Annual report of the Medical Department / Tanganyika Territory.

TANGANYIKA TERRITORY

Annual Report

of the

Medical Department

for the year ended 31st December

1946

1948
DAR ES SALAAM
PRINTED BY THE GOVERNMENT PRINTER
Price Sh. 2/-

TANGANYIKA TERRITORY

Annual Report of the Medical Department

for the year ended 31st December

1946

CONTENTS

TANGANYIKA TERRITORY

Annual Report of the Medical Department for the year 1946

GENERAL OBSERVATIONS

With the resumption of home leave, and the restoration of the right to retire or resign, coupled with an infusion of new medical recruits largely drawn from ex-servicemen, the Department has made progress towards more normal conditions. Our problems are by no means all solved, nor is the top of the hill in sight, but the future may be faced with fewer misgivings.

2. The year was marked by a continuing spate of pending retirements of senior medical personnel and wastage of nursing personnel by reason of matrimony. The appointment of 10 new Medical Officers and 25 Nursing Sisters, most of whom had assumed duty by the end of the year, provided a welcome relief to what had promised to be a precarious situation. Asian medical staff recruitment has not kept pace with the establishment. African medical staff (Makerere-trained), still numbering five, is unlikely to be increased until there is a significant increase in facilities for African secondary education in the Territory and a consequent increase in the Makerere intake. The position of the trained subordinate African hospital personnel has improved in consequence of the return of those who have been serving with the Forces, and a revision of the scales of pay.

3. Departmental sub-committees have been studying the problems of training the various kinds of medical assistants produced in the Territory as well as the training of subordinate nursing and domestic hospital staff (see p. 13). In the case of the latter groups a system of "block-training" has been introduced at the Sewa Haji hospital in Dar es Salaam, and groups of up-country station hospital subordinates from places where the nursing service is represented have been brought in for periods of organized instruction, following which they are returned to their stations for periods of further controlled practical training. This plan has the advantage of ensuring some degree of co-ordinated standardization of basic training, which has not been possible previously when local training varied with the experience, interest and aptitude of the station medical and nursing officers, and the time available to them for this purpose. The training of African nurses at Tanga is still discouragingly limited by the continuing absence of a hostel, due to higher priority constructional commitments and shortage of building materials.

4. The health staff has fallen below the margin of safety in numbers, and European personnel where possible have been concentrated at points where emergencies are considered most likely of occurrence, so that in the absence of reserves, routine health work may be abandoned to meet such contingencies.

The Chief Health Inspector has been used in a peripatetic capacity as an inspector and guide of Health Inspector activities throughout the Territory under the direction of Headquarters. No expansion of effort can be anticipated until the Health Officer and Health Inspector position becomes stabilized in much larger numbers.

5. A departmental sub-committee has made progress in studying the problems of basic and technical equipment and medical supplies of general and out-station hospitals, with the object of producing a basic table of equipment and furnishings standardized on bed capacity.

Committees and Conferences

Advisory Committee on Public Health.

6. Arising from a question asked at the budget session of Legislative Council in 1943, Government invited suggestions for the constitution of a central Board of Health. Exploration of the proposed purposes and suggestions made it clear that the reproduction of a representative body patterned on the Board of Health of 1848 in the United Kingdom, with executive functions in fulfilment of the duties of the Director of Medical Services, was not feasible. In consequence the Advisory Committee on Public Health, representative of various organized social and industrial groups, was appointed, under reference of General Notice No. 282, having the following terms of reference: "To consider and make recommendations on such matters as concern the maintenance of public health and the prevention of disease in the Territory, and to review and report upon such other related problems as may be referred to it by the Governor."

7. This committee held its first meeting in August. To judge from the deliberations it appears to provide a useful forum where representative public opinion may be expressed and where lay and professional views may be exchanged under the terms of reference.

Medical Grants-in-Aid Advisory Committee.

8. In order to broaden the consideration given to the distribution of funds allocated by the Legislature as grants-in-aid to medical missions, representation was made that advisory assistance should be sought from representatives of the medical profession engaged in missionary work in the Territory, in order that the fullest encouragement should be given to fostering and improving the standards of medical work provided through such agencies.

9. To that end, under General Notice No. 696, the Medical (Grants-in-Aid to Missions) Regulations were published. Some difficulty was experienced up to the end of the year in obtaining representation from amongst medical practitioners of the missionary communities who were willing to serve on the committee. For that reason it has not been possible to convene a meeting during the year.

Hospital Welfare Committees.

10. In order to meet public representations put forward during the year, authority was given for the formation of small local Hospital Welfare Committees in Dar es Salaam. By means of these, representatives of the several communities served by the hospitals, as nominated by the Provincial Commissioner, meet the ex-officio hospital members on equal terms for free

discussion of problems affecting the general welfare of the patients at the respective hospitals. Simple terms of reference were agreed upon, and a most promising degree of mutual understanding, and recognition of the virtues of constructive criticism of the problems of hospital management, has characterized the regular meetings during the year of the two committees concerned respectively with the Sewa Haji hospital and the European hospital.

Provincial Medical Officers' Conference.

11. The second annual conference of Senior Medical Officers in medical charge of provinces was held during the year under review. This conference is a natural corollary to the policy of decentralization of medical administrative responsibility, and serves the purpose of permitting such officers to consider together their local difficulties and to seek common solutions. At the same time it permits the Headquarters establishment to discuss the formulation and application of medical policy and the ways and means of carrying out such policy. All officers concerned are in agreement that these meetings have fully justified the expectations of their value.

URBAN WORK

12. With the gradual return to peacetime conditions, hospital attendances in the Territory as a whole continued to increase, and figures for both in- and out-patients treated in Government institutions were higher than in 1945. In the Tanga Province, however, there was a reduction in hospital admissions, mainly due to a decline in the admissions from estates following upon an increase in estate hospitals and medical facilities, to the closing down of the Armed Services' establishments and dispersal of labour engaged in the priority rubber industry, and to a lessened prevalence of epidemic and endemic diseases, especially malaria, in that Province. In Morogoro there was also a reduction of about 35 per cent in the number of in-patients, chiefly in consequence of completion of the realignment works on the railway which had been in progress there during 1945, and the closing of the Rubber Production office, the labour concerned with both of which was dispersed.

13. The administrative arrangements of the Dar es Salaam hospitals were reorganized by the grouping of all Government hospital activities under a single responsible officer. The Senior Medical Officer formerly concerned only with the Sewa Haji hospital assumed additional responsibility for the European hospital in August, assisted by a lady secretary and clerical staff located at the European hospital.

14. The Dar es Salaam Police dispensary was closed down, and the police sick parades are now held at the Sewa Haji hospital.

15. A physiotherapy clinic was opened in August at the African wing of the Tanga hospital. Although much of the special equipment ordered had not arrived by the end of the year, a useful service was commenced, with remedial exercises for convalescent patients. An average of 30 cases was treated daily, and about 8 or 10 in-patients took part in general exercises in the wards each day. Over 100 African patients in all were given treatment between August and December, of whom some 70 were discharged, the majority being either fit for their original jobs or for lighter forms of employment. Fifteen patients were under rehabilitation in the European wing of the Tanga hospital.

16. A great strain was placed on health staff in Dar es Salaam with the influx of about 20,000 visitors, many from overseas, for the Jubilee Celebrations of His Highness the Aga Khan. This was successfully met without any adverse effect upon the general health of the townspeople or the Territory.

17. Housing shortages affecting all classes continued to be most serious throughout the Territory. In Dar es Salaam a housing survey was begun but by reason of limitations of technical supervision had to be discontinued. It showed that 58 per cent of the houses inspected in the native town were overcrowded according to the standard set down in General Notice No. 270 of 27th December 1946. Demolition of insanitary buildings could not be enforced owing to the lack of alternative accommodation, but 25 temporary houses were built in one of the African zones and 28 houses in European residential areas were either built or under construction, as well as a few for commercial occupation.

18. Drugs from the United Kingdom continued to be in ample supply, though instruments and equipment were still very limited. Penicillin was probably the most important addition to normal stock supplies during the year. The volume of work at Medical Stores continued to increase, and 6,783 packages were despatched, compared with 6,523 in 1945 and 4,470 in 1944.

RURAL WORK AND NATIVE AUTHORITY SERVICES

19. The two main difficulties which hamper rural medical work throughout the Territory are the lack of qualified staff to cover the large space that is Tanganyika, and the small number of Africans who are well enough educated to be suitable for technical training.

20. The Senior Medical Officer, Northern Province, where 10 new Native Authority dispensaries were opened during the year, reported that except in Moshi, where 47 per cent of Native Authority funds go to education and only 17 per cent to medical services, the Province is extremely short of Africans of a suitable standard to profit by the teaching of the medical training establishments at Dar es Salaam or Mwanza. He stressed the essential need for close and constant supervision of the work of rural dispensaries by properly qualified staff, and pointed out the dilemma faced by District Officers in the distribution of Native Authority funds, since they are torn between the claims of immediately desirable medical services, and of the educational expansion equally necessary to produce suitable material to train for the operation and supervision of such services.

21. In the Tanga Province an experimental Mobile Health Unit, which carried out three circuits each lasting about three months and covering Vuga, Kwaja and Mlalo respectively, aroused considerable local interest in the alleviation and prevention of sickness, from which arose an embarrassing demand for more dispensary facilities. Such a mobile unit cannot, however, provide the permanent benefits of static services, and the Senior Medical Officer raises doubts as to how long the improvement in local hygiene will last. "Propaganda", he says, "is not enough." He offers also his assessment of the value of the tribal dispensary system in the Province :—

> "It has no curative value—that is quite certain, because the allocation of drugs, if one offsets amounts against attendances, makes that completely impossible. It has no public health value. Of its psychological or political

value I am less competent to speak, but twenty years' experience in Africa, most of it in out-districts, makes one sceptical even of that. It competes very unfavourably with the local witch-doctor. Homœopathic doses of medicine of the simpler kinds may have a value to Africans that cannot be assessed by medical or public health standards known to us, but that the 'tribal dispensary' as I have seen it function makes any real contribution to medical or health problems in this Territory is unlikely."

22. It has been found necessary in most rural hospitals to use a number of beds to accommodate patients needing only out-patient care but whose homes are too far away for them to return at regular intervals for prolonged out-patient treatment. To remedy this at Shanwa in the Lake Province the Native Authority has constructed hostels, which were completed during the year, for out-patients whose homes are at a distance. Thus, it is hoped, the hospital vote may be relieved of expenditure on what has been a social rather than a medical commitment.

23. The rural services originally set up for the prevention and treatment of sleeping sickness continue to pass gradually out of the immediate financial control of the Medical Department, but the pace is necessarily slow owing to the limitations of Native Authority funds. The Government dispensary at Mkalama in the Central Province was this year handed over to the Native Authority there, and maintenance costs of the sleeping sickness dispensaries in the Western Province are being estimated so that the Provincial Commissioner may consider whether Native Authorities there can afford to relieve the Sleeping Sickness votes of their upkeep.

24. The rural dispensary services of this Territory acquired their initial impetus in consequence of the spectacular successes from the mass treatment of yaws. The principal consequence from this was the establishment of first-aid posts equipped with simple medicaments in charge of tribal dispensers for the specific treatment of the few diseases of greatest prevalence. It was expected that such posts would be under sufficient direct medical control to avoid abuse and misuse. Experience showed the popularity and demand for these, and it became evident that the training of the tribal dispensers required more than three months, as was the original arrangement. Various so-called "medical schools" were therefore established with the financial support of the more affluent Native Authorities, located at certain stations where professional medical personnel and facilities were maintained by the Territorial Medical Department. The officers attached to these stations undertook and supervised the teaching of candidates with the assistance of selected lay instructors from amongst the more reliable and experienced dispensary employees of the Native Authority systems, in addition to their hospital and district responsibilities.

25. With the extended training given, the trainees from these establishments have assumed wider responsibilities, and this has given rise to a two-fold problem. In the first place, the dispensers, or Medical Auxiliaries as they are sometimes called, have tended to assume responsibilities for which they are not professionally qualified, and in this they have received encouragement from an undoubted lack of appreciation on the part of some other branches of Government of the proper limits which the law and professional regulations impose on the activities of such medically unlicensed and unregistered personnel when not under direct medical supervision.

26. In the second place the popularity of these dispensaries is so great among the African community, whose racial and traditional habit of thought is still to accept uncritically the "medicine" which the traditional "medicine man", now to some extent replaced by the Dispensers, may give them to cure their immediate ills, and to ignore the whole field of preventive medicine, that there is constant pressure from the Native Authorities for the opening of new dispensaries. This embarrassing demand, with which the Administrative authorities must naturally be in sympathy, tends to ignore both the danger of multiplying dispensaries for which no professional supervision can be given, and the fact that it is poor policy to continue handing out "doses" to the individual whose circumstances must lead to a constant recrudescence of the ill from which he is suffering, rather than to attempt improvement of those circumstances.

27. These two problems, to a great extent inter-connected, have been the subject of much discussion during the year and an adequate solution is still to be found. Numbers of patients treated at dispensaries since the inception of the system may be found at Table 8 of the Annual Report for 1945. Figures for the last three years are as follows :—

Year	No. of Dispensaries	New Cases
1944	341 ...	1,311,316
1945	329 ...	1,367,864
1946	334 ...	1,449,641

MATERNITY AND CHILD WELFARE SERVICES

28. The paucity of available staff, accommodation and equipment to deal with the increasing demands on this popular branch of the medical service was the subject of recurrent complaint from many parts of the Territory.

29. In the Southern Highlands Province, despite the shortage of staff, additional accommodation was requested at Mbeya and Iringa to maintain the routine ante-natal and delivery services already established in the townships.

30. The majority of confinements attended in the Northern Province were undertaken at Moshi, and increased accommodation was requested there and at Mbulu. At the Machame Native Authority dispensary two African midwives trained at Tanga conducted about 300 confinements.

31. A 50 per cent increase in the number of maternity cases treated was reported from the Central Province, where an Infant Welfare clinic has been opened at Dodoma. The Church Missionary Society, which has in all 48 maternity beds in this Province, delivered 1,244 mothers, and the Augustana Lutheran Mission conducted 299 confinements at Kiomboi where it has 15 beds, while a further 693 patients were attended outside the hospital.

