	Out-patients	
1.	(a) Typhoid fever	1	...	...	...	...	...
	(b) Paratyphoid fever	...	...	...	...	...	...
2.	Typhus fever	...	...	...	...	...	...
3.	Relapsing fever	...	...	...	...	...	...
4.	Undulant fever	...	...	...	...	...	...
5.	Smallpox	...	...	...	10	...	5
6.	Measles ...	...	...	6	...	...	52
7.	Scarlet fever	...	...	...	...	...	...
8.	Whooping cough	...	...	...	...	...	1
9.	Diphtheria	...	...	...	1	...	...
10.	Influenza :—							
	(a) With respiratory complications	...	...	...	...	...	15
	(b) Without respiratory complications	3	...	10	6	...	150	
11.	Cholera	...	...	...	...	...	...
12.	Dysentery :—							
	(a) Amoebic	3	...	5	18	...	10	
	(b) Bacillary	1	...	1	10	...	5	
	(c) Unclassified ...	1	...	4	10	...	98	
13.	Plague :—							
	(a) Bubonic	...	...	...	...	...	...
	(b) Pneumonic	...	...	...	...	...	...
	(c) Septicemic	...	...	...	...	...	...
	<i>Carried forward</i>	9	...	26	55	...	331	
							309	

APPENDIX A.—*contd.*
RETURN OF DISEASES.

		GENERAL HOSPITAL STATISTICS.						DISPENSARIES.
No.	Disease.	EUROPEANS			AFRICANS			
		In-patients	In-patient deaths	Out patients	In patients	In patient deaths	Out patients	
	<i>Brought forward</i>	9	...	26	55	...	331	309
14.	Acute poliomyelitis	...	...	...	...	...	...	...
15.	Encephalitis lethargica	...	...	...	...	...	...	...
16.	Cerebo-spinal fever	...	...	...	106	33	14	46
17.	Rabies ...	...	...	...	...	...	1	...
18.	Tetanus...	...	...	...	12	6	...	5
19.	Tuberculosis of the respiratory system	...	...	1	27	14	63	149
20.	Other tuberculosis diseases	...	...	...	2	...	4	...
21.	Leprosy ...	...	...	...	27	4	9	127
22.	Venereal diseases:—	...	...	...	...	...	...	...
	(a) Syphilis	...	...	2	15	1	102	...
	(b) Gonorrhœa	5	...	9	135	...	1,360	2,122
	(c) Other venereal diseases	1	...	1	26	...	290	...
23.	Yellow fever	...	...	...	...	...	...	...
24.	Malaria:—	...	...	...	...	...	...	...
	(a) Benign	...	...	...	...	...	...	...
	(b) Subtertian	36	1(a)	67	316	9	2,168	...
	(c) Quartan	...	...	...	...	...	...	...
	(d) Unclassified	...	...	2	30	1	2,980	2,122
25.	Blackwater fever	1	...	...	...	...	...	...
26.	Kala-azar	...	...	...	...	...	...	...
27.	Trypanosomiasis	...	...	...	38	10	525	1,555
28.	Yaws ...	...	...	...	10	...	763	2,882
	<i>Carried forward</i>	52	1	108	799	78	8,610	9,317

APPENDIX A—contd.

RETURN OF DISEASES.

No.	Disease.	GENERAL HOSPITAL STATISTICS.						Dispensaries.
		EUROPEANS.			AFRICANS.			
		In patients	In patient deaths	Out patients	In patients	In patient deaths	Out patients	
	<i>brought forward</i>	52	1	108	799	78	8,610	9,317
29.	Other protozoal diseases ...	...	...	...	1	...	...	...
30.	Ankylostomiasis ...	1	...	2	26	...	557	346
31.	Schistosomiasis ...	1	...	...	11	...	102	129
32.	Other helminthic diseases ...	1	...	4	41	3	2,450	1,863
33.	Other infectious or parasitic diseases ...	...	...	1	2	...	137	1,933
34.	Cancer and other tumours :—	...	...	...	...	...	...	...
	(a) Malignant ...	...	...	1	9	5	1	...
	(b) Non-malignant ...	...	...	4	21	...	144	33
	(c) Undetermined ...	...	...	...	1	...	13	...
35.	Rheumatic conditions ...	...	...	3	20	...	2,332	5,870
36.	Diabetes ...	...	...	...	...	...	...	...
37.	Scurvy ...	...	...	...	1	...	...	...
38.	Beri-beri ...	...	...	...	4	1	...	...
39.	Pellagra ...	...	...	...	4	2	4	...
40.	Other diseases :—	...	...	...	...	...	...	...
	(a) Nutritional ...	...	...	...	2	...	38	...
	(b) Endocrine glands and general ...	...	...	1	6	...	329	...
41.	Diseases of the blood and blood-forming organs ...	2	...	25	23	1	1,203	...
42.	Acute and chronic poisoning ...	...	...	1	1	...	...	38
	<i>carried forward</i>	57	1	150	972	90	15,920	19,529

RETURN OF DISEASES.

