

Annual report of the Public Health Department / Zanzibar Protectorate.

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Zanzibar Protectorate.

Annual Report

ON THE

Medical and Sanitary Divisions

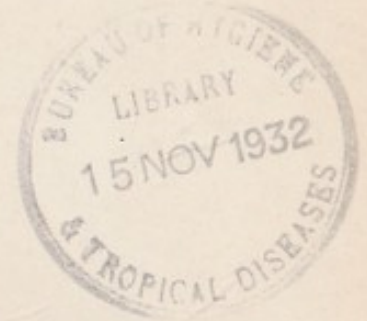
FOR THE YEAR

1931.

ZANZIBAR:

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1932.



Sanitary Protection

Annual Report

for the

Medical and Sanitary Divisions

of the

1931

NEW YORK

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1931

Zanzibar Protectorate.

REPORT ON THE MEDICAL AND SANITARY DIVISIONS

FOR THE YEAR 1931.

I. ADMINISTRATION.

(A) STAFF.

The establishment for 1931 as sanctioned in the estimates was as follows:—

EUROPEANS.

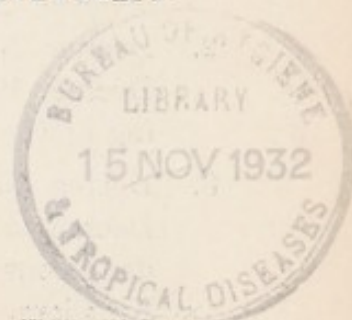
- One Director of Medical and Sanitary Services.
- One Deputy Director of Sanitary Services.
- One Resident Surgical Officer.
- Nine Medical Officers.
- One Accountant and Storekeeper.
- One Sanitary Superintendent.
- One Sanitary Inspector.
- One Matron.
- Eight Nurses.
- Two Missionary Nursing Sisters, Leper Settlement.

ASIATICS.

- One Assistant Surgeon.
- Seven Sub-Assistant Surgeons.
- Four Dispensers.
- Two Dispensers, Probationers.
- Twenty-one Sanitary Inspectors.
- One Chief Clerk.
- Ten Clerks.
- One Senior Laboratory Assistant.
- One Junior Laboratory Assistant.
- One Assistant Storekeeper.
- One Engineer Foreman.

NATIVES.

- One Instructor, Native Dispensers.
- Two Dispensers, Probationers.
- One Laboratory Assistant.
- Thirty-seven Junior Dispensers.
- Hospital, Dispensary, Laboratory and Store Attendants.
- Infectious Diseases Hospital Attendants.
- Quarantine Station Attendants.
- Vaccinators.
- Menial Staff.



(B) LEGISLATION AFFECTING PUBLIC HEALTH ENACTED DURING THE YEAR.

1. Decree No. 5 of 1931.—Amendment of the Dangerous Drugs Decree to delete the clause referring to an import certificate or licence.
2. Decree No. 14 of 1931.—Amendment of the Public Health Decree, 1929, to correct certain omissions and improve the working of the Decree.
3. Decree No. 28 of 1931.—Amendment of the Dangerous Drugs Decree to bring the penalties imposed for offences in relation to dangerous drugs into line with those imposed in the United Kingdom.
4. Government Notice No. 49 of 1931, declaring di-hydro-morphinone and its derivatives dangerous drugs, within the meaning of the Decree.
5. Government Notice No. 58 of 1931, appointing authorities for street cleaning, etc., in the townships of Pemba under the Towns Decree, 1929.
6. Government Notice No. 126 of 1931, rules governing the arrival of passengers by aircraft from any place outside the Protectorate.
7. Government Notice No. 177 of 1931, declaring the date on which the Public Health Decree, 1929, shall come into force.
8. Government Notice No. 215 of 1931, appointing unofficial members to the Central Board of Health.

(C) FINANCIAL.

(Vide Table II for further details.)

REVENUE.				£
Hospital fees, sale of drugs, etc.	...	...	...	1,592
Contribution from other dependencies towards Quarantine Services	...	...	...	2,637
			Total Revenue	4,229

EXPENDITURE.				£
Personal Emoluments	...	...	...	39,231
Other Charges	...	...	...	10,378
Special Expenditure	...	...	...	3,272
			Total Expenditure	52,881

II. PUBLIC HEALTH.

(A) GENERAL REMARKS.

In the report for 1930 it was stated that the public health of the Protectorate had been adversely affected by a small-pox epidemic, by unfavourable economic conditions and by an exceptional heavy rainfall in Zanzibar Island. During 1931 only 12 cases of small-pox with four deaths occurred as compared with 212 cases and 49 deaths in the previous year, but there was no improvement in economic conditions and the rainfall for the two islands together was the greatest on record, being in Zanzibar 11 inches and in Pemba 10 inches above an average taken over a period of more than 30 years. As would be expected this abnormally heavy rainfall resulted in an increased incidence of malaria and its sequelæ. During the latter part of the year an additional adverse factor occurred in the shape of an influenza epidemic which, although of a mild type in itself, led to numerous cases of pneumonia among patients unable or unwilling to take any precautions, and many deaths were reported from this cause.

The total attendances for the treatment of all conditions at Government hospitals and dispensaries numbered 414,567 of which 140,698 were new cases and 273,869 re-attendances. These figures compare with those for the previous four years as follows:—

	1927.	1928.	1929.	1930.	1931.
New cases	107,189	133,836	145,136	137,822	140,698
Repetitions	206,557	234,713	257,227	245,033	273,869
Total attendances	313,746	368,549	402,363	382,855	414,567

There has therefore been a considerable increase in attendances in spite of the fact that shortage of staff necessitated the closure of four dispensaries for the greater part of the year. Reference to the table on page 39 shows that this increase is accounted for to some extent by the newly established Tuberculosis Clinic and Home Treatment Service, but more especially by the greater attendances at the Zanzibar and Wete town centres.

The following table shows the number and percentage of each sex treated during the past and four preceding years:—

	New-Cases Treated.				Percentage.			
	1928.	1929.	1930.	1931.	1928.	1929.	1930.	1931.
Males	102,137	107,811	96,199	99,749	76.31	74.29	69.80	70.90
Females	31,699	37,325	41,623	40,949	23.69	25.71	30.20	29.10
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	133,836	145,136	137,822	140,698	100.00	100.00	100.00	100.00
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The number of patients treated in Government hospitals during the year was 4,266 as compared with 3,962 in 1930 and 3,666 in 1929.