32. A very popular *ad hoc* service was initiated, though under primitive conditions, at Kilosa, where 64 deliveries were conducted.

33. In the Western Province there was a general increase of work at the Tabora Government clinic, with a corresponding increase in the abnormal obstetrical cases conducted at the Native hospital, but little of interest was reported from other centres. Ante-natal work of a substantial and inclusive character, which is negligible elsewhere in the Province, is improving at

Tabora as a result of sustained effort and the increasing confidence of the people. Women still attend at irregular intervals for treatment from far distant villages, but many of those living in the town themselves attend and bring their children regularly to the Child Welfare clinic. Since so many of the women come from small villages where sanitary conditions are of the most primitive kind, a large proportion of the infantile morbidity is due to the various unspecified intestinal infections, which with malaria and relapsing fever are the major local causes of infant mortality. Very few cases of clinical syphilis are seen among the babies, but out of 32 cases of purulent ophthalmia at Tabora 18 were proved to be gonococcal in origin. Evidences of malnutrition were not so often seen among the older children attending the clinic as among children of similar ages attending the out-patient department of the Native hospital. The proportion of abnormal to normal deliveries conducted by Maternity and Child Welfare services throughout the Western Province during 1946 was 114 to 2,073, or 5·22 per cent. The maternal mortality among recorded labours was 0·82 per cent, the still-birth rate 5 per cent, and the neo-natal death rate 5·85 per cent among recorded deliveries.

34. From Ndanda Mission hospital, where attendances are increasing and where maternal and infant fatality among cases attended were respectively 1 in 107 (0·93 per cent) and 8 in 107 (7·47 per cent), it was reported that the average of sterility among young women appeared to be very high and was considered to be mainly accounted for by an infantile uterus.

35. A Child Welfare clinic was started in Morogoro, conducted by a Nursing Sister from the hospital in her spare time as a voluntary effort.

36. The popularity and consequent pressure of public opinion for increasing the number of maternity centres exceed the capacity of the Department to provide trained staff and adequate supervision. After years of experience with the conspicuous advantages of delivery at the existing centres, and such sporadic ante-natal care as it is possible to afford the rural African mother, there is no need to "sell" this particular idea. However, except for a few such centres having a continuity of direct supervision by trained European personnel, there is little recognition on the part of the African community that infant and child welfare are equally important phases of any maternity service. The importance of having both a live mother and a live baby is recognized, but the fate of the child thereafter is presumably left to chance by the mother until an intractable illness in the child impels her to seek advice from the attendant at the maternity centre. How we can convince the African mother that the maintenance of her child's health is as important as having the child remains for us to explore. Until we find the practical answer to that problem in our existing centres, their real value is very much less than it should be.

DODOMA MENTAL HOSPITAL

37. The number of patients for the year were as follows :—

	Male	Female	Total
	(Total capacity : 196)		
Remaining at 1st January	110	42	152
Admitted during the year	111	25	136
Transferred	9	4	13
Discharged	69	19	88
Escaped	1	—	1
Died	13	3	16
Remaining at 31st December	129	41	170

38. Of those remaining at 31st December, 3 were Europeans, 10 were Asians, and the rest Africans.

39. Improvements to the very unsatisfactory hospital drainage system have been carried out.

40. Preliminary arrangements were made to organize an After-Care Committee, to be concerned with the welfare of mental patients discharged to the Dar es Salaam area, extending the activities of the existing Mental Welfare Association in Dodoma which is conducted by private individuals advised by the Mental Specialist, and which raises funds by private subscription to provide amenities not otherwise available for patients in the institution.

41. The Specialist considers that this association plays an important part in maintaining the high discharge rate from the Mental Hospital, and suggests that a committee in Dar es Salaam on the lines put forward would play an equally important part in fostering the complete recovery of discharged patients in that area.

MALARIA CONTROL

42. With the return in September of Dr. Bagster Wilson from employment as Malariologist in the East Africa Command, to take over the duties of the specialist post as Territorial Malariologist, his first problem was to undertake a reconnaissance of the prevailing conditions to be found in the larger urban and industrial aggregations of population flanking the major traffic channels in the Territory. Since malaria-control activities under departmental guidance and direction had been minimal by reason of the withdrawal and restriction of expert personnel during the war, it became necessary to determine the extent of deterioration that had ensued, and to consider the most appropriate means of re-entry into this field.

43. Past antimalarial activities here appear to have involved an inextricably complex combination of field and research activities, wherein the latter has tended to overshadow the former. Now because of the great fund of knowledge accumulated from Allied war experience, the primary objective of the Territorial malaria control policy may be summarized as an attempt to sort and apply what is already known to the malaria problems in the organized communities of the Territory and to reserve both applied and fundamental research as subject of interterritorial and extraterritorial undertaking and direction, with such collaboration as will bear on the objective. To this end it is postulated that a malaria control unit will be required, with two field sections concerned with the communities flanking the two main rail systems. The functions of these will be investigative, advisory and supervisory to the executive township, industrial or other authorities concerned with malaria control. An interim subsidiary function expected to be required will be the training of subordinate assistants for executive authorities, which function is expected to fall within the immediate purview of the malariologist and his headquarters establishment.

44. Exploratory negotiations by a representative of the Ross Institute of Tropical Hygiene with a group of sisal producers, with the object of establishing a branch of that Institute in Tanganyika, have been in progress during the year. In the event that a successful conclusion is reached, this should afford a most progressive means of interesting industrial groups in the practical

benefits of tropical hygiene in general, and malaria control in particular, within the scope of their independent efforts. Government has intimated that it would cordially welcome the establishment of such a branch.

Barrier-spraying with D.D.T. in Dar es Salaam

45. An inconclusive field trial of barrier-spraying with four per cent solution of D.D.T. of houses within the township of Dar es Salaam, in order to observe the effect on the *anopheles* population, was undertaken during the period January to July. Unpredictable relative drought conditions, failure of continuity of directing personnel, and a breakdown in the arrangements to compile and study the raw data vitiated the value of this extra-duty task. It was possible to salvage the data independently for final record, but the nature of the trial and the subjective analysis permitted nothing more convincing as a conclusion than the impression that there were "crude indications of a material reducing effect upon the migratory prevalence of anophelines by means of such barrier-spraying."

Man-day wastage from Malaria amongst Officials, Dar es Salaam European Hospital

46. Following last year's scrutiny of the in-patient admissions of officials to the European hospital, Dar es Salaam, comparative tabulations of the man-days lost from all causes and those incidental to the diagnosis of malaria have been compiled (see Table 10, p. 43). It is not necessarily true that exposure to malaria occurred by reason of residence in Dar es Salaam, or that a small proportion of the cases under scrutiny were amongst persons deriving from elsewhere than Dar es Salaam. The significance of wastage in these days when there is common knowledge of the means of reducing exposure and suppressing overt attacks of the disease is of some concern. The tabulated data provide an interesting indication either of the apparent failure to recognize such knowledge, or of the failure of effectiveness of such personal measures. To the extent that overt malaria may be a preventible disease as demonstrated by war experience, the fact that 27·4 per cent of the total European official man-days wastage from all causes under in-patient treatment was due to malaria, as shown in Table 10 (p. 43), occasions speculative thoughts upon the knowledgeable sense of responsibility accepted by the intelligent individual for his own well-being. A total of 1,054 man-days lost by 81 Europeans by reason of malaria represents an average individual loss of approximately 13 days per case. No comment is offered for the non-European experience, other than to note that it concerns persons of European living habits and by no means indicates the burden of illness among all non-European officials in Government employ.

YELLOW FEVER IMMUNITY

47. During the period 1941 to 1945 there were 593 scattered blood samples collected in Tanganyika, approximately 79 per cent of which were collected by representatives of the Yellow Fever Research Institute at Entebbe and there subjected to mouse protection tests. Of these, an immune blood was found in a child resident in the vicinity of Ngara (on the western border of Biharamulo District, Lake Province), a second specimen from whom gave an inconclusive test. A second immune specimen was obtained from an adult female in Moshi (town), Northern Province. The weight of significance of this evidence is therefore negligible.

48. In 1941 a blood sample and a viscerotome liver specimen from an adult male patient dying of a doubtful cause at Mikindani (coastal portion of the Southern Province) were submitted to the Yellow Fever Research Institute for examination. The viscerotome specimen proved to be negative, but the blood serum proved to be protective. No follow-up of this coincidence can be traced, and we are left with the speculative evidence that this man some time in the course of his life had been exposed to the virus of yellow fever, probably by way of a natural infection. During 1946 random blood sampling was undertaken on a very small scale amongst in-patient and out-patient African adults and children, specimens being taken from 35 males and 17 females at Lindi (Southern Province) and from 76 females at Tanga (town)—both coastal stations manned by European medical personnel—the findings from which are summarized below. The subjects concerned do not necessarily represent persons domiciled in these towns but are representative of the urban and surrounding rural and semi-rural communities obtaining medical attention from the two Government hospitals located in these stations.

49. It has not been possible to undertake an epidemiological follow-up of the immune persons in order to "pinpoint" the possible focus of the natural immunizing exposure to infection, thus to seek a more substantial sampling of an exposed community, in order to determine whether or not contemporary natural immunizing sources are to be found in these areas. These findings, which afford nothing more substantial than suspicions, do provide a stimulus to pursue the clues further.

Summary—Yellow Fever Immunity Survey—1946

Place: Sex: Results:	Age distribution—years				Totals
	Under 12	12-19	20-29	30+	Not stated	
Tanga (town).						
Female:						
Protected	—	—	—	—	—	—
Unprotected	23	39	6	5	3	76
Lindi.						
Male:						
Protected	—	—	—	—	—	—
Unprotected	10	18	6	1	—	35
Female:						
Protected	—	—	3	—	—	3
Unprotected	4	8	—	2	—	14

LEPROSY

50. A census was taken early in the year of the population of the leper settlement at Makete. A total of 1,461 was found, but of these only 633 (43·2 per cent) were lepers: the remainder, 828, were all non-lepers. There was at that time no system in force for the segregation of leprosy cases, and a considerable number of non-lepers from the surrounding area attended Makete dispensary for general treatment.

51. By the end of November, however, many of the non-lepers had been induced to leave the colony, and the number of lepers resident had risen to 761. It is intended during 1947 to clear out all non-lepers except wives and husbands of leper inmates, with the expectation of providing accommodation for more infected persons and such dependants as must accompany them.

52. At the same time as the census an assessment was made of the capability to work of 552 of the lepers. Of these 314, or 56·9 per cent, were found fit to work, 91 or 16·5 per cent were found fifty-per-cent capable, and 147 or 26·6 per cent were found incapable of working.

53. At Ndanda colony in the Southern Province, 432 out of the 476 inmates were under regular treatment. In 67 cases cure or arrest of the disease was effected, 151 improved, and in 142 the state of the disease was unchanged or had deteriorated. The specific bacillus was found in only 184 of the cases treated, and it was noted that improvement was much more marked in closed than in the open cases. Sixteen new wards were completed at Ndanda, some of the lepers participating in the work. In consequence it was possible to admit 138 new cases during the year.

54. In the Central Province, 140 cases were treated at Mkalama and 190 at Makatupora.

HEALTH OF LABOUR

55. A general improvement in the facilities provided by employers of labour was noted during the year, the Tanga Province continuing to show the highest relative standards. The Labour Officer, Tanga, however, reports that the Public Works Department camps in that area were unsatisfactory, although in the Southern Highlands Province, where the health of Government-employed labour has been generally good throughout the year, the Public Works Department road camps "are often a model of housing". The International Red Locust Control organization has a large number of employees in the latter Province, under the care of a dispenser and several dressers. One of the camps south of Rukwa was visited, and was found to be well managed, providing a substantial dietary for a healthy labour force.

56. A new 60-bedded industrial hospital with X-ray equipment was completed during the year in the Lake Province at the Madui Diamond Fields, where a full-time Asian practitioner is employed. A detailed report of medical activities was received from the Geita Gold Mining Co. in the same Province, where a well-qualified medical staff is employed in the charge of a registered European practitioner. Costs at this hospital, calculated upon wages paid to European and African medical staff, drugs, food, transport, lighting and power as well as general maintenance, showed operating expenditure amounting to Shs. 21/- a year for each employed African, which produces operating costing of Shs. 4/09 per patient-day. With morbidity and mortality rates of 648 and 5·3 per thousand respectively these data bear reasonable comparison with the experience of the Rand Mines group of South Africa. A substantial increase in the incidence of malaria in Geita was due to recruitment of employees from malaria-free areas who showed little praemunition to the disease.

57. The smaller operators in the Lake Province on the other hand are still finding it financially impossible to offer facilities of the standard given by the larger concerns, and as a result have been suffering from a reduced attractiveness to labour, the shortage of which in turn may be anticipated to reduce their profitable potentialities.

58. There has been an accelerated improvement in general medical and health conditions on estates in the Kilosa and Kimamba areas, where the prevalence of yaws and ulcers has decreased in consequence of improved treatment at estate dispensaries. In the Northern Province, on the other hand,

the prevalence of ulcers amongst estate labourers has caused much concern this year, and appears to have been due to a failure of employers and estate dressers to afford early treatment. The Senior Medical Officer stresses the need for prompt treatment of all scratches and abrasions and has recommended that employers should insist on this being routinely undertaken by dressers before each man's daily task is recorded. He also comments on the poor physical condition of recruits generally, which it had been expected would improve with the cessation of labour conscription.

59. The Acting Senior Medical Officer, Central Province, has noted the amount of time spent by Medical Officers and Sub-Assistant Surgeons in the examination of labour recruits supplementary to their normal medical duties. He estimated that each examination took a minimum of ten minutes. In his Province 5,045 men were examined during 1946, chiefly at Dodoma and Singida, and of these 20·03 per cent were rejected as unfit.

60. In the Lake Province 3,577 men were examined, of whom 15·28 per cent were rejected, and at Songea in the Southern Province 938 examinations showed a rejection rate of 7·67 per cent.

61. The lowest rejection rate, of 6·68 per cent, was in the Southern Highlands Province, where a total of 6,313 men were examined. The total number of recruits recorded by the Mbeya Recruiter Co., which increased from 3,601 in 1944 to 5,134 in 1945, dropped in 1946 to 4,540. This fall is believed to be due to a decrease in the flow of labour from Northern Rhodesia, whence 1,139 men were recruited at Mbeya during the year. There appears also to be a territorial outflow amongst the Wanyakyusa, some of whom migrate to find work in the Copper Belt of Northern Rhodesia, or go even further south to the Rand.