No.	Disease.	GENERAL HOSPITAL STATISTICS.						DISPENSARIES.	
		EUROPEANS.			AFRICANS.				
		In patients	In patient death	Out patients	In patients	In patient deaths	Out patients		
	<i>Brought forward</i>	57	1	150	972	90	15,920	19,529	
43.	Cerebral hemorrhage ...	...	...	...	3	1	...	...
44.	Other diseases of the central nervous system ...	2	...	2	11	2	490	53	
45.	Trachoma ...	...	...	...	10	...	28	...	
46.	Other diseases of the eye and adnexa ...	...	...	1	47	...	2,981	2,057	
47.	Diseases of the ear and mastoid sinus ...	4	...	24	8	...	329	686	
48.	Diseases of the circulatory system :—	...	...	...	20	5	114	...	
	(a) Heart ...	...	...	...	...	...	...	...
	(b) Other circulatory disease ...	...	...	5	23	...	291	...	
49.	Bronchitis ...	1	...	10	97	1	3,073	4,165	
50.	Pneumonia :—	...	...	...	66	24	20	...	
	(a) Broncho-pneumonia ...	1	...	...	98	28	81	...	
	(b) Lobar pneumonia ...	...	...	...	...	...	...	193	
	(c) Otherwise defined ...	1	...	20	9	1	379	404	
51.	Other diseases of the respiratory system ...	...	...	...	33	8	408	901	
52.	Diarrhoea and Enteritis :—	...	...	3	45	1	632	714	
	(a) Under 2 years of age ...	...	...	...	1	...	4	...	
	(b) Over 2 years ...	...	...	...	...	...	...	...
53.	Appendicitis ...	66	1	215	1,443	161	24,750	28,702	
	<i>Carried forward</i>								

APPENDIX A.—*contd.*
RETURN OF DISEASES.

		GENERAL HOSPITAL STATISTICS.						DISPENSARIES
No.	Disease.	EUROPEANS			AFRICANS			
		In patients	In patient deaths	Out patients	In patients	In patient deaths	Out patient	
	<i>Brought forward</i>	66	1	215	1,443	161	24,750	28,702
54.	Hernia, intestinal obstruction	1	...	1	266	3	378	122
55.	Cirrhosis of liver ...	...	...	...	20	8	11	...
56.	Other diseases of liver and biliary passages ...	...	...	4	15	1	12	118
57.	Other diseases of the digestive system ...	10	...	67	41	5	4,250	9,362
58.	Nephritis:— (a) Acute ... (b) Chronic ...	... ... ...	... ... ...	... ... ...	17 1 1	1	17 27	.........
59.	Other non-venereal diseases of the genito-urinary system	1	...	12	245	2	2,789	284
60.	Diseases of pregnancy, childbirth, and the puerperal state :— (a) Abortion ... (b) Ectopic gestation ... (c) Toxæmias of pregnancy (d) Other conditions of the puerperal state ...	1 1 ... 1 ...	... ... ... ... ...	3 1 4	... 22 ... 32 95	... 2 ... 3 4	16 76 1 1 102	278 121
61.	Diseases of the skin, cellular tissue, bones and organs of locomotion ...	6	1(a)	60	362	2	3,401	3,936
	<i>Carried forward</i>	87	2	367	2,559	192	35,831	42,923

RETURN OF DISEASES.

No.	Disease.	GENERAL HOSPITAL STATISTICS.						DISPENSARIES.
		EUROPEANS			AFRICANS			
		In patients	In patient deaths	Out patients	In patients	In patient deaths	Out patients	
	<i>Brought forward</i>	87	2	367	2,559	192	35,831	42,923
62.	Congenital malformations and diseases of early infancy ...	...	1	...	2	1	101	...
63.	Senility ...	...	...	...	1	...	...	...
64.	External causes:—							
	(a) Suicide ...	...	...	...	...	...	...	...
	(b) Other forms of violence	6	1 (b)	26	241	8	2,090	1,619
65.	Ill-defined ...	...	...	3	7	...	395	8,066
	Total ...	93	4	396	2,810	201	38,417	52,608

(a) Syrian.

(b) Aircraft accident.

APPENDIX B.