The following table shows the total number of cases in each Group of diseases treated during the year and the percentage of the number of cases in each Group to the total number of cases treated:—

Group.	Cases.	Percentage of total number of cases.
I. Epidemic, Endemic and Infectious Diseases ...	20,993	14.93
II. General Diseases not included above ...	2,274	1.62
III. Affections of the Nervous System and Organs of Senses ...	10,679	7.59
IV. Affections of the Circulatory System ...	945	0.67
V. Affections of the Respiratory System ...	13,087	9.30
VI. Diseases of the Digestive System ...	41,381	29.41
VII. Diseases of the Genito-Urinary System (non-venereal) ...	3,550	2.53
VIII. Puerperal State ...	100	0.07
IX. Affections of the Skin and Cellular Tissue ...	28,756	20.44
X. Diseases of the Bones and Organs of Locomotion (other than Tuberculosis) ...	3,925	2.79
XI. Malformations ...	9	0.00
XII. Diseases of Infancy ...	27	0.01
XIII. Affections of Old Age ...	402	0.28
XIV. Affections produced by External Causes ...	10,755	7.65
XV. Ill-defined Diseases ...	3,815	2.71
	<u>140,698</u>	<u>100.00</u>

The percentages for the different Groups correspond very closely with those for previous years. As compared with 1930 the greatest variation is in Group VI which shows a decrease from 30.43 to 29.41.

1. GENERAL DISEASES.

General Diseases not included in Group I.—Rheumatism, anæmia and diseases of the spleen, for the most part the symptoms or sequelæ of other diseases, account for more than four-fifths of the cases in this Group.

The cases of cancer numbered 26 as compared with 28 in 1930 and 25 in 1929. Of the 26 patients last year, 14 were males and 12 females; 11 were Asiatics (1 Arab) and 15 Africans. Non-malignant tumours numbered 91 as compared with 115 and 116 in the two previous years.

Affections of the Nervous System and Organs of the Senses.—Most of the cases in this Group consist of headache and minor ear and eye affections. As compared with the two preceding years, serious conditions were returned as follows:—

	1929.	1930.	1931.
Meningitis ...	2	7	3
Locomotor Ataxia ...	11	30	20
Myelitis ...	1	6	12
Spastic Paraplegia ...	10	10	32
Apoplexy and Paralysis ...	97	108	115
Epilepsy ...	36	21	13
Cataract ...	352	173	155

A short report on the eye clinic established in Zanzibar is included under Hospitals and Dispensaries on page 46.

Affections of the Circulatory System.—As in previous years lymphangitis and lymphadenitis, chiefly of filarial origin, and hæmorrhoids account for most of the cases. The cases of cardiac disease numbered 102 as against 93 in 1930 and 107 in 1929.

Affections of the Respiratory System.—These numbered 13,087 as compared with 12,263 and 12,195 in the two preceding years. The more important conditions were as follows:—

	1929.	1930.	1931.
Bronchitis	... 9,298	9,695	9,938
Broncho-Pneumonia	... 51	60	70
Pneumonia	... 160	112	225
Pleurisy	... 71	102	77
Asthma	... 657	661	593

The increase in bronchitis and pneumonia was due to an influenza epidemic which occurred during the latter part of the year.

The cases of pneumonia admitted to hospital numbered 119 and 27 ended fatally as against 74 admissions with 11 deaths in 1930 and 59 admissions with 10 deaths in 1929. The Zanzibar Town death returns show 100 deaths from pneumonia and broncho-pneumonia as compared with 46 and 76 in the two previous years. The figures for the past year, however, represent only a small proportion of the deaths from these diseases throughout the whole Protectorate, by far the greater number occurring secondary to influenza in certain localities, more especially in Pemba, where treatment was not easily obtainable.

Diseases of the Digestive System.—The cases in this Group numbered 41,381 or 29.41 per cent. of all cases treated during the year. Ankylostomiasis (see page 12) with 13,459 cases and minor ailments such as constipation, diarrhœa, dyspepsia and dental caries constitute most of the cases. Diseases of the teeth and gums numbered 5,712 as compared with 5,643 in 1930 and 5,588 in 1929. The urgent need for a whole-time dentist has been stressed in previous reports and it is greatly to be regretted that the financial position precluded this appointment for which provision was originally included in the 1931 estimates. The report of the visiting dental surgeon is included under Section VI on page 76.

Of the more serious diseases in the Group, hernia accounted for 452 cases as against 384 in 1930 and 461 in 1929, and appendicitis for 37 as against 20 and 19. One of the hernia cases was returned as femoral, 399 with 2 deaths as inguinal, 24 as umbilical and 28 with 3 deaths as strangulated.

In all, 651 cases of the Group were admitted to hospital and 47 deaths occurred as compared with 579 admissions and 46 deaths in the preceding year. Of the deaths last year, 15 were due to

ankylostomiasis, 5 to hernia, 5 to enteritis, 3 to cirrhosis of the liver and 2 to appendicitis.

*Diseases of the Genito-Urinary System (non-venereal).—*Schistosomiasis, (see page 13) as for some years past is the most common disease in this Group. Orchitis cases numbered 488 as against 515 and 584 in the two preceding years, hydrocele 403 as against 366 and 484, and nephritis 156 as against 114 and 96. Hydrocele is thought to be for the most part of filarial origin.

Puerperal State.—Seven of the 100 cases in this Group terminated fatally. In all 13 deaths from puerperal conditions were returned from Zanzibar Town.

Affections of the Skin and Cellular Tissue.—As usual, this Group, after Diseases of the Digestive System, contains the largest number of cases. Of the 28,756 cases, 14,797, or more than half, were ulcers. Elephantiasis cases numbered 190 as compared with 191 in 1930 and 221 in 1929; 59 patients suffering from this condition were admitted to hospital and 53 of these were operated upon. The cases of gangrene numbered 24 and of carbuncle 21 as compared with 23 and 19 respectively in the previous year.

Diseases of Bones and Organs of Locomotion (other than tuberculosis).—Minor rheumatic conditions, usually the sequelæ or complications of malaria and filariasis, constitute most of the 3,925 cases returned under this head. Of more serious conditions, diseases of bones from 29 to 52 and arthritis from 593 to 617 show an increase and synovitis a decrease from 208 to 146 as compared with the previous year.

Affections Produced by External Causes.—Of the 10,755 cases in this Group, 335 necessitated admission to hospital and 26 deaths resulted as against 366 admissions with 11 deaths in 1930 and 338 admissions with 31 deaths in 1929. Of the 26 deaths last year, 13 were due to fractures, eight to burns and five to other injuries.

2. COMMUNICABLE DISEASES.

(a) Mosquito or Insect-Borne.

Malaria.—The cases of malaria treated last year numbered 10,146 with six deaths as against 8,993 cases with 10 deaths in 1930 and 8,945 cases with eight deaths in 1929. Of last year's cases, 7,736 occurred in Zanzibar Island and 2,410 in Pemba; in the previous year, 7,156 in Zanzibar, 1,837 in Pemba; and in 1929, 6,551 in Zanzibar and 2,394 in Pemba. Three of the deaths last year were due to blackwater as compared with three in 1930 and four in 1929.