62. The highest rejection rate was among the 4,972 sisal recruits examined in the Western Province, of whom 24·8 per cent were found to be unfit: 16·4 per cent of Railway recruits examined in the same Province were rejected.

63. During the year an arbitrary, though considered, set of physical standards was introduced, with a system of card records, for the purpose of determining with some degree of accuracy the physical findings and other relevant data on the examination of recruits. This came into operation in August and as an innovation has been the subject of criticism on the one hand by recruiters and a number of employers, that the standards are too high, and on the other hand by certain other employers, that the standards are too low.

64. Five categories have been chosen as representing the necessary physical requirements:—Grade I—underground miners; Grade II—sisal cutters, sugar-cane cutters, stevedores, loggers, porters, surface miners (heavy work), fuel cutters, etc.; Grade III—cleaners, weeders, surface miners (light work), rubber labour, etc.; Grade IV—coffee, tea and pyrethrum pickers, etc.; and Grade V—totally unfit for preceding categories.

65. The physical assessment is made under the following general heads:—age, minimum weight (correlated with height and physique), physique, eyes, ears, lungs, heart, abdomen and scrotum, genito-urinary, lower extremities, upper extremities and hæmoglobin.

66. A tabulated summary of these records on 6,625 examinees is subjoined at Table 11 (p. 44). Of these, 889 (13·4 per cent) were rejected and 519 (7·8 per cent) were downgraded in category from that in which it was the

recruiter's expectation that they would be employable. Failing a means of determining the primary cause of rejection, analysis has been made of the total recorded defects (966) among the total number of 889 rejects. For the sake of space the breakdown by districts of origin has been consolidated by territorial Provinces of origin, and the remainder having extra-territorial origin have been so grouped.

67. It is of interest to note that serials 1, 2 and 3 of the table represent approximately 40 per cent of the rejections; the extent to which these particular causes of rejection could and should be determinable by recruiters is a point worthy of consideration. The remarkably low proportion of rejections amongst recruits originating from Northern Rhodesia and Nyasaland and the high proportion of rejections amongst those originating from Portuguese East Africa and Ruanda Urundi are notable, although those from Portuguese territory are numerically insignificant. Owing to the fact that these tabulated data are derived from only five months' experience, it is considered appropriate to defer more critical analysis of the distribution of these defects until the assembly of the 1947 data permits a wider and thus more accurate sampling. However, the relatively higher rejection rates revealed among recruits originating from the Western, Central and Lake Provinces than from other Provinces offers several interesting speculative epidemiological clues that must be borne in mind.

TRAINING

68. A sub-committee, suggested by the conference of Senior Medical Officers in 1945, was appointed to study and recommend a revised syllabus of training for African Medical Auxiliaries for both urban and rural work. It reported in July, 1946, that there were then three centres in the Territory for training this grade of staff :—

(a) The Dar es Salaam school for Hospital Assistants, under departmental direction and enjoying the clinical, laboratory and tutorial advantages of the professional staff serving in Dar es Salaam. The school gives a three-year course of the highest available grade of teaching, and has a maximum capacity of 40 students, a proportion of whom receive specialized training as Laboratory Assistants, Chemical Assistants, etc.

(b) The Mwanza school for African Medical Auxiliaries, capable of giving a two-year course to a maximum of 24 students, and having the more limited benefits of clinical and tutorial instruction from the professional and technical medical staff serving in that station. It was financed originally by the Native Authorities of the Lake Province, but is now run on a sponsorship basis under the ægis of the Provincial Commissioner and takes trainees from missions, commercial concerns and from the Native Authorities of other provinces, as well as local students.

(c) The Tukuyu training school, giving a three-year course for tribal dressers, dependent upon the spare-time instruction of a Medical Officer who is solely responsible for the clinical and district work of one of the most populous districts in the Territory. This is maintained and financed by the local Native Authorities.

69. It was considered that five classes of African Auxiliaries were essential to the Territorial medical system : Hospital Assistants, Rural Medical Aids (a re-naming of African Medical Auxiliaries), Laboratory Assistants, Dental

Assistants and Pharmaceutical Assistants; and a number of principles were recommended that should be followed in any training scheme. These were :—

(i) that each training establishment must be in the charge of a full-time officer, and that while Africans may be employed as demonstrators, the teachers should all be Europeans;

(ii) that principles of medicine rather than rule-of-thumb methods should be the aim in teaching, and that the inculcation of moral standards, discipline and responsibility was so important as to necessitate a closely supervised system which should cover leisure hours as well as those spent in the wards or classroom;

(iii) that external examiners should be provided for each establishment, and that training should be standardized for each class of trainee throughout the Territory, as should conditions of service after completion of training;

(iv) that close and constant supervision after posting is essential, and that refresher courses should be allowed for in the training system, which should throughout be founded on a practical rather than a purely didactic basis.

70. The technical training of Rural Medical Aids, it was recommended, should consist of simple anatomy and physiology; pathology, parasitology and microscopy ; pharmacy ; clinical medicine and surgery; practical public health work as applicable to rural areas; and an outline of rural sociology. Standard lecture notes or text-books should be provided.

71. To reduce expense and staff the sub-committee suggested the establishment of a central school, with a capacity of about 40 pupils, for the preliminary training of all grades except Hospital Assistants whose existing training at Dar es Salaam was considered fully satisfactory, and Dental Assistants who should take two years of the Hospital Assistants' course and then one on dental work.

72. At this central school the first year would consist of two five-month terms of theoretical work followed by nine months' clinical and field training. Thus three months in each two years would remain available for refresher courses at the school.

73. The establishment of such a school would necessitate also the setting up of a hospital in close proximity to provide clinical material. A site was suggested at Mpwapwa, which, possessing as it does laboratories, a secondary school, a planned village development scheme and a small hospital, could be suitably developed.

74. The sub-committee realized that these proposals could not be implemented immediately, and suggested a stop-gap scheme including co-ordination of the schools at Mwanza and Tukuyu (though it was considered the latter should eventually be closed), secondment of a full-time officer to supervise them, and establishment of an external board of examiners.

75. During 1946 training on a "block" system for male and female nursing auxiliaries was started at the Sewa Haji hospital in Dar es Salaam, where all teaching activities are still limited by lack of hostel accommodation. Under this system orderlies can be sent for training from any hospital in the Territory. They enter the school in groups and undergo two six-weekly

periods of intensive theoretical work each year for three years, followed by examinations, returning in the intervals to their own hospitals where practical training is continued by the local Nursing Sisters. Simple anatomy, physiology and allied subjects are taught, as well as actual nursing, and successful completion of the course will carry a local diploma which will entitle holders to enter Grade III of the Local Civil Service as vacancies arise.

76. A course of instruction for Hospital Orderlies was started at Mwanza hospital during the year.

77. The training of African staff has been carried on with vigour by Miss Wintle in Arusha, though great difficulty had to be overcome in arranging the training of midwives and dressers for rural work and of urgently needed ayahs for maternity and ordinary hospital work, owing to the continued and serious lack of accommodation.

NUTRITION

78. General food shortages, but no actual famines, were reported from the Southern Highlands and Central Provinces, especially during the second half of the year, as well as from the Southern Province where the longstanding deficiencies of food production and distribution remained unchanged.

79. Towards the end of the year a threat of famine developed in the Mbulu District of the Northern Province. Issues of maize were made by the District Commissioner; in November the Senior Medical Officer visited the area, a proportion of the people were examined, and no significant evidences of gross nutritional deficiencies were found.

80. In November there was a report of famine in the Utete District of the Eastern Province. The Medical Officer of Health who visited Kibiti found many children suffering from severe malnutrition. Relief measures were undertaken and the situation promptly improved.

81. A survey of all the students was carried out at the Teacher Training school at Bwiru near Mwanza in the Lake Province. Weight and height proportions were found to be satisfactory, hæmoglobin averaged 90 per cent, very few were found to have intestinal worms, and only a slight vitamin B deficiency was noted. The monthly feeding expenditure in this school was Shs. 12/- per pupil.

82. Routine inspections of rural dispensaries in the same Province showed the prevalence of infantile pellagra (kwashiorkor), of which pale hair was the most prominent sign, and a low hæmoglobin percentage was found among the children. In 80 children of eight to fifteen years at the Native Authority School at Ibindo the average hæmoglobin was found to be 56 per cent; whereas in 161 under three years attending Mwanza hospital as out-patients this was 60 per cent, and in 128 adult out-patients there 78 per cent.

MISSION MEDICAL WORK

83. Full details of the year's medical work done by missions are not available, but at least 22,170 in-patients and 372,885 out-patients are known to have been treated at mission hospitals and dispensaries. The latter figure probably falls very far short of the true total.

84. Valuable general work is carried out by missions throughout the Territory, but their greatest contribution lies perhaps in the care of women.

In the Lake Province, for instance, the Church Missionary Society refers all men requiring in-patient treatment to Government hospitals. In the Tanga Province the hospitals of the Universities' Mission to Central Africa at Korogwe and Magila admit women patients only, and at the latter African women are trained as nurses. Several missions maintain rural Maternity and Child Welfare clinics.

85. The hospital at Korogwe, though treating 729 in-patients, has suffered a handicap through lack of proper buildings and equipment; Bumbuli hospital, which is now managed by the Augustana Lutheran Mission, has for the present reverted to dispensary status owing to the withdrawal of the European medical officer.

86. Lack of qualified personnel is a severe restriction on mission medical services everywhere. There is no qualified mission practitioner in the Southern Highlands Province, in consequence of which the work there is chiefly among out-patients, with a modicum of maternity and ante-natal care. The White Fathers in the Western Province too are without a qualified doctor, and most of the Sisters in charge of dispensaries are uncertificated nurses.

87. The Swedish Free Mission reopened at Nzega, and expect to have a qualified medical officer there in the near future, as do the Moravian Mission in the neighbouring district of Tabora.

88. In the Southern Province mission medical work is carried out by the U.M.C.A. at Masasi and Liuli, and by the Benedictines at Ndanda and Peramiho. The latter mission reported that women's attendances were increasing satisfactorily, and that most of their surgical work was limited to emergency cases.

89. A total of £8,700 for the year was paid in direct grants-in-aid to missions, including £750 for the training of African nurses and £1,900 from the vote "Maintenance of work previously financed from enemy sources."

EPIDEMIC DISEASES

Smallpox

Territorial	1942	1943	1944	1945	1946
Cases	89	201	5,735	12,283	12,671
Deaths	4	2	38	1,815	1,935
Fatality per cent	4·5	1·0	0·7	14·78	15·27

Provincial	1942	1943	1944	1945	1946	(Vaccine Issues) 1,000 doses
Central:						
Cases	–	–	1,594	1,336	1,725	
Deaths	–	–	11	225	285	412·5
Fatality per cent	–	–	0·6	16·8	16·5	
Eastern:						
Cases	–	6	625	186	440	
Deaths	–	–	–	–	39	518·7
Fatality per cent	–	–	–	–	8·8	
Lake:						
Cases	–	–	1,988	3,558	1,987	
Deaths	–	–	13	405	497	432·0
Fatality per cent	–	–	0·6	11·38	25·01	
Northern:						
Cases	–	88	339	106	129	
Deaths	–	1	3	25	33	71·0
Fatality per cent	–	1·2	0·9	23·6	25·5	

	1942	1943	1944	1945	1946	
Southern:						
Cases	87 ...	19 ...	128 ...	449 ...	2,546	
Deaths ...	3 ...	1 ...	8 ...	11 ...	160 ...	336·0
Fatality per cent	3·8 ...	5·3 ...	6·2 ...	2·45 ...	6·28	
Southern Highlands:						
Cases	2 ...	– ...	195 ...	3,081 ...	1,692	
Deaths ...	1 ...	– ...	– ...	93 ...	426 ...	391·0
Fatality per cent	50·0 ...	– ...	– ...	3·02 ...	25·17	
Tanga:						
Cases	– ...	47 ...	502 ...	50 ...	97	
Deaths ...	– ...	– ...	2 ...	– ...	18 ...	108·0
Fatality per cent	– ...	– ...	0·4 ...	– ...	18·5	
Western:						
Cases	– ...	41 ...	364 ...	3,517 ...	4,055	
Deaths ...	– ...	– ...	1 ...	1,056 ...	477 ...	261·5
Fatality per cent	– ...	– ...	0·3 ...	30·03 ...	11·7	

90. The epidemic prevalence of smallpox continued throughout the year with an increase of 388 cases and 120 deaths over those reported in 1945. Definite abatement is to be noted in the Lake and Southern Highlands Provinces, with high residual fatality rates, while the most significant increases in reported prevalence were in the Southern and Eastern Provinces with low fatality rates. Vaccinations of a routine character as well as peripatetic mass vaccination as a specific control measure in epidemic areas have been undertaken, with seriously limited reliable supervision owing to the skeletal nature of available health and medical staff. Vaccination returns are by no means reliable and further vitiated by the absence of any indication of what proportion of vaccinations are successful. The opinion that by the time the vaccine has reached the vaccinator in the field remote from cold storage facilities it has lost its viability is doubtless most substantial, but none-the-less without clear evidence. A solution to the specific control of this general rural epidemic situation will not be found until it becomes possible to allocate competently supervised and trained epidemiological teams empowered and manned for the purpose of "sealing off" sporadic outbreaks by mass immunization along the line of advance of the disease. In the meantime the urban prevalence of this disease is minimal, and mass vaccination under reasonably controlled conditions is available and effective within the circumscribed sphere of influence of such urban and semi-urban points where knowledgeable staff is concentrated and adequate safeguards for the viability of the vaccine can be undertaken. The implication that migrant labour recruits from diverse sources may be the vehicles of spread of infection will not offer a ready means of control until the channelling in the assembly of recruits is more restricted than is at present practicable.