WORK OF LABORATORY SERVICE.

Instructional courses. Systematic training of fourth year probationers continued under the supervision of Laboratory Technician J. V. Coker now promoted from 3rd Grade to 2nd Grade.

General. The scope of examinations possible was considerably extended by the addition of new equipment, and is recorded at length this year only. In future the usual condensation will be employed.

Examinations:—(Total 9,449).

(a) *Parasitology*:

(i) Blood films (3,339).

	Europeans	Syrians	Africans	Total
Subtertian rings	32	21	883	936
Trypanosomes	—	—	8	8
Micro-filaria	—	—	11	11
Total Positive	32	21	902	955
Total Negative	41	35	2,308	2,384
Total Films	73	56	3,210	3,339

(ii) Faeces. (996).

	Europeans	Syrians	Africans	Total
Ova of Ascaris	1	1	329	331
A. Duodenale	1	1	87	89
T. Trichiuris	—	—	5	5
O. Vermicularis	—	—	7	7
Sch. Mansoni	—	—	—	—
Strongyloides	—	—	34	34
E. Histolytica	1	—	8	9
Flagellates	1	—	64	65
Taenia	—	—	3	3
Positive faeces	4	2	537	543
Negative faeces	10	14	429	453
Total faeces	14	16	966	996

Ascaris and Ankylostomes are the two common helminths of Bathurst, the former being more prevalent in children.

(iii) Urines (33).

Bilharzia infections in Africans. (Selected cases).						
Positive	...	...	...	...	...	21
Negative	...	...	...	...	...	12
Total	...	...	...	...	...	33

(iv) Gland juice (606). (Selected cases).

	Europeans	Syrians	Africans	Total
Positive trypanosomes	—	—	118	118
Negative	2	—	486	488
Total	2	—	604	606

(b) Serology:

(i) Kahn tests (67).

	Europeans	Syrians	Africans	Total
Kahn positive	4	1	32	37
Kahn negative	2	—	28	30
Total	6	1	60	67

(ii) Widal tests (3).

Negative	...	...	...	...	...	2
1/125 B. Typhosum "H"	...	...	...	...	...	1
Total	...	...	...	...	...	3

(iii) Blood grouping (8).

	Europeans	Syrians	Africans	Total
Blood group A	—	4	—	4
Blood group AB	—	1	1	2
" " B	—	—	1	1
" " O	—	—	1	1
Total	—	5	3	8

(iv) Other blood examinations (284)

		Europeans	Syrians	Africans	Total
Total counts	...	35	19	67	121
Differential counts	...	11	3	28	42
Haemoglobin est.	...	35	19	67	121
Total	...	81	41	162	284

It was noted that the haemoglobin level in Africans usually ranged from 55 to 70% (Sahli) and rarely reached 90%.

(c) Bacteriology:

(i) Sputum (322)

		Europeans	Syrians	Africans	Total
M. Tuberculosis	...	—	—	34	34
Negative	...	2	4	282	288
Total	...	2	4	316	322

(ii) Nasal and skin scrapings (25—all Africans).

M. Leprae positive	...	...	2
„ negative	...	...	23
Total	...	...	25

(iii) Urethral, Prostatic and Vaginal smears (663)

		*Europeans	Syrians	Africans	Total
Positive Gonococci	...	*33	3	521	557
Negative	„	13	—	93	106
Total	...	46	3	614	663

*Including seamen and other non-residents.

(d) Miscellaneous:

Faeces	...	...	346
Urines	...	...	2,597
Biochemical	...	...	83
Medico-legal	...	...	5
Water-supplies	...	...	4
Total	...	...	3,035

(e) Autopsies (68):

Europeans:—

Accident following aeroplane crash	23
Drowning	1
Total Europeans	<hr/> 24

Africans:—

Broncho pneumonia	7
Subtertian malaria	5
Lobar pneumonia	5
Pulmonary tuberculosis	4
Drowning	3
Poisoning from diethylene glycol	2
Fractured skull	2
Perforation of the sigmoidcolon	1
Ruptured bladder	1
Myocarditis	1
Ruptured spleen	1
Internal haemorrhage due to ruptured liver and lung ...	1
Cirrhosis of the liver	1
Starvation	1
Cerebro-spinal meningitis	1
Chronic bronchitis	1
Electric shock	1
Syphilitic aortitis	1
Trypanosomiasis	1
Bacillary dysentery	1
Intestinal obstruction due to ascaris infection ...	1
Intestinal obstruction from internal hernia ...	1
Multiple injuries of spleen, kidneys, ribs and skull ...	1
Total Africans	<hr/> 44 <hr/>