The following table shows the number of cases of malaria treated at each station or district dispensary during the past three years:—

Stations.	Cases treated.		
	1929.	1930.	1931.
<i>Zanzibar Island.</i>			
Zanzibar	2,686	3,523	4,679
Selem	213	283	384
Mkokotoni	69	68	42
Mwera	356	201	181
Chwaka	100	45	44
Mbiji	127	99	129
Machui	201	182	275
Mahonda	148	100	6
Mangapwani	165	183	172
Kizimkazi	158	156	112
Bweleo	192	184	117
Tunguu	113	128	102
Walezo	578	510	229
Bububu	235	238	270
Uzini	244	162	116
Chaani	42	22	40
Makunduchi	535	464	486
Mkwajuni	355	336	24
Quarantine Station	—	3	—
Temporary treatment centres	34	269	328
Total Zanzibar Island	6,551	7,156	7,736
<i>Pemba Island.</i>			
Wete	403	368	741
Chake Chake	716	668	629
Mkoani	351	251	289
Kengeja	149	63	82
Matangatwani	184	97	63
Jambangome	223	146	253
Tumbe	10	3	—
Fufuni	6	—	—
Tundana	71	53	—
Stambuli	132	99	120
Mzambarani	87	54	55
Ole	16	9	78
Kangani	—	26	84
Road Construction Camps	46	—	—
Banani	—	—	16
Total Pemba Island	2,394	1,837	2,410
Total whole Protectorate	8,945	8,993	10,146

The number of cases of malaria treated represents 7.21 per cent of all cases treated during the past year. This compares with the five preceding years as follows:—

1927.	1928.	1929.	1930.	1931.
5.33	6.16	6.16	6.53	7.21

From the above it will be seen there has been not only an actual but also a relative increase in the number of cases of malaria returned from both islands. This increase is ascribed to the abnormally heavy rainfall experienced during the year to which reference is made on page 4. The monthly incidence of cases was as follows:—January 601, February 530, March 648, April 704, May 1,070, June 1,281, July 1,414, August 901, September 758, October 832, November 776, December 631. The greatest monthly rainfall occurred in April and

May, averaging for the two islands 13.53 inches in April and 27.4 inches in May.

Of the cases returned with the type of malaria defined, 1,193 were tertian, 363 sub-tertian and 14 quartan as compared with 1,365 tertian, 205 sub-tertian and 11 quartan in the previous year.

Blackwater Fever.—Nine cases of blackwater fever, three ending fatally, were treated by Government Medical Officers. The number of cases with deaths, treated by Government Medical Officers during each of the past ten years, was as follows:—

	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.
Cases	9	6	4	3	9	3	15	13	8	9
Deaths	1	2	2	1	2	—	3	4	3	3

In addition to the above, one death from blackwater fever was registered by private medical practitioners for each of the four years 1928-31.

The following is a summary of the information obtained from the reports on the nine cases treated by Government Medical Officers.

Sex.—Eight males, one female.

Age.—6, 9, 15, 16, 26, 30, 32, 34, 36.

Race.—British Indian eight, Goan one.

Occupation.—Of the six adults, two were clerks in Government service, three merchants and one a barber.

Locality.—Two contracted the disease in Zanzibar Island and seven in Pemba. Both the Zanzibar patients, resided in the town. Of the seven Pemba patients, three resided in Chake Chake, three in Mkoani and one in Kengeja.

Period of Residence.—Five had resided on the East Coast the whole of their lives, one for one year, one for two and a half years, one for five years and one for twelve years.

Previous attacks of Malaria.—Numerous in all cases.

Previous attacks of Blackwater Fever.—None had any certain history.

Seasonal Incidence.—The cases occurred in May (1), August (3), September (2), and October (3).

Cause of Attack.—In all cases, where any definite information could be obtained, there had been numerous attacks of malaria inadequately treated.

Dengue.—One case was returned last year. Since an epidemic with 447 cases in 1925, there have been recorded one case in 1926, one in 1927, three in 1928, 10 in 1929, one in 1930 and one in 1931.

Filariasis.—The returns show 218 cases as compared with 300 in 1930 and 331 in 1929. These figures however do not include many conditions shown under other heads thought to be for the most part of filarial origin. Of these the following were recorded last year.—lymphangitis 217, lymphadenitis 392, hydrocele 403, varicocele 17, elephantiasis 190, inguinal hernia 399 and deep seated abscesses 263.

In the report for 1930 it was stated that the establishment of a district malaria survey unit was under consideration. There is every reason to anticipate that the establishment of this unit would lead to a greatly reduced incidence of mosquito-borne diseases, but unfortunately the need for stringent economy has necessitated the postponement for the time being of proceeding further with the proposal.

(b) Infectious Diseases.

The following table shows the number of cases, with deaths, of the more important infectious diseases treated during the past and two preceding years:—

	Cases. Deaths.		Cases. Deaths.		Cases. Deaths.	
	1929.		1930.		1931.	
Enteric Group	12	—	16	—	7	2
Small-pox	4	—	212	49	13	1
Whooping Cough	203	—	160	—	98	—
Influenza	1,343	—	1,590	—	2,188	2
Mumps	31	—	67	—	649	—
Dysentery	78	1	156	9	151	6
Leprosy	34	—	68	2	44	2
Chicken-pox	17	—	47	—	12	—
Yaws	7,248	—	5,451	—	4,659	—
Tetanus	1	—	2	—	7	3
Tuberculosis	290	40	237	41	538	45
Syphilis	1,086	—	818	4	428	3
Soft Chancre	375	—	114	—	58	—
Gonorrhœa	2,749	—	2,228	2	1,734	2

Enteric Group.—Of the seven cases treated by medical officers last year, four were returned as typhoid, one as paratyphoid A, one as paratyphoid B and one with type undefined. The cases and deaths during the past four years were as follows:—

	Cases. Deaths.		Cases. Deaths.		Cases. Deaths.		Cases. Deaths.	
	1928.		1929.		1930.		1931.	
Typhoid Fever	—	—	4	—	10	—	4	—
Paratyphoid A	—	—	1	—	—	—	1	—
Paratyphoid B	6	3	7	—	6	—	1	1
Type undefined	—	—	—	—	—	—	1	1

Of last year's cases, the case with type undefined occurred in Wete, Pemba, and the remainder in Zanzibar Town.

In addition to the above, cases were notified by private medical practitioners in Zanzibar Town as follows:—

	Cases. Deaths.		Cases. Deaths.		Cases. Deaths.		Cases. Deaths.	
	1928.		1929.		1930.		1931.	
Typhoid Fever	2	1	1	1	6	—	6	1
Paratyphoid B	2	—	3	—	1	1	—	—

Small-pox.—Of the 13 cases returned last year, 10 occurred in Zanzibar Island, two in Pemba and one was removed from a Bombay steamer. Only one death is shown in the hospital returns, but three deaths also occurred of patients treated in isolated huts near their homes.

Whooping Cough.—As compared with the two previous years this disease shows a considerable decrease. Of last year's cases 79 were returned from Zanzibar Island and 19 from Pemba.