91. Study of the progress of spread gives the impression that this disease has been introduced on our southern and western perimeters, probably associated with the uncontrolled flow of labour through and into this Territory. The lesson to be learnt is not that our ex-territorial neighbours are blameworthy, but rather that we have been unable to create immune barriers in depth along those frontiers. The relatively low prevalence of the disease in the Eastern, Tanga and Northern Provinces where employed migrant labour tends to congregate is probably due to the slow rate of spread and the screening effect of vaccination at the points where medical examinations of recruits are undertaken.

92. The greatest numerical incidence was to be found in the Western Province, with foci in the Nzega, Kigoma, Kasulu and Kibondo districts, the last of which became infected towards the end of the year in spite of mass immunization. The inadequacy and primitiveness of medical services in those areas justifies one in assuming that the volume of immunizations and the viability of the vaccine were probably most insubstantial.

93. A sharp outbreak was reported in the Songea District early in the year that was vigorously met with a potent vaccine flown in from Dar es Salaam. This was brought under control within three months, and indicates the value of aerial supply facilities. Another outbreak occurred in Tunduru in August, probably originating by traffic from and through Songea.

94. The epidemic prevalence in the Southern Highlands during 1945 carried over into 1946 with a reduced incidence but increased fatality rate. The course of spread was from the Njombe District to Iringa District northwards, and later to Rungwe District. Energetic vaccination measures were introduced to localize this, and by the year's end only a few cases chiefly from the primary infected area (Njombe) were being reported.

95. The Central Province prevalence was chiefly focussed at Dodoma and Manyoni, junctions of road and rail traffic, and was probably associated with labour recruit movement through Songea as well as the Southern Highlands and Western Provinces.

96. In the Eastern Province a sharp outbreak occurred in the Uzaramo District with 269 cases and 24 deaths, believed to have been introduced from the south, which came under prompt control in consequence of approximately 150,000 vaccinations in the township of Dar es Salaam and the district. Minor circumscribed epidemics occurred in the Morogoro District in the communities settled about the mountain ranges, where 27,000 vaccinations were done. As a detraining and collecting centre for migrant labour recruits, the possibility of this group being the originating source of infection for the Uzaramo outbreak cannot be ignored.

Cerebro-Spinal Meningitis

	1942	1943	1944	1945	1946
Cases	11,687	8,800	3,463	2,537	1,789
Deaths	1,719	1,395	645	546	448
Fatality per cent In-patients ...	14·7	15·8	18·6	21·5	25·04

97. No new major outbreak of this disease occurred, but the steady drop in incidence which has taken place over the past five years has been matched by an equally steady rise in the fatality rate, part of which however must be accounted for by deaths of remaining cases. Provincial figures for 1946 are as follows:—

Lake Province: Cases 861, Deaths 254.—The incidence was fairly steady throughout the year with a peak in June and July, and like the Territorial incidence showed a drop in cases with a rise in deaths as compared with 1945. Most of the cases were in the Shinyanga District, perhaps because of a large concentration and movement of labour there.

Western Province: Cases 455, Deaths 64.—The main foci were in the Kahama, Tabora and Sumbawanga districts, with some increases in the latter district over the 1945 figure. The death rate was the lowest in the Territory.

Southern Province: Cases 160, Deaths 42.—Although this disease has become locally well-recognized, cases are nearly always brought in too late for successful treatment.

Eastern Province: Cases 96, Deaths 32.

Central Province: Cases 73, Deaths 19.—These figures show a considerable reduction from the reported prevalence of 229 cases and 39 deaths in 1945.

Tanga Province: Cases 57, Deaths 12.—Only small localized outbreaks occurred.

Northern Province: Cases 46, Deaths 16.

Southern Highlands: Cases 41, Deaths 9.

HUMAN TRYPANOSOMIASIS

Province	1942		1943		1944		1945		1946	
	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
CENTRAL:										
Kondoa-Irangi	–	–	–	–	4	–	3	1	154	6
Singida	–	–	–	–	–	–	–	–	10	2
Mkalama	2	1	4	–	1	–	10	4	–	–
EASTERN:										
Mahenge	22	17	20	4	43	13	25	6	12	34
Morogoro	–	–	–	–	4	–	–	–	–	–
LAKE:										
Biharamulo	15	6	14	2	24	3	34	8	51	11
Musoma	60	2	27	1	23	1	33	2	46	–
Mwanza	22	34	10	5	7	5	9	2	4	–
NORTHERN:										
Babati	–	–	27	–	215	32	86	12	–	–
Mbulu	–	–	–	–	–	–	–	–	158	22
SOUTHERN:										
Liwale	25	28	13	25	5	13	–	6	–	–
Masasi	8	2	13	5	53	1	10	5	7	1
Tunduru	40	5	28	4	22	11	23	6	24	9
Songea	1	1	11	5	5	3	2	–	2	–
Lindi	–	–	–	–	–	–	–	–	1	–
SOUTHERN HIGHLANDS:										
Chunya	1	–	5	–	6	2	1	–	4	–
WESTERN:										
Kigoma	6	3	33	1	9	–	–	–	–	–
Kibondo	83	35	90	55	129	36	81	27	41	44
Kasulu	24	12	18	14	48	6	57	22	63	27
Kahama	74	30	80	42	161	39	113	43	143	52
Ufipa	2	2	–	–	1	–	–	1	–	1
Tabora	71	42	46	18	65	67	59	9	86	12
TANGA:	–	–	–	–	–	–	–	–	–	–
Totals	456	220	439	181	825	232	546	154	806	221
Fatality per cent	48·2		41·2		27·1		28·2		27·4	

N.B.—C = *New* cases reported during the year; D = *Total* deaths during the year.

98. The Territorial total of cases which fell in 1945 to about 60 per cent of the 1944 total rose again sharply in 1946, the main increases being in the Central, Northern and Western Provinces.

99. The Sleeping Sickness Officer notes an increase of about 8 per cent in the Western Province cases, mainly in the Kahama area, which he attributes to the absence on leave of the Sleeping Sickness Surveyor. He remarks that Sleeping Sickness work proper now represents only a very small proportion of the total done at most Sleeping Sickness dispensaries.

100. In the Northern Province cases increased as shown from 86 to 158, partially owing to the deeper penetration of bush-clearing gangs into infected areas, to the return of natives into evacuated areas for hunting, pole-cutting, etc., and also to the increased activity of Sleeping Sickness Scouts in discovering cases in their homes.

101. The increase in the Central Province from 13 cases in 1945 to 164 in 1946 was due to the spread of the disease from the Northern Province into the Kondoa-Irangi District. Five to six hundred families found to be living at risk in this area are to be evacuated during 1947. Most of the infected people were living in a small belt of land along the West bank of the Bubu river, whence there is danger that the disease may spread southward into the Usandawe area. Bush clearing by the Tsetse Reclamation Department is in progress in the district, and will be continued in 1947.

102. In September the Trypanosomiasis Research Laboratory at Tinde and the personnel employed therein became a part of the Interterritorial Tsetse and Trypanosomiasis Research Organization, thereby bringing to a close an association of the Department with this laboratory in the study of *T. rhodesiense* since 1930. Since the beginning of the war this laboratory has been operating on a care and maintenance basis under the substantive Sleeping Sickness Officer in addition to the normal epidemiological responsibilities of that appointment, until June of this year. Since that time the epidemiological functions of this appointment have been undertaken by an experienced medical officer designated for the purpose, until the administrative complexities of the changeover have been clarified.

ENDEMIC DISEASES

Malaria and Blackwater Fever

Malaria	1942	1943	1944	1945	1946
Out-patients	74,414	79,239	85,968	93,928	96,523
In-patients	7,292	9,903	9,667	10,778	10,631
Deaths (In-patients)	102	139	184	183	192
Fatality per cent (In-patients)	1·4	1·4	1·8	1·6	1·8

Blackwater Fever	1942	1943	1944	1945	1946
Out-patients	15	23	31	13	10
In-patients	95	90	72	46	54
Deaths (In-patients)	21	15	21	13	9
Fatality per cent (In-patients)	22·11	16·67	29·18	28·26	16·67

103. The continued increase in malaria was not spread evenly over the Territory.

104. The Central Province incidence was the same this year as in 1945, and in the Tanga Province there appeared to be a slight increase in the cases at higher altitudes only, especially at Lushoto, though there are no records to show the actual prevalence of malaria among the native population groups.

105. A great increase in cases is to be noted in the Southern Province, where numbers treated rose from 760 in 1945 to 2,116 in 1946. This rise was mainly at Songea, where only 10 cases were treated in 1945 as against

829 in 1946, but the increase may in fact have occurred only on paper since, as pointed out in last year's report, the figures for cases of malaria treated at hospitals or dispensaries do not reflect the true incidence of the disease, but rather greater interest of the African patient, and greater concern or less discrimination in diagnosis by the medical attendant reporting.

106. In the Western Province a series of very dry years brought a remarkable freedom from mosquitoes in most townships. The R.A.F. continued experimental D.D.T. spraying of Tabora township.

107. Drainage works were undertaken in the Southern Highlands Province at Mbeya, where two swamps were drained on the township border, at Kyela, and at Iringa where drainage of part of the Ruaha river swamp was undertaken.

108. At the Geita Gold Mining Co., whose employees form a compact population group, the case figures for 1945 were doubled in 1946, with a high incidence among recruits from the malaria-free districts of Mbeya and Rungwe, though the incidence among those from infected areas was the same or lower than in preceding years. It was reported that in African non-immunes the manifestations of the disease were identical with those seen among the European non-immunes. Totaquina treatment was found to give a very high relapse rate, some cases being readmitted several times at short intervals. Mepacrine treatment was then substituted for the Totaquina and the relapse rate fell to the negligible figure of approximately 3 per cent. For the first time no cases of blackwater fever occurred at Geita during the year.

Relapsing Fever

	1942	1943	1944	1945	1946
Out-patients	1,857 ...	2,441 ...	2,951 ...	2,998 ...	3,844
In-patients	816 ...	1,333 ...	1,683 ...	1,815 ...	1,926
Deaths (In-patients) ...	15 ...	25 ...	38 ...	33 ...	32
Fatality per cent (In-patients)	1·8 ...	1·9 ...	2·3 ...	1·8 ...	1·6

109. While the Territorial incidence has increased by about 25 per cent, there has been no similar increase in deaths.

110. It was noted by the Senior Medical Officer, Southern Highlands Province, that there seemed to be an acquired local immunity from previous exposure to infection, as the disease was only reported among migrants in his Province. The possibility of a strain-specific immunity acquired elsewhere explaining the failure of such persons to resist local infection was considered.

111. There was an increase of 30 per cent during the year over the 1945 total of reported cases in the Central Province, with a 200 per cent increase in Mpwapwa. In Morogoro the prevalence of the disease was again related to the increasing number of houses in the township that were infected with ticks.

112. A large increase in hospital admissions was reported by the Geita Gold Mining Co. Spirillum fever among their labour force caused several weeks' disability in each case, although the patient might spend only a few days in hospital. Treatment with the standard arsenicals was unsatisfactory, and considered to be inferior in efficiency to simple bismuth. The sources of infection in 1946 were believed to be much more diverse than formerly, at least half of the infection arising from outside sources, drastic preventive measures having been taken within the camp. These included closing for three

months all huts in which infection had occurred, steam disinfection of all furniture, movable equipment and utensils, replacement of cement floors by construction of new floors made from woodtar, sand and gravel, and a double tar coating and whitewashing of the walls.

Schistosomiasis

	1942	1943	1944	1945	1946
Out-patients	10,674	12,020	8,747	10,324	10,671
In-patients	593	669	452	474	672
Deaths (In-patients) ...	1	12	13	3	5
Fatality per cent (In-patients)	0·18	1·79	2·88	0·68	0·74

113. This disease is still very prevalent in the Lake Province, where it is the commonest of the helminthic diseases, and in the Southern Highlands Province where it is mainly to be found around the lake shores. In certain areas of the Tanga Province nearly 100 per cent of the African population is reported to be infected.

Ankylostomiasis

	1942	1943	1944	1945	1946
Out-patients	17,738	20,398	21,630	20,556	25,327
In-patients	1,955	2,009	2,089	2,113	2,509
Deaths (In-patients) ...	110	148	124	151	142
Fatality per cent (In-patients)	5·6	7·35	5·95	7·15	5·65

114. The real or apparent increase in the prevalence of hookworm continues. It is considered by the Senior Medical Officer, Southern Province, as second only to yaws in "prevention priority".

115. The incidence of other helminthic diseases is largely dependent on local conditions. There is Taeniasis infection for example in the cattle country about Iringa.

The Dysenteries

Amœbic	1942	1943	1944	1945	1946
Out-patients	351	795	616	279	496
In-patients	249	215	408	171	254
Deaths (In-patients) ...	19	16	26	10	11
Fatality per cent (In-patients)	7·6	7·5	6·4	5·8	4·3

Bacillary	1942	1943	1944	1945	1946
Out-patients	177	285	1,085	674	550
In-patients	92	242	566	302	281
Deaths (In-patients) ...	6	66	95	32	31
Fatality per cent (In-patients)	6·5	27·7	16·8	10·6	11·03

Undefined	1942	1943	1944	1945	1946
Out-patients	1,898	2,180	2,919	1,960	2,161
In-patients	446	533	784	544	457
Deaths (In-patients) ...	22	77	109	41	45
Fatality per cent (In-patients)	4·9	14·5	14·0	7·5	9·6

116. There was one notable divergence from the Territorial increase in both cases and deaths due to the dysenteries. In the Morogoro area, cases increased threefold without a corresponding increase in the number of deaths, so that the approximate local fatality rate fell from 10 per cent in 1944 to 3 per cent in 1946.

Figures for the district were :—

	1944	1945	1946
Cases... ...	432	498	1,397
Deaths ...	44	57	41

117. In the majority of hospital cases the type of dysentery was not stated, but about 30 per cent of those treated were reported to be amoebic dysentery.

The Enteric Fevers

	1940	1941	1942	1943	1944	1945	1946
Out-patients ...	79	16	6	12	90	14	26
In-patients	151	133	101	132	214	203	302
Deaths (In-patients)	25	26	27	24	27	43	38
Fatality per cent (In-patients)	16·6	19·5	26·7	18·2	12·6	21·2	12·6

118. The increase was general over the year. No epidemic outbreaks were reported. The widespread sporadic incidence of this group of diseases provides a continuing challenge to the bacteriological study of the distribution of the specific components making up the group. Clinical and, not infrequently, doubtfully interpreted serological diagnoses of the group of diseases emphasise the desirability of expanding laboratory services to a degree that will permit us to abandon this grossly outmoded classification.

Venereal Diseases and Yaws

Syphilis	1940	1941	1942	1943	1944	1945	1946
Out-patients ...	28,920	35,362	36,766	44,256	35,644	38,614	37,486
In-patients ...	1,013	1,125	1,336	1,669	1,637	1,705	1,868

119. A system of treatment instituted at rural dispensaries in the Lake Province, under which all penile ulcers were regarded as being of syphilitic origin and treated accordingly, has not proved a success. Records kept at selected dispensaries show that few patients were willing to return for prolonged treatment.

Gonorrhœa	1940	1941	1942	1943	1944	1945	1946
Out-patients ...	12,805	14,792	16,762	15,325	14,915	15,699	16,928
In-patients ...	942	1,035	1,440	1,905	2,221	2,982	2,864

120. The treatment of gonorrhoea at the same selected dispensaries in the Lake Province was more successful than that of syphilis, as patients were persuaded to live near the dispensaries until their sulphonamide courses were finished, and attendances were thus reasonably regular. Only a very small number of women were treated there for this disease. A high incidence of gonorrhoea was found in the areas visited by the Mobile Health Unit in the Tanga Province.

Yaws	1940	1941	1942	1943	1944	1945	1946
Out-patients ...	84,896	77,228	71,847	78,350	70,977	68,446	50,284
In-patients ...	814	771	707	882	914	644	975

121. The general decrease in the incidence of yaws continues, and the Senior Medical Officer, Lake Province, where the disease occurs in all districts, with the highest incidence near the lake shores, comments on the striking decrease in its prevalence there since 1922 when a survey was carried out and it was reported to be "almost universal."

122. The Senior Medical Officer, Southern Province, however, stresses the seriousness of this disease in view of the consequential bony deformities and crippled feet and hands. He offers the opinion that its effect in lowering the general efficiency of labour may be a primary contributary cause of the alleged lack of the manual effort required in food production.

123. The control of venereal diseases may not be insoluble in Tanganyika but the solution must be found from a different perspective than has contemporary acceptance in socially stabilized communities of western pattern. The spectacular past effect of mass injections upon the lesions of yaws has inspired an undue respect for the miraculous benefits of syringe and tablet, and the prompt response of the unsightly lesions and uncomfortable disabilities to modern specifics has created the illusion that no further concern is necessary. The trite advocacy of public health education as a means of remedy for these and other community diseases cannot be realized until a sense of social responsibility may be developed within a nuclear but dominant element of the circumscribed community groups. When it becomes possible to remove the aura of magic from our therapeutic activities, and for responsible local opinion to influence those who need treatment and repose confidence in their own fellows who are trained to treat and prevent disease, then we may expect progress in social and preventive medicine. In the meantime we offer treatment to those who present themselves and hope they may be persuaded to persist until they cease to be infective, with the expectation that it may be possible to adapt the concepts of the health unit system to the Tanganyika countryside and the urban centres.

TUBERCULOSIS

Respiratory	1942	1943	1944	1945	1946
Out-patients	2,460	2,807	2,312	2,988	2,915
In-patients	667	722	804	886	1,125
Deaths (In-patients)	72	125	171	134	199
Fatality per cent (In-patients)	10·8	17·3	21·3	15·1	17·7

Other Regions	1942	1943	1944	1945	1946
Out-patients	1,055	1,267	1,180	1,832	1,461
In-patients	230	211	217	308	332
Deaths (In-patients)	13	17	13	17	23
Fatality per cent (In-patients)	5·6	8·1	6·0	5·5	6·9

124. There has been a significant increase observed in the pulmonary form of this disease in Dar es Salaam, where numbers of both notified cases and deaths have doubled in the last four years, and the Health Officer comments on the futility of treatment in most of the cases in the advanced stage at which they are admitted. The fatality rate for the township in 1946 was 40·5 per cent of admissions to hospital.

125. In the Tanga Province, pulmonary tuberculosis was recorded as the highest single cause of death, accounting for 21 per cent of all deaths in hospital and showing a fatality rate of 41 per cent.

126. The first of the new permanent wards projected for the new Tuberculosis hospital at Kibongoto was under construction towards the end of the year.

PNEUMONIA

	1942	1943	1944	1945	1946
In-patients	2,925	3,271	3,167	3,903	3,996
Deaths	299	338	355	420	334
Fatality per cent	10·2	10·3	11·2	10·7	8·3

127. Pneumonia, which shows a continued increase for the whole Territory, was in Tanga Province the second highest cause of death, accounting for 19 per cent of the total number of deaths in hospitals there, with a fatality rate of 8·4 per cent.

Anthrax and Malignant Pustule

	1946
Out-patients	220
In-patients	117
Deaths (In-patients)	24
Fatality per cent In-patients	20·5

128. This disease has become unduly prevalent in Dar es Salaam, where there were 27 cases with six deaths during the year. The provision and use of shower-baths, and a close examination of all employees working in the hides godowns before the start of work each day, have improved conditions of exposure among the labour employed by one firm.

129. In the Central Province 35 cases were reported from Government hospitals, mostly in Dodoma and Singida, and a further 439 cases were reported from tribal dispensaries in the Singida area, the diagnosis of the latter of which must be viewed with some scepticism.

Trachoma and Other Eye Diseases

Trachoma	1942	1943	1944	1945	1946
Out-patients	528	1,222	1,007	1,403	1,323
In-patients	125	56	103	148	212

Other eye diseases	1942	1943	1944	1945	1946
Out-patients	36,127	36,626	36,810	36,646	49,167
In-patients	783	991	868	757	1,291

130. A three-months' safari was undertaken at the beginning of the year by the Specialist (Ophthalmology), who visited Mwanza, Tabora, Dodoma, Moshi, Arusha and Tanga. Among the African school-children he reported invariably finding some degree of chronic conjunctivitis. Trachoma was common among both the African and the Asian and European children examined. Percentages of trachoma among all children examined were reported to be as follows:—

	Per cent		Per cent
Mwanza	27	Moshi	25
Tabora	16	Arusha	42
Dodoma	30	Tanga	31

131. The high percentage occurring at Arusha in European children only, was only exceeded by the figure of 43 per cent which was recorded at Dodoma amongst African children.

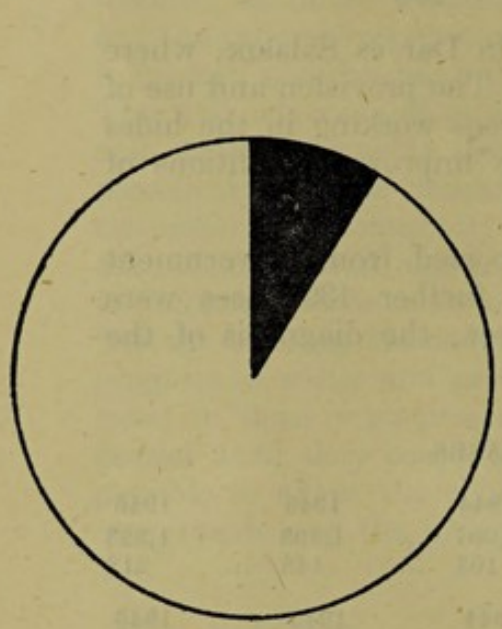
132. The Specialist recommended the daily use by all school-children of eyedrops consisting of a solution of copper sulphate in glycerine and water for those with trachoma, and an aqueous solution of boric acid and zinc sulphate for the others. This has been generally adopted.

133. Of 1,000 children whose visual acuity was tested, 10 per cent failed to read 6/6 with each eye.

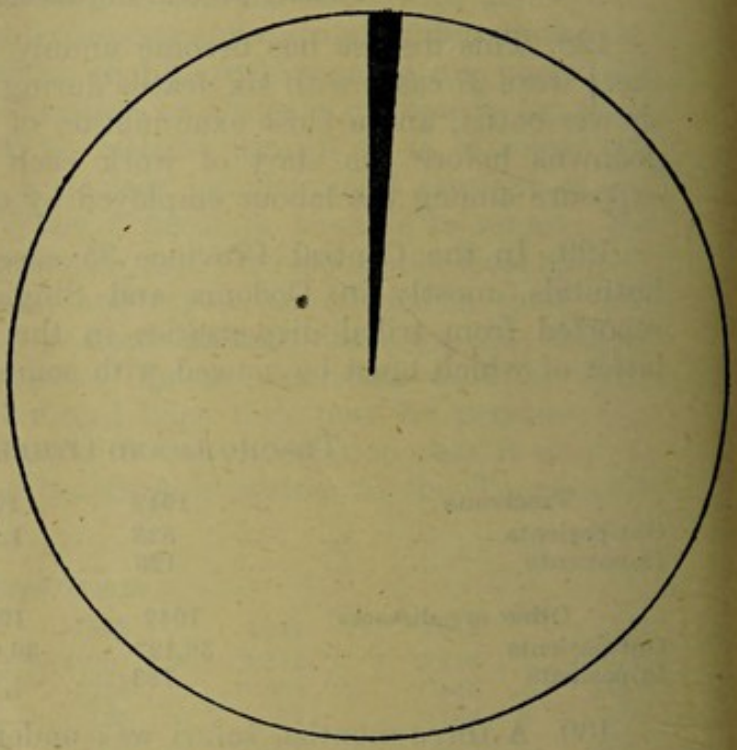
134. This subject was discussed at the conference of Provincial Medical Officers in August, and doubts were expressed of the high prevalence of trachoma reported. Its relation to malnutrition and smoky huts was discussed, and it was concluded that these were contributory rather than causative factors in the incidence of the disease, since European as well as native children were affected in such a high degree.

Principal Lethal Diseases—Incidence and Fatality

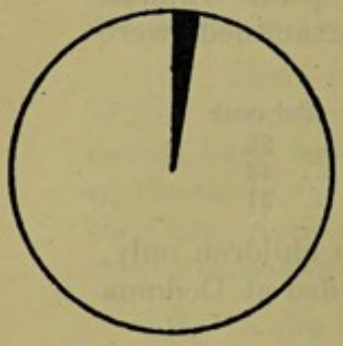
Areas are proportional to number of cases recorded. Shaded areas are proportional to the number of deaths.



Pneumonia

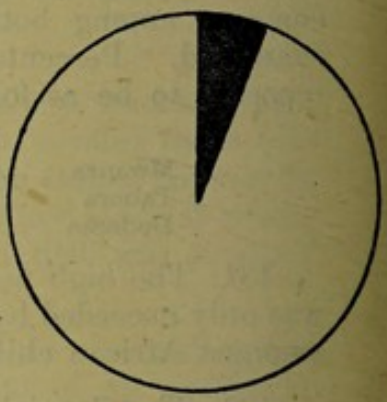


Malaria



Relapsing Fever

Dysentery & Enteritis



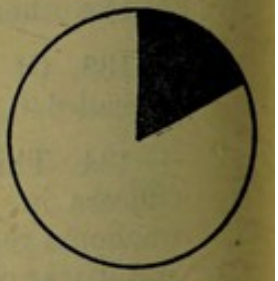
Ankylostomiasis

The Enteric Group

Non-Pulmonary Tuberculosis

Cerebro-Spinal Meningitis

Smallpox



Pulmonary Tuberculosis

PRINCIPAL LETHAL DISEASES

135. It will be seen from the following figures that the greatest number of deaths amongst in-patients was due to pneumonia and that cerebro-spinal meningitis had the highest case fatality. Table 9 (p. 42) gives a complete list of general diseases classified according to the International List of Causes of Death.

In-Patients

Disease	No. of Cases	No. of Deaths	Per cent Fatality of Disease
Malaria	10,631	192	1·8
Pneumonia	3,996	334	8·4
Ankylostomiasis	2,509	142	5·7
Dysentery and Enteritis	2,478	218	8·8
Relapsing Fever	1,926	32	1·7
Pulmonary Tuberculosis	1,125	199	17·7
Smallpox	1,062	162	15·3
Cerebro-Spinal Meningitis	454	180	39·7
Non-Pulmonary Tuberculosis	332	23	6·9
The Enteric Group	302	38	12·6

REPORT OF THE SENIOR DENTAL SURGEON

136. A dental survey of the Territory was made by the new Senior Dental Surgeon soon after his arrival, with a view to assessing the needs of the African A total of 5,000 Africans was examined in all the Provinces with the exception of the Southern : they were selected from among school-children, hospital out-patients and prisoners. The incidence of caries was found to vary from one area to another, which is no doubt due to wide differences in diet, but is generally lower than in Europeans and is practically limited to the molars : tartar occurs more frequently in the African and at an earlier age. Except in the larger townships, the standard of dental health was on the whole good. In the Arusha area, fluorine in the water has caused noticeable mottling of the teeth, and a few similar cases were noted in Singida.

137. Owing to the many staff changes during the year, returns of work done are incomplete. One safari in the Central, Lake and Southern Highlands Provinces was undertaken by Mr. H. Rawnsley.

REPORT OF THE SENIOR PATHOLOGIST

Training of Laboratory Assistants

138. Nine students were in the course of training, three of whom had entered at the beginning of the year. The syllabus has been reorganized to include theoretical and practical work in general nursing and medicine, similar to that given in training the Hospital Assistants at the Sewa Haji hospital, with whom they attend lectures and perform practical work during their first year's training. Thereafter the new course follows broadly on similar lines to the old. It is hoped that this revision will produce a Laboratory Assistant better able to appreciate the patient behind the specimen rather than a technician isolated within the walls of his laboratory.

139. There was no routine examination at the end of 1946 : one ungraded assistant was however admitted into Grade III of the Local Civil Service after a searching practical examination.

Lymph Production

140. Owing to various reasons outside the control of the Medical Department, the new lymph laboratory at Mpwapwa was not commenced during the year. The necessary closure of the original laboratory and the delay in the new construction has been particularly unfortunate as this has coincided with the continuance of smallpox in epidemic proportions in the Central, Western and Lake Provinces with sporadic cases in other Provinces including the Dar es Salaam township. This has resulted in a considerable demand for vaccine lymph, requiring its purchase from South Africa.