Influenza.—An epidemic, more widely prevalent in Pemba, occurred during the latter part of the year. In addition to the 2,188 cases recorded many of the 2,209 cases returned as pyrexia of uncertain origin should undoubtedly be included under this head. As already stated (pages 4, 6) the disease although of a mild type in itself resulted in a large number of cases of pneumonia and broncho-pneumonia with many deaths. Of the influenza cases recorded, 962 were returned from Zanzibar Island and 1,226 from Pemba.

Dysentery.—Thirty of the cases returned last year occurred in Pemba and 121 in Zanzibar Island. Of the Zanzibar cases 110 occurred in the town and 11 in the districts. Seventy-one of the town cases occurred in the Central Prison, Lunatic Asylum and Police Lines as compared with 72 in the previous year. Reference to this outbreak is made in the D.D.S.S.'s report, page 22.

Five of the cases recorded last year were returned as amœbic, 94 as bacillary and 52 with type undefined.

Nine deaths from dysentery were notified in Zanzibar Town as against 10 in the previous year; these figures include respectively four and three deaths occurring in the Central Prison.

Leprosy.—The figures in the table represent not only newly discovered cases but also several cases paroled from the leper settlement and attending various dispensaries for treatment. The position with regard to this disease is dealt with in the D.D.S.S.'s report (page 23) and in the report on the leper settlement included as Appendix II page 70.

Yaws.—Of the 4,659 cases treated last year, 1,904 were returned from Zanzibar Island and 2,755 from Pemba. The large number of cases of this disease treated in recent years has greatly reduced the incidence. This reduction has been especially pronounced in Zanzibar Island where 4,469 cases were returned in 1929 and 2,745 in 1930 as compared with 1,904 last year.

Tetanus.—All seven cases occurring last year were contracted in Zanzibar Island.

Tuberculosis.—The increased number of cases recorded last year was due to the establishment of the tuberculosis clinic with a specialist in charge. In previous years the returns consist almost entirely of native patients, but during the past year the clinic made it possible to encourage the attendance of suspected cases among all races. The contacts of cases were also examined and many early infections discovered which otherwise would not have been suspected for some months.

Of the 538 cases last year, 506 were tuberculosis of the lungs and 32 of other organs; one of the patients was a European, 65 were Arabs, 113 other Asiatics and 359 Africans.

As compared with the two preceding years the cases were returned from the following localities:—

<i>Zanzibar Island.</i>	1929.	1930.	1931.
Town	143	101	383
District	91	78	94
<i>Pemba Island.</i>			
Wete	26	38	33
Chake Chake	18	14	18
Mkoani	4	1	6
Districts	8	5	4
Total	290	237	538

The deaths notified from all sources in Zanzibar Town as due to tuberculosis during each of the past ten years were as follows:—

1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.
105	163	185	167	132	145	138	190	125	91	57

As pointed out in previous reports, the Zanzibar death returns are far from accurate, in many cases the cause being determined solely by inspection of the body after death and information obtained from relatives or friends of the deceased. Last year the returns include 86 deaths from malaria and 180 from ankylostomiasis, and there is no doubt the primary cause of many of these would have been more correctly shown as tuberculosis and other diseases. There was however some definite decrease in the number of deaths from tuberculosis in the town last year, as through the agency of the clinic many lives were prolonged by treatment and many patients transferred to more suitable climatic conditions outside the Protectorate.

A short report on the work performed at the clinic is contained in Section VI page 46.

During the coming year, with the assistance of a grant from the Colonial Development Fund, it is proposed to open a ward for the reception of tuberculosis cases suitable for special treatment. This it is hoped will enable many lives to be saved.

Veneral Disease.—The total number of cases of venereal disease of all forms treated last year numbered 2,220 as compared with 3,160 in 1930 and 4,210 in 1929. Few laboratory examinations can be undertaken in connexion with patients attending the district dispensaries and there is no doubt that many cases venereal in origin, are shown under other heads.

(c) Helminthic Diseases.

The following table shows the number of cases of the more important helminthic diseases treated during the past as compared with the two preceding years:—

	1929.	1930.	1931.
Ankylostomiasis	14,041	14,087	13,459
Schistosomiasis	911	627	669
Ascariasis	349	397	604
Filariasis	331	300	218

Ankylostomiasis.—No major measures to deal with this disease could be initiated during the past year, and the position remains as detailed in the reports for 1930 and previous years.

Schistosomiasis.—During the past and two preceding years, cases have been returned from Zanzibar and Pemba as follows:—

	1929.	1930.	1931.
Zanzibar Island	504	365	406
Pemba	407	262	263
Total	911	627	669

All district dispensaries return a certain number of cases and it is obvious that numerous sources of infection exist throughout both islands. Any infected pools discovered are dealt with as far as possible but further investigations are necessary. The Mkoani District of Pemba would appear to be the most highly infected area; at Kengeja it is estimated that 90 per cent of the pupils attending the Government School suffer from this disease.

Ascariasis.—Of the 604 cases treated last year, 575 were returned from Zanzibar Island and 29 from Pemba as compared with 381 and 16 respectively in 1930. The greatly increased number of cases last year is accounted for by 459 cases being returned from two dispensaries in the southermost part of Zanzibar Island. The dry soil and strong winds in this part of the island are considered to be the chief factors favouring the dissemination of ova.

Filariasis.—Reference to this disease has already been made under "Mosquito and Insect-borne Diseases" on page 9.

(B) VITAL STATISTICS.

1. GENERAL POPULATION.

A census of the whole population of the Protectorate was taken on the night of the 28th of March. A summary of the census and other returns for the year are shown in Table III on page 57.

From Table III (7) it will be seen that the total number of births registered in the Protectorate during the year was 4,665 and of deaths 4,624, or an excess of births over deaths of 41.

Based on the above and the population at the time of the census, crude birth and death rates per 1000 of 19.81 and 19.64 respectively are obtained, comparing with the previous five years, as follows:—

	1926.	1927.	1928.	1929.	1930.	1931.
Births	3,530	4,758	4,236	4,204	3,641	4,665
Deaths	5,017	4,128	4,302	3,893	4,151	4,624
Birth Rate	17.65	21.98	19.34	19.31	16.79	19.81
Death Rate	23.10	19.06	19.64	17.88	19.14	19.64

It will be noted that the number of deaths returned last year was the largest recorded since 1926. Reference has already been made (page 4) to the adverse effect on the general health of the economic conditions, abnormally heavy rainfall and influenza

epidemic. The influenza epidemic was prevalent from August to the end of the year and during this period the number of deaths averaged monthly 435 as compared with 350 from January to July.

With regard to the different races, the births registered among Arabs and Africans numbered 4,171 and the deaths 4,332 or an excess of 161 deaths over births. Based on the census population of 219,867 for these two races, the crude birth rate was 18.97 and death rate 19.70 per 1000. Among Indians and other races, the births and deaths numbered 494 and 292 respectively or an excess of births of 202.

The registration of births and deaths is compulsory and the death returns may be taken as approximately correct. There is reason to believe however that the registration of births in the case of Arabs and Africans living in the districts is incomplete.

Zanzibar Township.—A summary of the vital statistics relating to Zanzibar Township are contained in Table III (8-10) page 59. During the year 610 births and 1,179 deaths were returned as compared with 603 births and 1,117 deaths in 1930. Of the births and deaths last year, 196 and 925 respectively occurred among Arabs and Africans. The Arab and African population at the time of census was 33,219 and based upon this figure the birth rate for these races was 5.90 and death rate 27.84. As stated in previous reports, the persistence of the old-established custom of women going from the town into the districts for their confinements accounts to some extent for the small number of births in the township. The deaths on the other hand are increased by the tendency for the old and infirm to gravitate towards the town. After all such factors have been given due weight, however, the statistics cannot but occasion serious concern.

The chief causes of death in the township last year were as follows, the corresponding number for the previous year being shown in brackets—malaria 86 (138) tuberculosis 57 (91) bronchitis 39 (57) broncho-pneumonia 36 (17) pneumonia 64 (29) ankylostomiasis 180 (131) senility 327 (334). Reference to these has already been made.

2. GENERAL EUROPEAN POPULATION.

Three deaths of Europeans occurred in the Protectorate during the past year, the causes being tuberculosis, chronic bronchitis and senility. In all, 633 cases of illness were treated by Government Medical Officers, 262 of the patients being officials and 371 non-officials. Twenty-five officials and 51 non officials were admitted to hospital, no death occurring among these. In 1930, the cases treated numbered 580 (265 officials, 315 non-officials) and there were 73 admissions to hospital with one death. The more common or important conditions treated were as follows, the corresponding figures for the previous year being shown in brackets:—Malaria 79 (66), influenza 78 (40), neuritis 6 (7), neurasthenia 1 (2), lymphangitis 4 (1), bronchitis 19 (10), pneumonia 0 (2), pleurisy 0 (1), asthma 5 (7), tonsillitis 29 (15), pharyngitis 16 (21), duodenal ulcer 1 (1),

gastritis 2 (2), dyspepsia 15 (20), ankylostomiasis 0 (1), appendicitis 10 (1), hernia 1 (1), parturition 6 (9), boils 15 (15), abscess 2 (7), osteitis 1 (1), arthritis 0 (4), myalgia 11 (15), ptomaine poisoning 4 (3), injuries 46 (32), debility 24 (10), undefined fever 10 (19).

Seven births occurred during the year.

3. EUROPEAN OFFICIALS.

No death occurred among European officials during the year. The cases of illness treated numbered 262, and 127 of these necessitated officials being placed off duty, the total number of days off duty amounting to 601. There were 25 admissions to hospital. The more common or important conditions treated were as follows, the corresponding figures for the previous year being shown in brackets:—Malaria 34 (27), influenza 41 (19), dysentery 1 (0), bronchitis 3 (2), asthma 2 (7), tonsillitis 7 (5), appendicitis 3 (0), injuries 7 (21), undefined fever 2 (8). Of the 34 cases of malaria last year, 23 were returned from Zanzibar Island and 11 from Pemba. In the previous year the corresponding figures were 18 from Zanzibar and 9 from Pemba.

A Medical Board was held on one European official and resulted in permanent invaliding for asthma.

The following table shows the Sick, Invaliding and Death Rates for the whole Protectorate as compared with those for the two previous years:—

	1929.	1930.	1931.
Total number of officials resident	... 125	116	117
Average number resident	... 85.45	78	87.44
Total number on sick list	... 127	101	127
Total number of days on sick list	... 832	491	601
Average daily number on sick list	... 2.28	1.35	1.65
Percentage of sick to average number resident	... 2.67	1.73	1.89
Average number of days on sick list for each patient	... 6.55	4.86	4.73
Average sick time to each resident	... 9.74	6.30	6.87
Total number invalided	... 2	1	1
Percentage of invalidings to total residents	... 1.6	.86	.85
Total deaths	... 1	—	—
Percentage of deaths to total residents	... .8	—	—
Percentage of deaths to average number resident	... 1.17	—	—

4. NON-EUROPEAN OFFICIALS.

All non-European officials of the 4th and higher grades are included under this head. Six deaths occurred during the year, the cause of death being heart disease three, cancer two, cerebral tumour one. In all, 1,056 cases of illness were treated and necessitated officials being placed off duty on 688 occasions, the total number of days off duty amounting to 3,316. The admissions to hospital numbered 41.

The more common or important conditions treated were as follows, the corresponding figures for the previous year being shown in brackets:—Malaria 257 (190), blackwater 2 (2), influenza 184 (39), tuberculosis 1 (2), cancer 2 (2), diabetes 13 (6), neurasthenia 2 (3), heart disease 3 (2), pneumonia 2 (1), bronchitis 32 (55), asthma 32 (12), tonsillitis 10 (7), pharyngitis 25 (26), myalgia 33 (25),

injuries 102 (103), undefined fever 126 (117), debility 9 (14). Of the 257 cases of malaria last year, 153 were returned from Zanzibar Island and 74 from Pemba.

Medical Boards were held on eight non-European officials of whom seven were permanently invalided for the following causes.—Heart disease two, cancer two, tuberculosis one, neurasthenia two.

The following table shows the Sick, Invaliding and Death Rates for past and two previous years:—

	1929.	1930.	1931.
Total number of officials resident	... 567	564	555
Average number resident	... 467.83	488.18	508.15
Total number on sick list	... 793	628	688
Total number of days on sick list	... 3,430	3,131	3,316
Average daily number on sick list	... 9.40	8.57	9.08
Percentage of sick to average number resident	... 2.00	1.75	1.79
Average number of days on sick list for each patient	... 4.33	4.98	4.82
Average sick time to each resident	... 7.33	6.21	6.53
Total number invalided	... 9	5	7
Percentage of invalidings to total residents	... 1.59	.88	1.26
Total deaths	... 2	1	6
Percentage of deaths to total residents	... 0.35	0.18	1.08
Percentage of deaths to average number resident	... 0.43	0.25	1.18

Three of the officials invalided last year died while still drawing salary and are shown both as invalidings and deaths in the above table. One official invalided towards the end of 1930 died last year while still drawing salary and his death is therefore also included.

5. POLICE FORCE AND PRISON STAFF.

The total strength of non-commissioned officers and men of the Police Force and Prison Staff for the past year was 678 and the average strength 622. The following is a summary of the more important returns from the different towns and districts:—

	Zanzibar Town	Zanzibar District	Chake Chake Town and District	Wete Town and District	Mkoani Town and District	Total
Average strength	... 428	76	44	43	31	622
Number treated	... 2619	174	273	193	270	3529
Number placed off duty	... 399	65	79	45	79	667
Number of days off duty	... 2664	108	245	153	268	3438
Average number off duty	... 7.3	.3	0.67	0.41	0.73	9.41
Number admitted to hospital	... 149	21	13	12	17	212
Number of days in hospital	... 1362	115	156	51	75	1759
Average number in hospital	... 3.73	.32	0.43	0.14	0.21	4.83
Invalided	... 16	...	...	...	...	16
Deaths	... 3	...	1	...	...	4

The Zanzibar returns are adversely affected by the transfer when practicable of serious cases to headquarters.