141. The distribution of lymph to the Provinces was as follows :—

	Doses
Eastern	518,700
Lake	432,000
Central	412,500
Southern Highlands	391,000
Southern	336,000
Western	261,500
Tanga	108,000
Northern	71,000
Total ...	2,530,700

Biological Products, other than Vaccine Lymph

142. The following issues were made during the year :—

Blood grouping serum A and B	60	capillaries each.
Compound coryza vaccine	5	series.
Cholera vaccine	5	sets.
Anti-gas gangrene serum	100	ccs.
Anti-dysentery serum	150	ccs.
Anti-rabic vaccine	9	courses.
Anti-venene serum	300	ccs.
Anti-typhoid serum	160	ccs
Diphtheria antitoxin	81	(4,000 units).
Diphtheria antitoxin	71	(8,000 units).
Diphtheria anatoxine	150	sets.
Normal horse serum	125	ccs.
Plague vaccine	50	ccs.
Tetanus antitoxin	532	(3,000 units).
Tetanus antitoxin	90	(1,600 units).
Tetanus anatoxine	60	ccs.
T.A.B. endotoxoid vaccine	16,800	ccs.
B. typhosus vaccine for non-specific therapy...	28	units.
Tubercle endotoxoid	1,070	ccs.
Whooping cough vaccine (prophylactic)	200	ccs.
Whooping cough vaccine (therapeutic)	80	ccs.
Yellow fever vaccine	9,950	doses.

Routine Investigations

143. During the year 187,000 routine examinations were performed by laboratory personnel.

Central Laboratory and Sewa Haji Hospital Laboratory	64,000
Tabora	25,000
Tanga	25,000
Mwanza	22,000
Musoma	15,000
Dodoma	11,000
Iringa	10,000
Mbeya	8,000
Lindi	7,000

Medico-Legal Investigations

144. Medico-legal investigations performed at the central laboratory were as follows :—

Weapons for human blood stains	96
Garments for human blood stains	58
Other exhibits for human blood stains	6
Garments for seminal stains	11
Remains for identification	55

145. Fifty-four postmortem examinations were performed for medico-legal purposes at the Sewa Haji hospital. The causes of death were as follows :—

Natural causes	20
Accidental death from motor vehicles	12
Homicidal wounds and injuries	10
Accidental death from drowning	6
Accidental death from falling from a height	5
Suicide by hanging	1

Morbid Histology

146. The following sections were received for morbid histology :—

Inflammatory and degenerative	80
Squamous carcinomata	25
Other carcinomata	42
Sarcomata	10
Melanomata	14
Rodent ulcers	5
Tubercle	16
Non-malignant tumours	52
Hodgkins disease	1
Miscellaneous	67

REPORT OF THE GOVERNMENT CHEMIST

General

147. During the year 3,550 samples, representing an increase of 431 or 14 per cent over the previous year, were examined. In addition a number of investigations were carried out by members of the staff, and a great deal of scientific advice tendered to Government departments, private firms, and individuals. The latter enquirers represent the increased interest at present taken in the development of the Territory. In spite of increasing staff difficulties the system of training Africans was continued, and the usual examinations set for first, second, and third year students.

148. The Government Chemist continued to act as Chairman and Executive Officer of the Tanganyika Industrial Committee, and as such was responsible for the manufacture of Totaquina for East Africa with the other activities of that Committee. The rather indefinite arrangements between the committee and the laboratory, whereby the committee provides three members of the laboratory staff, still awaits clarification. During the year Professors Sir Ian Heilbron and J. L. Simonsen visited the laboratory and made recommendations regarding its future which should assist in clarifying the present position. The Government Chemist attended meetings of the East African Industrial Research Board held at Nairobi during the year.

149. Dr. W. D. Raymond remained on duty as Government Chemist throughout the year. Mr. W. E. Calton, Assistant Government Chemist,

proceeded on leave in June, pending his promotion as Government Chemist, Zanzibar. Apart from periods of leave the remaining staff consisting of an Indian graduate, two African graduates, a number of trained students, and students in training, were on duty throughout the year. One student was accepted for training from the Lands and Mines Department, but the proposal that two or three other students should be trained for the East African Research Board, Nairobi, could not be accepted owing to the congested state of the laboratory, and the shortage of European staff.

Analytical Work

150. The samples analysed during 1946 can be classified as follows :—

Foods

Milk	525
Condensed Milk	10
Ghee	26
Red Palm Oil	3
Flours	371
Other foods	25

Drinks

Water	346
Alcohol	129

Agricultural and Industrial Products

Soap	59
Diamonds	44
Coins	52
Beeswax	150
Insecticides	27
Tobacco	4
Lime	58
Soils	90
Metal Alloys	15
Mangrove Bark	10
Cinchona Bark	115
Totaquina	55
Oils	103
Papain	8
Miscellaneous	98

Medicines

Non-Native Medicines	35
Native Medicines	6

Forensic Exhibits

Viscera	97
Arrow poisons	30
Other Exhibits	139

Clinical

Bloods	296
Urines	220
Gastric Juices	346
Cerebro-Spinal Fluids	44
Stool	8
Others	6
Total	3,550

151. The increase over last year's figures represents a general increase with certain notable exceptions. The number of oils submitted during the year was only about one-third of that in 1945, offset by cereals, beeswax and cinchona samples which show a greater proportionate increase.

152. The laboratory became responsible for collecting its own revenue from the month of May, and in the eight months under review, the amount collected, mostly in the form of fees ranging from Shs. 1/50 to Shs. 30/- per sample, amounted to Shs. 5,656/50.

Notes on Matters of Interest

Food

153. It was decided that the Foods and Drugs Ordinance should be applied experimentally for the Uzaramo District from the 1st January, 1947. In the meantime food continued to be dealt with under the Township Rules, or by provisions in Tender Board contracts. The Dar es Salaam milk supply maintained its high quality and of 402 milks submitted from Dar es Salaam Township, only 11 samples were adulterated.

154. During the year there was a shortage of foodstuffs, especially those intended for consumption by Africans. The Government Chemist served on the committee set up to advise the Economic Control Board on the utilization of the local supplies. These were very varied in nature, and consisted of various types of millet, sorghum, beans (including soya beans), dried cassava root, as well as maize, which is the usual staple in the Eastern Province. Many supplies were of poor quality, and a large number of experiments were necessary on processing and mixing off the lower grade material. Soya beans unless processed gave rise to trouble when they formed too great a proportion of the staple. This appeared to be due to the presence in them of a saponin which can be removed by heat processing or hydrolysis (debittering).

Salt Licks

155. Salt lick specimens submitted by the Veterinary Department contained but little sodium chloride, and did not contain various elements such as magnesium, aluminium, manganese, cobalt and copper. As the cattle travel several miles to these and other similar licks, the possibility of a local mineral deficiency might be worthy of study. Samples of salt from the Loliondo area were found to consist mainly of sodium carbonate, with 0·16 and 1·28 per cent of sodium fluoride.

Drugs

156. Drugs for assay were mainly from the Pharmaceutical Manufacturing Unit, or from supplies for the Medical Department. Other drugs were from the Posts and Telegraphs Department, the Criminal Investigation Department, or from local sources intended for export.

Flour

157. Supplies of wheat flour for European and Indian consumption were the subject of complaint during the year. Laboratory examination was supplemented by home baking tests. After correspondence with Dr. Kent Jones it was decided not to attempt laboratory baking tests, and the general conclusion reached was that whilst the local wheat is deficient in baking qualities, the main trouble is caused by unsatisfactory storage (including transit conditions), insect infestation, and occasionally excessive acidity. The local methods of

baking leave much to be desired but improvement may be expected if Messrs. Unga Limited can add an expert baker to their staff. Supplies of good quality yeast continued to be difficult; most commercial bakers use hops.

Water

158. The Dar es Salaam water supply is a mixture of deep borehole and surface waters. The boreholes yield a clear hard saline water containing about 150 parts per 100,000 total solids. Originally this was the sole source of supply, but experience revealed that the greater the draw-off from the boreholes, the greater generally the salinity. Since the increased salinity includes increased magnesium and chlorides content, it was concluded that the increase is due to sea water contamination. The surface water is a soft rather turbid supply carrying colloidal clay particularly at certain seasons of the year. The town supply, a mixture of about equal parts from these two sources, has shown a variation in total solid content from 85 to 115 parts per 100,000 during 1946. Pending the arrival of clarification plant, the opalescent to slightly turbid mixture gives rise to occasional complaints. The colloidal matter absorbs chlorine and is responsible from time to time for a pronounced chlorine taste.

159. The methods of chlorination were again studied in 1946 and the routine testing sets used in the chlorination unit were overhauled and a set designed to contain liquid standards prepared and issued for trial. No great improvement can be expected until the clarification plant has been installed.

160. Up-country stations are increasingly conscious regarding the sanitary purity of their water supplies, and advice has been furnished to several stations and private firms regarding chlorination. Other waters submitted during the year for analysis and advice have included supplies for brewing, steam raising, and cooling. Appropriate treatment has been prescribed in individual cases.

Fluorine

161. Fluorine was again found in water supplies from the Northern Province, and attention may be drawn to American reports of a synthetic resin said to remove fluorine from water supplies. As far as is known no actual trials have been made with this material in Tanganyika.

Native Medicines

162. Detailed comments on a draft list of indigenous plants of the Colonial Empire of possible scientific and technical interest received from the Colonial Products Research Council were prepared in consultation with the Systematic Botanist, Amani.

163. During the year miscellaneous queries and often nondescript material were submitted. A local substitute for sandalwood is *Osyris wightiana*, a plant occasionally distilled locally. A fish stuporfacient *Adenia sp.* was examined for the Forest Department.

164. *Pierre noire belge* is a famed snake-bite cure obtained from the Congo. It was found to consist mainly of charcoal, and may well have been a fossilized carbon. It had about the same absorptive powers as B.D.H. animal charcoal. Pieces of the "stone" are placed on the snake-bite from which they are supposed to absorb the toxins.

165. Some broken leaves in a poisoning case received from Uganda were tentatively identified by histological methods as derived from *Acocanthera*.

166. *Courbonia virgata* roots in use for the clarification of turbid water supplies carried a large amount of inorganic soluble matter, which may well explain their action. They had no advantage over the more orthodox reagents used for clarification.

167. *Dioscorea triphylla* roots were reported as an effective cure for the treatment of tuberculosis. They were found to contain ·039 per cent of a crude alkaloid which gave reactions similar to those reported in the literature for the alkaloid *Dioscorine*. In sufficient dosage probably this drug could prove fatal.

168. *Cassia siberiana* and *Annona chrysophylla* were said to be successfully applied in the treatment of dysentery and diarrhoea.

169. The Somali drug *Mirwa* or *Catha edulis* formed a subject of correspondence with the police. Some local Africans returning from war service have acquired the habit of utilizing this drug, a mild stimulant and narcotic.

170. The *Lukuma* drug used mainly for robbery in the Lake Province area was again identified as seeds from a species of *Datura*.

Forensic Work

171. The 97 specimens of viscera received during the year covered some 40 cases of poisoning. Many of the specimens were submitted when there was no real need for examination, and in many others the grounds for suspecting poisoning were slight.

172. The positive findings can be classified as follows :—

	Cases
Datura	3
Strychnine	2
Erythrophlœum	2
Cyanide	1
Arsenic	1
Quinine (possibly suicide)	1
Unidentified alkaloid	1
A strong purgative—probably *Securidaca longipedunculata*	1
Arrow poison taken internally	1

In a residue of the remaining cases some indication as to the cause of death was suggested, but about half the cases yielded negative results in the time that could be devoted for their examination.

173. Most of the arrow poison cases, represented by 30 exhibits, gave positive findings. As in the past, the great majority of these were shown by histological examination to have been derived from *Acocanthera* wood.

174. Other exhibits classified under this heading have been more conveniently dealt with above under "Native Medicines". One case involved the use of a smoke bomb charged with a mixture of the Berger type, possibly derived from military supplies.

Agricultural and Industrial Products

175. The Agricultural Department announced in 1945 its intention of utilizing the laboratory to a much greater degree than hitherto, and although in the year under review the number of samples submitted by this Department has not been great, they have covered a variety of subjects. They include

pyrethrum flowers, essential oils, papain, tobacco and soils. Wild tobaccos submitted contained 6·8 per cent to 9·1 per cent of nicotine. In connection with pyrethrum analysis triplicate samples analyzed in Nairobi, Dar es Salaam and Durban, gave excellent agreement as between Nairobi and Dar es Salaam, but the results obtained in Durban were appreciably lower than those from East Africa. Methods for assaying papain were intermittently studied throughout the year, and the evolution of a suitable method of assay was in sight. A preliminary report of investigational work on papain and pyrethrum, as distinct from the routine work covered here, is described in the Annual Report of the Tanganyika Industrial Committee.

176. Samples of *Cassia* bark which were suggested as a source of tannin contained only 14·3 per cent of tannin. The majority of mangrove bark samples gave satisfactory figures on analysis, showing an improvement on 1945. A sugar factory submitted specimens of molasses concerned in poor sugar yields. Lime samples (slaked lime) submitted for examination continued to be of poor quality, an appreciable proportion containing less than 30 per cent of free lime. Samples of soap submitted by private firms were in connection with manufacture. All the samples were either cold-process or semi-boiled soaps, the large majority derived from coconut oil. Beeswax samples were examined in connection with control of exports. The cinchona and Totaquina samples were analyzed mainly in connection with the local manufacture of Totaquina. Oil samples were in part essential and in part fatty oils. Fatty oils (mainly coconut and sesame oils) were from control authorities or manufacturers. The main essential oil was lemon-grass oil.

177. Diamonds from the police for identification are doubtfully classified as an industrial product since they arise entirely from illicit trading. A similar remark can be applied to the coins submitted in connection with counterfeiting. The spectrograph proved of great value for the rapid examination of coins and metals as well as in other police work.

178. Requests were received during the year for the analysis of various compounded insecticides and the estimation of D.D.T. in spray residues. Some time was spent in preparing a provisional scheme for the collection of agricultural soils, but the bulk of soils dealt with during the year came from the Public Works Department mainly in connection with the aerodrome construction. The alloys referred to under this head came from the Railway workshops in connection with local casting operations.