The causes of death and invaliding were as follows:—

Death.—Cardiac disease 3, dysentery 1. In addition, the death of one constable, reported as due to gastric trouble, occurred while on leave outside the Protectorate.

Invaliding.—Tuberculosis 9, defective vision 3, peripheral neuritis 1, paralysis 1, teno-synovitis 1, asthma 1.

The more common or important illnesses treated were malaria 394, influenza 163, dysentery 10, yaws 37, tuberculosis 9, conjunctivitis 173, bronchitis 319, pneumonia 9, ankylostomiasis 32, injuries 271.

In 1930, there were three deaths and 18 invalidings; the number treated was 3,623, the number placed off duty 645, the number of days off duty 4,445 and the average number off duty 12.15.

III. HYGIENE AND SANITATION.

Report by the Deputy Director of Sanitary Services.

(A) GENERAL REVIEW OF WORK DONE AND PROGRESS MADE.

The Deputy Director of Sanitary Services was on leave from June to December during which time the Health Officer acted in his stead.

The Laboratory was in charge of Dr. H. G. Wiltshire throughout the year, whose Report will be found on page 51.

The Sanitary Superintendent was on duty throughout the year. In addition to his urban duties, he paid periodical visits to the district dispensaries to instruct the district dispensers in the duties of sanitary control of their districts and to inspect their records and reports of public health work. By this means the dispenser's interest in this side of their work was aroused and maintained. Each district dispenser should be in his area a sanitary adviser to the local headmen and villagers and the medium whereby knowledge of elementary hygienic principles should be practically diffused throughout the districts and should thus be a most helpful and influential ally of the sanitary authorities. Naturally, however, to keep them up to the mark constant visits and inspections by a trained sanitarian are necessary, the Medical Officer in charge of the dispensaries not having sufficient time at his disposal for sanitary work. The European Sanitary Inspector in Pemba also performed this work for the Pemba dispensaries. Periodical visits to the dispensaries were also made by the Deputy Director of Sanitary Services.

No epidemic occurred during the year, other than a localised outbreak of small-pox in the Northern District, and the work of the Sanitation Division proceeded on normal lines.

Mr. Lavers, European Sanitary Inspector, Pemba, returned from leave on 13th August and was posted to Chake Chake where he was

on duty throughout the year in general charge of the sanitation of the Island, his duties including inspection of district dispensaries and schools and the control of rural sanitation through the district dispensers on the lines described above.

The practice of destroying pariah dogs by means of poisoned baits was discontinued in the town of Zanzibar, owing to the cruelty involved and the danger to dogs properly kept and cared for by private persons. Arrangements were made for stray dogs in the town to be caught in nets by official dog catchers working under the police, dogs not claimed after 48 hours being destroyed. Fortunately it can be recorded that the pariah dog nuisance has lately diminished considerably. It is hoped that the increased cleanliness of the town and lack of collections of garbage afford fewer attractions to these pests than formerly. In the Pemba township it was necessary to continue the use of poisoned baits, as otherwise these dogs increase in such numbers as to become an intolerable nuisance and even a danger.

1. PREVENTIVE MEASURES.

(a) MOSQUITO AND INSECT-BORNE DISEASES.

Zanzibar.—As in last year's Report it must again be recorded that mosquito control was rendered more difficult than in previous years owing to the exceptionally heavy and prolonged rainfall occurring in the first half of the year. The year under review was quite exceptional. The total rainfall to the end of May being no less than 50 inches as compared with 40.36 in 1930 and with 24.86 in 1929. The flooding of the Recreation Park was again a very difficult problem to deal with in spite of the drain constructed during the previous year from the Park to the creek. It was necessary eventually to make use of the fire engine to pump off the excess of standing water which the drain could not deal with, but repeatedly a few hours heavy rain undid all the work done by two or three days pumping; oil spraying was resorted to daily, but the oil too was rapidly washed-away by the heavy downpours, and the fringes of the large lake so formed were constantly heavily infested with *funestus* larvæ, which seemed capable of developing in the very small quantities of water held between grass blades. A drain is now in process of construction from the Recreation Park to the sea passing through the Ismaili Khoja Cemetery. The Park will therefore be drained both into the creek and into the sea, and it is expected that there will now be sufficient drainage to prevent the Recreation Park becoming little more than a grass fringed lake for several months on end.

Apart from the incidence of *funestus* in the Recreation Park during the rains, the most commonly found mosquito in the town was *Culex fatigans* and the most commonly found larva, *Stegomyia*.

A considerable amount of anti-malarial drainage and filling-in was done by departmental labour. A large depressed area at Ziwani, which was a source of trouble during the rainy season was levelled with 1,465 cubic yards of sand removed from the anti-malarial drain which passes through the area.

Earth drains 1,556 yards in length were made at the base of the hillside at Kiungani to carry off the water from the numerous temporary springs. These drains proved very successful by preventing the formation of a swamp which usually covered an area of approximately six acres soon after the commencement of the rains.

During the year 4,805 gallons of oil were used for larvicidal purposes.

TABLE No. 1.

Comparative table showing collections of mosquito larvæ found in the township.

	1929.	1930.	1931.
Anopheline	13	75	55
Culex	279	427	815
Stegomyia	3,197	4,205	3,327

TABLE No. 2.

The following adult mosquitos were caught in the township.

	1929.	1930.	1931.
Anopheline	232	159	206
Culex	4,399	4,293	5,675
Stegomyia	327	98	369

TABLE No. 3.

Sullage and Cesspits oiled fortnightly during 1931.

January	2,004	July	2,020
February	1,815	August	2,004
March	1,978	September	1,945
April	2,001	October	2,014
May	2,014	November	1,978
June	1,820	December	2,020
		Total	23,613

TABLE No. 4.

	1929.	1930.	1931.
Number of notices served	688	827	1,713
Number of prosecutions instituted	5	—	7
Number of convictions obtained	4	—	5

Wete.—Of the six swamps reported on in 1929, the following have been properly graded and drained:—

1. Market swamp
2. Customs swamp
3. Slaughter House swamp
4. Dak Bungalow swamp.

The number of sullage and cesspits oiled fortnightly during 1931 was 544 and the number of notices served was 195, prosecutions instituted nine and convictions obtained seven.

Chake Chake.—The earth drain in the valley running from Miembeni to the Creek at Kichungwani was replaced during the year

by a properly constructed cement concrete open drain complete with sand traps, etc. The new drain is 628 feet in length, and is a great improvement of an area formerly noted as a perpetual breeding place for all kinds of mosquitoes.

The extensive swamp area known as the Recreation Ground requires proper drainage. It continues to contain the majority of the definitely known anopheline breeding places in the region of Chake Chake Township. Oiling on the scale possible with a small staff is an expensive and unreliable method of attempting to cope with what is a huge area of overgrown seepage pools in the dry season, and a flooded valley during the rains.

Mkoani.—Considerable improvements have been effected in the drainage of the South Swamp during the latter half of the year. Additional lines of agricultural piping have been laid in different parts and much of the old piping has been relaid. Also the worst part of the swamp has been planted with eucalyptus trees which the Agricultural Department supplied. These trees soon established themselves firmly and by the end of the year were flourishing.

The swamp to the North of the Township was the site of further anti-malarial activities at the end of the year.

A large cement drain was built which will conduct storm water directly to the sea without allowing it to enter the swamp area, also a system of agricultural piping was laid down but unfortunately could not be completed before the year ended.

Cesspits and undrained swamp areas were regularly oiled and a system of mosquito traps instituted in August, very effectively kept down the number of non-anopheline mosquitoes in the station.

Fifty-four mosquito nuisances were dealt with during the year.

(b) EPIDEMIC DISEASES.

Zanzibar Town and Island.—*Small-pox.*—On April 1st five cases of small-pox were notified in the village of Potowa near Mkokotoni in the Northern District. The patients were all children from two to seven years of age, four girls and one boy. All were severely affected, and two girls and the boy died.

On the same day one case occurred in the village of Kigunda about five miles off. This child was found on investigation to have been staying at Potowa, but returned home before the disease developed. On the 8th and 12th of the month this child's brother and sister developed the disease.

On the 11th another boy six years of age developed the disease at Potowa.

The source of the disease could not be discovered, but it is worthy of note that in this neighbourhood, dhows crews and passengers come and go freely, and the infection probably was brought by one of these, though no case of sickness could be discovered in any of the dhows then at anchor.

Cases and contacts in both villages were immediately isolated, and an intensive vaccination campaign in the district undertaken.

A native Sanitary Inspector was stationed in the district to take charge of vaccination and isolation, and was assisted by three native vaccinators sent from the Health Office. All the cases were diagnosed as such by a Medical Officer in the first instance who also paid regular visits to the infected district during the course of the outbreak.

On the 15th May he reported that the outbreak could be considered at an end. The total number of cases occurring were nine with three deaths, and the total number of vaccinations performed in the district between April 1st and May 15th was 12,912.

On June 13th, one case in an Arab male adult was reported at Chichele also in the Mkokotoni District. The patient was admitted to the Infectious Diseases Hospital at Gulioni and died on the 19th from a severe confluent form of the disease. Vaccination of contacts and neighbours and labourers in the district was immediately undertaken and the man's wife and child isolated at home and visited daily. No further cases occurred. But a vaccinator working in the neighbourhood discovered a child which had evidently had small-pox recently, although the father of the child stated that the attack occurred two years ago.

Wete.—*Small-pox.*—Two cases occurred in the district during the year, one in April at Micheweni and one in September at Bagamoyo. The same procedure as regards local isolation and vaccination was adopted as described above in the Zanzibar outbreak, and 2,378 vaccinations were performed in these two areas.

Chake Chake.—*Small-pox.*—Although no case occurred in the Chake Chake District itself, the case from Bagamoyo referred to above was detected in Chake Chake: 1,995 vaccinations were performed during the year.

Mkoani.—No cases during the year.

Chicken-pox.—Was not prevalent, only 12 cases occurring during the year.

Plague.—There have been no cases of this disease in the Protectorate since 1911. Spleen smears from rats caught in town are examined daily. Particulars relating to rats destroyed will be found under Reduction of Vermin Sub-Section 7.

Tuberculosis.—The prevalence of this disease is referred to on page 11 and an account of the clinic will be found on page 46.

Zanzibar Town.—*Enteric Group.*—The number of cases notified during the year was 12 with two deaths, ten being typhoid with one death, and one case each of paratyphoid A and B, the latter proving fatal.

In all cases notified, a thorough investigation as to the source of infection was made, and in each case the milk and water supply have been definitely proved as free from suspicion. The disease appears to be conveyed in the majority of cases by a carrier.

Wete.—One fatal case, type undefined, occurred during the year. The patient who came from Zanzibar was apparently infected before arrival.

No other cases occurred in Pemba.

Zanzibar Town.—Dysentery.—The epidemic of bacillary dysentery referred to in last year's report in the Central Jail continued throughout the year, and must at present be considered endemic. The number of cases during the year was 57 with three deaths. During the year every effort was made to keep the latrines clean and reduce the incidence of flies by the observation of the strictest rules of hygiene. The suggestions mentioned in last year's report were put into effect, with the exception of fly-proofing, which was found impracticable under conditions obtaining. The night soil instead of being incinerated as formerly was buried in a large pit with a heavy cement cover, which entirely prevented the ingress of flies.

It was found however that owing to various causes, such as the number of latrines, the distance between them, the number of gates to pass through, and the irresponsible habits of natives that satisfactory supervision was not possible with the result that the excreta were not properly covered and the sides and tops of the buckets became soiled and there was thus a constant attraction for flies. These were not numerous and a casual observer might well think the buildings remarkably fly-free, but the numbers are quite sufficient to keep up the infection.

The number of prisoners in the Jail varies from about 140-165 and the number of inmates of the Lunatic Asylum averages about 20. The disposal of the excreta of these numbers is and always has been a difficult problem. Now that bacillary dysentery has definitely established itself in the place, nothing other than a water-flushed system will eradicate the disease and prevent further outbreaks of this and other fly-borne diseases.

The number of cases of dysentery recorded in the Town and Districts is not excessive, and they are largely due to carelessness in protecting food and carelessness as to the source of water supplies for drinking and cleaning purposes. Five cases of amœbic dysentery are notified. These were probably infections brought from the mainland, as amœbic dysentery does not appear to be endemic in these Islands.

Wete.—Seven cases were reported during the year.

Chake Chake.—Twelve cases of dysentery mainly of the bacillary type were notified during the year.

Several cases occurred at the Kisiwani Camp of labourers engaged in the construction of the new bridge at Piki. The camp was thoroughly inspected and various recommendations made regarding temporary latrines, water supply and protection of foodstuffs.

Mkoani.—Nine cases were reported during the year.

Leprosy.—The number of new cases notified and definitely ascertained to be leprosy and sent to the Funzi Settlement was 19 from the following districts:—

	M.	F.	Total.
Zanzibar Southern District	1	—	1
Zanzibar Northern District	2	1	3
Pemba Wete District	10	2	12
Pemba Chake Chake District	—	—	—
Pemba Mkoani District	3	—	3
	—	—	—
Total	16	3	19
	—	—	—

In addition three cases, one male and two females, were sent to Walezo for treatment, and four cases, two males and two females were allowed to remain at home and receive treatment at the District Dispensaries.