Biochemical Work

179. Proposals to train up-country laboratory assistants in certain types of biochemical examinations were carried a step further during the year by ordering the apparatus required, but delivery is likely to be delayed. The analytical methods employed at Dar es Salaam for this work have been under review during the year, and several modifications in technique suited to the type of instruments available have been introduced. At the request of the Senior Pathologist and other medical officers, the laboratory agreed to undertake the preparation of Lange Gold Curves. None of the available formulæ were found to give an easily duplicated gold sol in spite of the use of triply distilled water. As a result of experiment a satisfactory method of preparing the gold sol was adopted whereby a slightly alkaline mixture was reduced by formaldehyde. The stability of the sol could be varied by the amount of alkali

employed. Under standardized conditions the sol was simply and easily prepared, and had the correct degree of stability. All routine work is checked by the use of positive and negative controls.

180. The remainder of the work under this head consisted of the usual blood sugars, blood ureas, and other like determinations, but an increasing number of requests were received for the estimation of unusual components in biological fluids.

Nutrition

181. Little work was done under this head during the year. A few samples were received for vitamin assay, and advice given in problems arising from food shortages.

NEW LEGISLATION

182. The following legislation was enacted during the year :—

Mental Diseases (Amendment) Ordinance. Ordinance No. 7 of 1946.

Medical Practitioners and Dentists (Amendment) Ordinance. Ordinance No. 15 of 1946.

Yellow Fever (Amendment) Ordinance. Ordinance No. 18 of 1946.

Infectious Diseases (Declaration of Infected Area, Southern Highlands Province) Order, 1946. (Smallpox) Government Notice No. 82 of 1946.

Food and Drugs (Standards of Quality of Food) Regulations, 1946. Government Notice No. 127 of 1946.

Food and Drugs (Preservatives, etc. in Food) Regulations, 1946. Government Notice No. 128 of 1946.

Declaration of Endemic Areas. (Yellow Fever). Government Notice No. 143 of 1946.

Infectious Diseases (Declaration of Infected Area, Southern Highlands Province) : (No. 2 Revocation) Order, 1946. (Smallpox). Government Notice No. 174 of 1946.

Appointment of Government Analyst. Government Notice No. 192 of 1946.

Poisons (Amendment) Rules, 1946. (Penicillin). Government Notice No. 193 of 1946.

Poisons List (Amendment) Order, 1946. (Penicillin). Government Notice No. 194 of 1946.

Townships (Dar es Salaam : Overcrowding) Rules, 1946. Government Notice No. 270 of 1946.

PUBLICATIONS

183. At the invitation of the local branch of the British Medical Association, a paper under the title of "Totaquina and its Rivals" was read by Dr. W. D. Raymond, which was subsequently published in the *East African Medical Journal*. The following is a list of scientific publications by members of the staff :—

Burtt, E.—"Incubation of tsetse pupæ : increased transmission-rate of *Trypanosoma rhodesiense* in *Glossina morsitans*." *Ann. Trop. Med. and Parasitol.*, 1946, *40*, 18-28.

BURTT, E.—"The sex ratio of infected flies found in transmission experiments with *Glossina morsitans* and *Trypanosoma rhodesiense*." *Ann. Trop. Med. and Parasitol.*, 1946, *40*, 74-80.

BURTT, E.—"Salivation by *Glossina morsitans* on to glass slides : a technique for isolating infected flies." *Ann. Trop. Med. and Parasitol.*, 1946, *40*, 141-144.

DAVIES, H. N.—"Tuberculosis in the African : the problem and its solution." *E.A.M. Jl.*, 1946, XXIII, 194-209.

FAIRBAIRN, H. & CULWICK, A. T. (with a statistical analysis by F. L. GEE).—"A new approach to trypanosomiasis." *Ann. Trop. Med. and Parasitol.*, 1946, *40*, 421-452.

FOLEY, E. J.—"Psychiatric opinion and crime with special reference to temporary insanity." *E.A.M. Jl.*, 1946, XXIII, 150-154.

RAYMOND, W. D.—"Totaquina and its rivals." *E.A.M. Jl.*, 1946, XXIII, 301-311.

REED, HOWARD.—"A congenital melanoma of lip with cystic degeneration." *Brit. Jl. Surgery*, 1946, XXXIV, 95-96.

REED, HOWARD.—"The incidence of trachoma in the Southern Highlands Province of Tanganyika." *Brit. Jl. Ophthalmology*, 1946, 573-575.

REED, HOWARD.—"Asthma and urticaria following a bee sting." *E.A.M. Jl.*, 1946, XXIII, 245-246.

YOUNG, W. A., FARR, A. G. & MCKENDRICK, A. J.—"Relapsing fever in the Lake Province of Tanganyika, with an account of a case in an eight day old infant." *E.A.M. Jl.*, 1946, XXIII, 345-347.

YOUNG, W. A., FARR, A. G. & MCKENDRICK, A. J.—"A report of the occurrence of onchocerciasis in Mahenge, Tanganyika, and in the southern area of Lake Victoria." *E.A.M. Jl.*, 1946, XXIII, 351-353.

Dar es Salaam,
January, 1948

P. A. T. SNEATH,
Director of Medical Services

TABLE 1—ESTABLISHMENT AND STRENGTH, 1946.

	ESTABLISHMENT				Strength at 31.12.1946			
	African	Asian	Europ.	Total	African	Asian	Europ.	Total
Professional								
1. Administrative, Territorial and Provincial	—	—	14	14	—	—	12	12
2. Clinical, Specialist and Other Medical Personnel	6	65	55	126	4	54	39	97
3. Dental	—	—	5	5	—	—	3	3
4. Health and Epidemiology—Medical	—	—	6	6	—	—	4	4
5. Health and Epidemiology—Nursing	—	—	6	6	—	—	4	4
6. Laboratories	—	—	5	5	—	—	4	4
7. Nursing—general female ...	—	—	61	61	—	—	56	56
8. Nursing—special male	—	—	2	2	—	—	2	2
9. Nursing—special female... ...	—	—	5	5	—	—	5	5
10. Pharmacy	—	16	6	22	—	14	4	18
Technical								
11. Administrative	—	—	3	3	—	—	4	4
12. Clerical	38	29	5	72	38	29	5	72
13. Clinical	1	15	—	16	1	9	—	10
14. Dental	—	—	3	3	—	—	2	2
15. Health	1	—	33	34	1	—	18	19
16. Hospitals, general and special ...	1	3	7	11	1	2	6	9
17. Laboratories	1	—	3	4	1	—	3	4
18. Pharmacy	6	2	—	8	2	2	—	4
19. Training	1	—	2	3	1	—	1	2
Auxiliary								
20. Clinical	138	—	—	138	103	—	—	103
21. Health	140	8	—	148	104	7	—	111
22. Laboratories	36	—	—	36	25	—	—	25
Students								
23. Hospital Assistants—training ...	27	—	—	27	20	—	—	20
24. Laboratory Assistants—training	13	—	—	13	13	—	—	13
Totals ...	409	138	221	768	314	117	172	603
Subordinate								
25. Ward Staff	as required				1,085	—	—	1,085
26. Anti-mosquito & Sanitary Labour					617	—	—	617
27. Laboratories					21	—	—	21
28. Telephone Operators					6	—	—	6
29. Drivers					18	—	—	18
30. Messengers					33	—	—	33
31. Domestic Staff					596	—	—	596
Total Staff ...					2,690	117	172	2,979
On leave					2	13	10	25
On leave pending retirement					—	—	11	11
Effective Strength					2,688	104	151	2,943

TABLE 2.—NEWLY APPOINTED OFFICERS ARRIVED DURING 1946

Name	Appointment	Date of Arrival	Remarks
J. H. Russell, L.D.S. (Glas.), D.D.S., L.D.S., B.Sc. (Dent) (Toronto)	Sen. Dental Surgeon ...	18.3.46	
D. A. Skan, M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.T.M., D.T.H. (Liv.)	Senior Pathologist ...	9.5.46 ...	On transfer from Nyasaland.
P. P. D. Connolly, M.B., B.Ch., B.A.O. (Belfast), D.P.H. (Manch.), D.T.M., (Liv.) ...	Senior Medical Officer	22.10.46 ...	On transfer from Kenya.
I. S. Rutter, L.D.S. (R.C.S., Eng.)	Dental Surgeon ...	3.3.46 ...	On transfer from Zanzibar.
H. Ehrlich, M.D. (Berlin) ...	Medical Officer ...	1.5.46	
T. H. Bassett, M.B., B.S. (Lond.) M.R.C.S. (Eng.), L.R.C.P. (Lond.)	Medical Officer ...	11.6.46	
D. E. Thompson, M.B., B.Ch. (Camb.), M.R.C.S. (Eng.), L.R.C.P. (Lond.)	Medical Officer ...	11.6.46	
A. M. Barnett, M.R.C.S. (Eng.) L.R.C.P.	Medical Officer ...	15.8.46	
A. McGregor, M.B., B.S. (Durham)	Medical Officer ...	23.8.46	
A. G. M. Davies, M.B., Ch. B. (Bristol)	Medical Officer ...	24.9.46	
A. C. Franks, M.B., B.Ch. (Cantab.), M.R.C.S. (Eng.), L.R.C.P. (Lond.)	Medical Officer ...	22.10.46	
W. T. Thom, M.B., Ch. B. (Edin.)	Medical Officer ...	27.11.46	
C. L. Hall, B.M., Ch.B. (Oxon.), M.R.C.S. (Eng.), L.R.C.P. (Lond.)	Medical Officer ...	1.12.46	
Miss E. Jackson, M.B., Ch.B. (Manch.)	Woman Medical Officer ...	1.2.46 ...	On transfer from Aden.
Miss N. E. Bradshaw... ...	Woman Administrative Assistant ...	18.3.46 ...	Seconded from Provincial Admn.
P. J. MacKenzie, M.P.S. ...	Assistant Pharmacist	29.7.46	
F. C. Lane	Laboratory Supt. ...	11.6.46	
P. M. Macdonald	Hospital Steward ...	11.2.46	
W. Brown	Dental Mechanic ...	2.3.46	
Miss Q. C. Brown	Physiotherapist ...	5.7.46	
Miss E. M. White	Sister Tutor ...	24.9.46 ...	On transfer from Uganda.
Miss A. M. McHardy ...	Sister Tutor ...	27.11.46	

25 Nursing Sisters arrived for duty in the Territory during the year.

TABLE 3.—PROMOTIONS

Name	From	To	Effective Date
A. McKenzie, M.B., B.S., L.M.S.S.A. (Lond.), D.T.M. & H. (Eng.)	A.D.M.S.	D.D.M.S.	31.7.46
K. Edmundson, M.B., Ch.B. (Liv.)	M.O.	S.M.O.	2.1.46
H. N. Davies, M.B., Ch.B. (Edin.), D.T.M. (Liv.)	M.O.	Specialist	1.1.46
A. H. Morley, M.B., Ch.B. (Leeds), F.R.C.S. (Edin.), L.R.C.P. (Lond.), D.P.H. (Eng.), D.T.M., D.T.H. (Liv.)	M.O.	Specialist	1.2.46
D. B. Wilson, M.D., B.Ch. (Cantab.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.T.M. & H. (Eng.)	M.O.	Specialist	21.2.46
H. G. Calwell, M.D., B.Ch., B.A.O., (Belf.), D.T.M. & H. (Eng.)	M.O.	Specialist	1.9.46
E. J. Foley, M.B., Ch.B. (Liv.), D.P.M. (R.C.P.S.I.)	M.O.	Specialist	1.9.46
A. V. Clemmey, B.M., B.Ch. (Oxon.), M.R.C.S. (Eng.), L.R.C.P., M.M.S.A. (Lond.), D.O.M.S. (Eng.)	M.O.	Specialist	16.11.46
Miss M. B. Craig	Matron, Grade II	Matron-in-Chief	19.7.46
Miss E. M. Hall	Senior Nursing Sister	Matron, Grade II	19.7.46
Miss W. N. Wintle	Nursing Sister	Sister Tutor	15.7.46

Honours

Harold Mayston Fisher—Senior Dental Surgeon. To be Officer of the Civil Division of the Most Excellent Order of the British Empire. General Notice No. 1 of 1946.

Miss Mary Burns Craig—Assistant Matron. To be a Member of the Civil Division of the Most Excellent Order of the British Empire. General Notice No. 1 of 1946.

Harold Fairbairn—Sleeping Sickness Officer. To be Officer of the Civil Division of the Most Excellent Order of the British Empire. General Notice No. 562 of 1946.

TABLE 4.—ACTING APPOINTMENTS AND REVERSIONS

Name	Substantive Appointment	Acting Appointment	Effective Date	Date of Reversion
Dr. W. J. Aitken	Medical Officer	A.D.M.S.	Before 1.1.46	16.3.46
	Medical Officer	Municipal Sec.	14.5.46	25.7.46
Dr. E. W. C. Jobson	Senior Medical Officer	A.D.M.S.	16.3.46	After 31.12.46
Dr. G. A. Macgregor	Medical Officer	Senior Medical Officer	Before 1.1.46	13.2.46
Dr. G. R. C. Wilson	Temporary Medical Officer	Senior Medical Officer	26.2.46	After 31.12.46
Dr. J. W. Walker	Medical Officer	Senior Medical Officer	15.3.46 6.9.46	18.4.46 27.10.46
Dr. P. E. C. Manson-Bahr	Medical Officer	Senior Medical Officer	9.9.46	21.12.46
Dr. F. Vivarelli	Temporary Pathologist	Senior Pathologist	20.3.46	9.5.46
P. H. Tatchell	Dental Surgeon	Senior Dental Surgeon	1.1.46	20.3.46
Miss G. R. Ibbs	Matron, Grade I	Matron-in-Chief	1.1.46	18.7.46
C. E. Thomas	Assistant Pharmacist	Pharmacist	14.7.46	After 31.12.46
Miss N. E. Bradshaw	Woman Administrative Asst.	Chief Office Superintendent	14.7.46	After 31.12.46
Mrs. M. Field	Nursing Sister	Sister Tutor	Before 1.1.46	1.6.46

TABLE 5.—RETIREMENTS, RESIGNATIONS, ETC.

Name	Appointment	Date of Departure	Reason for Leaving
*Dr. R. R. Scott	Director of Medical Services ...	1.6.45 ...	Leave pending retirement
*Dr. S. Forrest	Deputy Director of Medical Services ...	1.11.45 ...	Leave pending retirement.
*Dr. W. K. Connell	Surgical Specialist ...	31.3.45 ...	Leave pending retirement.
*H. M. Fisher, O.B.E.	Senior Dental Surgeon ...	1.11.45 ...	Leave pending retirement.
*Dr. R. Mackay	Malariologist ...	28.5.45 ...	Leave pending retirement.
*Dr. J. Williamson	Medical Officer ...	1.8.45 ...	Transfer to Uganda.
*Dr. H. T. H. Wilson	Medical Officer ...	4.8.45 ...	Leave pending resignation.
Dr. W. A. Young	Senior Specialist ...	21.9.46 ...	Leave pending retirement.
Dr. H. O'D. Burke-Gaffney	Senior Pathologist ...	22.3.46 ...	Leave pending retirement.
Dr. G. S. Park-Noble	Specialist ...	30.4.46 ...	Leave pending retirement.
Dr. R. S. McElroy	Senior Medical Officer ...	1.9.46 ...	Leave pending transfer to Kenya.
Dr. H. M. Shelley	Senior Medical Officer ...	6.9.46 ...	Leave pending appointment as D.M.S., Cyprus
Dr. A. G. Mackay	Senior Medical Officer ...	28.12.46 ...	Leave pending retirement.
Dr. B. A. Coghlan	Medical Officer ...	22.2.46 ...	Transfer to Uganda.
Dr. W. J. Aitken	Medical Officer ...	29.8.46 ...	Leave pending retirement.
Dr. H. N. Reed	Medical Officer ...	28.2.46 ...	Leave pending resignation.
P. H. Tatchell	Dental Surgeon ...	22.8.46 ...	Leave pending resignation.
H. Rawnsley	Dental Surgeon ...	31.12.46 ...	Resignation.
Dr. L. B. Cane	Temporary Medical Officer ...	18.4.46 ...	Leave pending resignation.
Dr. M. Herzmann	Temporary Medical Officer ...	17.8.46 ...	Repatriation.
Dr. A. Gabathuler	Temporary Medical Officer ...	31.12.46 ...	Resignation.
W. E. Calton	Assistant Government Chemist	13.7.46 ...	Transfer to Zanzibar.
K. Dodsworth	Assistant Pharmacist ...	10.11.46 ...	Leave pending resignation.
D. W. Hodgson	Health Inspector ...	22.8.46 ...	Transfer to Uganda Police.

13 Nursing Sisters resigned or proceeded on leave pending resignation during the year.

*Left the Territory during 1945 but was not included in the 1945 table of retirements because his appointment did not terminate until 1946 or later.

TABLE 6.—HOSPITAL BED DISTRIBUTION 1946

Racial Group	Number of Beds				Estimated Population	Rate per 1,000 Population
	Govt.	Mission	Industry	Totals		
European	*155	—	—	155	6,040	22·02
Asian	*103	—	—	103	46,558	2·21
African	†4,207	2,344	90	†6,641	5,437,069	1·22
Totals	4,465	2,344	90	6,899	5,489,667	1·26
Per cent distribution	64·7	33·8	1·5	100	—	—

*A proportion of these are interchangeable.
†Includes 115 temporary beds at the Dar es Salaam Infectious Diseases Hospital.
N.B.—The population and beddage of refugee camps, which are self-contained, are not included in this Table.

TABLE 7

A.—Medical Practitioners Resident and Practising in the Territory at 31.12.46:

	Government	Mission	Private	Employed	Total
Registered:					
British	65	5	20	1	91
Foreign	3	8	5	5	21
Licensed:					
British	42	—	1	3	46
Foreign	*7	—	1	4	12
Totals	117	13	27	13	170

*Includes 5 in Refugee and Internee Camps.

B.—Dental Practitioners Resident and Practising in the Territory at 31.12.46:

	Government	Private	Total
Registered:			
British	2	—	2
Foreign	—	3	3
Licensed:	—	—	—
Totals	2	3	5

TABLE 8.—REVENUE AND EXPENDITURE, 1946

Revenue:	Estimated £	Receipts £
By Hospital, Laboratory and other fees	14,000	23,970
By Dental Fees	1,300	1,182
By reimbursement from Tanganyika Railways for medical services	3,050	3,050
	18,350	28,202

Expenditure:	Authorized Provision £	Approximate Expenditure £
Central Government:		
Ordinary recurrent, including additional provision by special warrants	382,950	366,756
Special, including additional provision by special warrants	27,140	23,712
	410,090	390,468
Native Authorities	48,423	36,933
Total	458,513	427,410

TABLE 9—GENERAL DISEASES, TREATED AT GOVERNMENT HOSPITALS

(Classified according to the International List of Causes of Death, 1938)

Disease	Cases In-patients	Deaths In-patients	Cases Out-patients	Total Cases In- and Out-patients	Group Totals: Cases	Group Totals: Deaths
Group I.—Infective and Parasitic:						
Typhoid and Paratyphoid Fevers	302	38	26	328		
Undulant Fever	9	–	1	10		
Cerebro-spinal Meningitis	454	180	72	526		
Malignant Pustule and Anthrax	117	24	220	337		
Tuberculosis, Respiratory	1,125	199	2,915	4,040		
Other Forms of Tuberculosis:						
(a) Bones and Joints	207	11	698	905		
(b) Glands and Intestines	125	12	763	888		
Leprosy	151	1	681	832		
Dysentery: (a) Amœbic	254	11	496	750		
(b) Bacillary	281	31	550	831		
(c) Undefined	457	44	2,161	2,618		
Malaria: (a) Benign Tertian	212	3	712	924		
(b) Quartan	4	–	148	152		
(c) Subtertian	6,699	155	45,826	52,525	313,339	1,292
(d) Undefined	3,716	34	49,837	53,553		
(e) Blackwater Fever	54	9	10	64		
Trypanosomiasis	421	23	155	576		
Venereal Diseases: (a) Syphilis	1,868	18	37,486	39,354		
(b) Gonorrhoea	2,864	6	16,928	19,792		
(c) Other	523	2	2,003	2,526		
Relapsing Fever	1,926	32	3,844	5,770		
Yaws	975	2	50,284	51,259		
Smallpox	1,062	162	253	1,315		
Ankylostomiasis	2,509	142	25,327	27,836		
Schistosomiasis	672	5	10,671	11,343		
Other Helminthic Diseases	800	15	19,874	20,674		
Other Infective or Parasitic Diseases	1,435	133	12,176	13,611		
Group II.—Cancer and Other Tumours:						
Cancer of the Liver and Biliary Passages	18	9	–	18		
Other Malignant Tumours	192	34	78	270	1,215	53
Non-Malignant Tumours	217	4	88	305		
Unspecified Tumours	195	6	427	622		
Group III.—Nutritional, Glandular and General Diseases:						
Rheumatic Conditions	399	7	16,241	16,640		
Diabetes	26	5	39	65		
Diseases of the Endocrine Glands	14	5	116	130		
Scurvy	5	–	28	33	19,042	39
Beriberi	15	1	32	47		
Pellagra	15	1	27	42		
Other Deficiency Diseases	175	20	1,910	2,085		
Group IV.—Diseases of the Blood and Blood-forming Organs:						
Anaemias: (a) Hyperchromic	58	13	1,111	1,169		
(b) Hypochromic	332	41	1,936	2,258	7,042	82
Other Diseases of Blood and Blood-forming Organs	254	28	3,361	3,615		
Group V.—Acute and Chronic Poisoning	27	10	13	40	40	10
Group VI.—Diseases of the Nervous System and Sense Organs:						
Mental Diseases	77	3	98	175		
Trachoma	212	–	1,323	1,535		
Other Diseases of Vision	1,291	–	49,167	50,458	90,631	64
Diseases of the Ear and Mastoid	201	4	13,985	14,186		
Other Diseases of Nervous System	739	57	23,538	24,277		
Group VII.—Diseases of the Circulatory System						
Heart Disease	174	54	403	577	3,574	86
Other Diseases of the Circulatory System	378	32	2,619	2,997		
Group VIII.—Diseases of the Respiratory System:						
Bronchitis	1,507	35	94,015	95,522		
Pneumonia	3,996	334	2,760	6,756	122,626	388
Other Diseases of the Respiratory System	763	19	19,585	20,348		
Group IX.—Diseases of the Digestive System:						
Diarrhoea and Enteritis (a) under two years	287	26	6,984	7,271		
(b) two and over	1,199	106	17,452	18,651		
Hernia, Intestinal Obstruction	1,244	56	1,766	3,010	143,011	335
Cirrhosis of the Liver	266	47	322	588		
Other Diseases of the Digestive System	1,804	100	111,687	113,491		

TABLE 9—GENERAL DISEASES, TREATED AT GOVERNMENT HOSPITALS—*contd.*

(Classified according to the International List of Causes of Death, 1938)

Disease	Cases In-patients	Deaths In-patients	Cases Out-patients	Total Cases In- and Out-patients	Group Totals	
					Cases	Deaths
Group X.—Diseases of the Urinary and Genital System : (not venereal or connected with pregnancy or the puerperium)						
Diseases of the Kidney, Ureter and Bladder	505	51	2,280	2,785	11,195	89
Diseases of the Male Genital Organs ...	1,900	28	2,634	4,534		
Diseases of the Female Genital Organs ...	699	10	3,177	3,876		
Group XI.—Diseases of Pregnancy :						
Deliveries	1,748	25	113	1,861	4,016	72
Abortions and Miscarriages	347	18	169	516		
Toxaemias of Pregnancy	83	2	557	640		
Other conditions of the puerperal State ...	284	27	715	999		
Group XII.—Diseases of the Skin and Cellular Tissue :						
Ulcers	7,581	49	85,316	92,897	142,898	106
Other Skin Conditions	3,352	57	46,649	50,001		
Group XIII.—Diseases of the Bones and Organs of Locomotion (excluding TB.)	1,267	17	21,958	23,225	23,225	17
Groups XIV and XV.—Congenital Malformations and Diseases peculiar to the First Year of Life :						
Malformations, Premature Birth and Injury at Birth	108	10	21	129	906	24
Congenital Debility	27	7	650	677		
Diseases peculiar to the First Year of Life	68	7	32	100		
Group XVI.—Senility and Old Age	126	47	316	442	442	47
Group XVII.—Violence and External Causes :						
Suicide	13	1	40	53	53,308	215
Homicide	206	20	3,570	3,776		
Accidents	5,568	194	43,911	49,479		
Group XVIII.—Ill-defined Causes	727	35	8,074	8,801	8,801	35
Totals ...	69,901	2,954	875,410	945,311		

TABLE 10—OFFICIALS, EUROPEAN HOSPITAL, DAR ES SALAAM

Man-day Wastage, 1946.

Month	All Causes		Malaria			
			European		Other	
	European	Other	No.	Percentage All Causes	No.	Percentage All Causes
January ...	256	60	55	21·5	—	—
February ...	347	73	70	20·2	20	27·4
March ...	357	62	28	7·8	17	27·4
April ...	557	141	85	15·3	22	15·6
May ...	564	74	194	34·4	12	16·2
June ...	384	139	151	39·3	23	16·5
July ...	496	37	186	37·5	9	24·3
August ...	153	20	39	25·5	—	—
September ...	133	69	47	35·3	4	5·8
October ...	156	75	78	50·0	13	17·3
November ...	231	50	68	29·4	6	12·0
December ...	218	68	53	24·3	19	27·9
Total ...	3,852	868	1,054	27·4	145	16·7

TABLE 11—REJECTION OF LABOUR RECRUITS, AUGUST—DECEMBER 1946

Causes analysed by Place of Origin

Serial	Causes of Rejection	Tanganyika							Extra-Territorial				Total	Cause percentage of Total
		Northern Province	Southern Province	Southern Highlands Province	Central Province	Western Province	Eastern Province	Lake Province	Kenya	Portuguese East Africa	Northern Rhodesia and Nyasaland	Ruanda Urundi		
1	Juvenility	5	5	32	27	6	–	10	–	1	1	6	93	9·6
2	Underweight	4	2	3	33	7	–	1	–	–	–	14	64	6·6
3	Poor Physique including Malnutrition	6	6	6	22	81	–	17	1	–	1	93	233	24·1
4	Eye Diseases	–	13	2	20	2	–	3	–	2	–	1	43	4·5
5	Ear Diseases	–	–	–	5	1	–	–	–	–	1	1	8	0·8
6	Pulmonary Diseases non-specific	2	–	–	1	–	–	–	–	–	–	4	7	0·7
7	Pulmonary Tuberculosis	13	–	–	–	–	–	–	–	–	–	–	13	1·4
8	Cardiac Diseases ...	1	1	–	17	25	–	2	–	–	1	25	72	7·5
9	Splenomegaly	–	2	5	7	14	–	5	1	3	–	18	55	5·7
10	Hernia, etc.	–	2	1	6	11	–	1	–	5	–	5	31	3·2
11	Schistosomiasis	–	–	1	35	6	–	9	–	–	–	1	52	5·4
12	Venereal Diseases ...	3	12	8	42	5	–	4	–	3	–	3	80	8·2
13a	Disabilities (lower extremities)	2	3	5	17	5	–	6	–	3	–	9	50	5·2
13b	Disabilities (upper extremities)	–	–	–	1	1	–	2	–	–	–	3	7	0·7
14	Tropical Ulcers	–	–	3	10	4	–	3	–	2	–	5	27	2·8
15	Leprosy	–	8	1	2	2	–	–	–	3	–	2	18	1·9
16	Yaws	–	2	–	–	12	–	3	1	1	–	6	25	2·6
17	Not specified	3	10	5	34	12	1	9	–	7	1	6	88	9·1
	Totals	39	66	72	279	194	1	75	3	30	5	202	966d	
	Totals examined ...	575	967	838	1,591	1,088	15a	535	60b	85	297	574c	6,625	
	Percentage rejected (e)	6·8	6·8	8·6	17·5	17·8	6·7	13·8	5·0	35·3	1·7	35·2	14·6	

a. Including 5 Tanga Province. b. Including 9 Uganda. c. Including 2 Belgian Congo. d. This figure refers to total *causes* recorded. The actual number of recruits rejected was 889, but those suffering equally from two or more causes have been entered under each cause separately. e. Percentage figures are approximate only, see d above.