This is about the average number of yearly notifications and it is noteworthy that a large proportion come from the Wete District. This is probably due to the fact that the Medical Officer there, who is also in charge of Funzi, is known personally to the local natives and they therefore have no fear of going to him for treatment. Consequently leprosy cases are not tempted to evade treatment and hide themselves. Undoubtedly there is a dread amongst the native population generally of being despatched to Funzi, which in their eyes is a long way off, and from where they have no means of knowing when they will be released. It is therefore very important to parole lepers from there whenever possible, so that their friends and relatives may see them and see that they are free and greatly improved in health. Early cases, which unfortunately are rarely seen, should be treated at District Dispensaries, and every endeavour made to avoid sending such cases to Funzi. Dr. Cochrane in his Report (vide Annual Report 1930 page 83) stresses this point of view and advises that a leprosy survey of the two Islands be undertaken with a view to discovering the endemic foci of the disease. As he says, preliminary propaganda would be necessary, and the assistance of the Administration needed, whilst the Jeanes Teacher and the teachers in the local district schools could afford great help. The difficulty at the present is to find a Medical Officer with the spare time on his hands to take up the work, which would require a good deal of time and organisation. But undoubtedly these are the lines to work on. Eventually the Funzi Settlement might be entirely done away with, as the disease became less and less prevalent.

VACCINATION RETURN FOR 1931.

Months	Town	Steamers	Dhows	Quarantine	Mkokotoni and District	Chwaka and District	Wete	Chake Chake	Mkoani	Total
January	383	204	443	...	...	...	7	7	37	1,081
February	188	74	817	...	...	1	11	9	27	1,127
March	399	30	223	...	...	...	3	14	...	669
April	527	95	54	...	11,647	...	890	403	329	13,945
May	699	8	25	...	301	...	24	53	66	1,176
June	689	23	25	...	957	304	6	7	76	2,087
July	1,301	17	24	...	48	120	56	8	65	1,639
August	3,151	11	30	...	...	58	22	33	48	3,353
September	899	17	12	...	...	127	569	90	266	1,980
October	713	12	13	...	...	68	1,272	594	378	3,049
November	542	10	15	...	...	85	291	502	389	1,834
December	437	10	81	...	...	71	100	275	262	1,236
Total	9,928	511	1,762	...	12,953	834	3,251	1,995	1,943	33,176

(c) HELMINTHIC DISEASES.

The position with regard to the helminthic diseases remains unchanged, and the remarks in last year's report hold good.

These diseases are fully dealt with under Section II (A) (page 12).

2. GENERAL MEASURES OF SANITATION.

(a) SEWAGE DISPOSAL AND DRAINAGE.

Zanzibar.—The condition of the creek remains unsatisfactory and no permanent measures have been taken to deal with the drainage from the Government Dairy which now discharges into a series of open pits and frequently spreads over the bed of the quarry.

Two public latrines were erected during the year providing four seats for males and two for females. These latrines are constructed over septic tanks and are fitted with modern glazed pans provided with automatic flushing.

The total number of public latrines is nine, containing 35 seats for males and 10 for females.

Cesspools and Cesspits.

	1929	1930	1931
No. of cesspools and cesspits (approximately) ..	6,112	6,162	6,093
No. of cesspools and cesspits constructed ..	17	27	24
No. of cesspools and cesspits abolished ..	12	37	33
No. of cesspools and cesspits cleaned or emptied ..	397	538	356

Drains.

	Public.			Private.		
	1929	1930	1931	1929	1930	1931
<i>Masonry drains—</i>						
Linear yards ..	14,252	15,670	17,092	..	..	..
Linear yards constructed ..	813	1,318	1,422	683	714	712
Linear yards repaired ..	266	350	575	370	310	416
<i>Storm water earth drains—</i>						
Linear yards cleaned and graded ..	371,625	14,380	17,354	888	888	888

Chake Chake.—Open cement drains are provided at the sides of the main streets of Chake Chake. Apparently these drains were intended for surface water only, but at present waste water is also

being received from various premises. This drainage is discharged into a large underground cement drain running from the public markets to Kichungwani. Owing to the sinkage of the foundations of this drain the waste water collects inside, and creates a serious nuisance in the vicinity of the markets. It is suggested that it should be relaid as a pipe drain, complete with inspection chambers, street gullies, etc. and form the basis of a definite drainage scheme for a large area of the township.

There are now 51 sullage pits and nine cesspits provided with the approved cement concrete inspection covers. All these covers have been numbered for record purposes by the Public Health Department in order to note future developments.

Public Latrines.—During the year two latrines have been constructed at the Police Lines, and one public latrine in the Kichungwani area. Another public latrine is in course of construction at Miembeni Bondeni, near the cinema. These latrines have been mainly constructed by prison labour, and will serve densely populated native areas. The public latrine near the market has been repaired, woodwork treated with a preservative, and the walls limewashed.

(b) REFUSE DISPOSAL AND SCAVENGING.

Zanzibar.—The refuse from the town has been disposed of as mentioned in last year's report and this system continues to work satisfactorily.

	1929.	1930.	1931.
Men employed to remove refuse	191	195	195
Carts at work daily	54	50	52
Loads of refuse removed (daily average)	280	267	239
Loads of refuse burnt (daily average)	6	7	8
Loads of refuse buried (daily average)	274	260	231
Loads of dust and incombustible material (daily average)	9	6	11
Dust bins provided by private house holders	375	490	652

Wete.—

	1931.
Men employed to remove refuse	11
Carts at work daily	3
Loads of refuse removed (daily average)	13.5
Loads of refuse burnt (daily average)	3.8
Loads of refuse buried (daily average)	9.75
Loads of dust and incombustible material (daily average)	0.03
Dust bins provided by private house holders	41
Total loads of refuse burnt	1,382
Total loads of refuse buried	3,560
Buckets of night soil removed	5,699

Chake Chake.—All refuse of a vegetable nature continues to be dumped on a site adjoining the creek, and the Horsfall Incinerator is only used for the destruction of animal matter and fish offal. A good supply of earth for covering the dump is being obtained from a disused quarry on the site. Also sufficient stone has been removed and broken to pave the hospital compound and paths. Owing to the increasing area of the reclaimed land formed by the dump, it has been necessary to clear all bush, etc., from the valley in order to arrange drainage for the surrounding land.

The large and thickly populated native areas of Chachani and Kichungwani furnish a very difficult problem for efficient scavenging and refuse removal. The hilly nature of the ground and lack of proper sanitary lanes between the huts make it impossible for the refuse removal carts to enter, with the result that all refuse has to be carried in baskets to the carts on the main road.

The number of cart loads of refuse removed was as follows:—

1929.	1930.	1931.
4,008	5,043	5,013

Mkoani.—The incinerator was found to be capable of disposing of all the refuse by making the attendant work overtime daily. No dumping was found necessary.

In December the incinerator was moved to a suitable site near the shore at the mouth of the northern swamp. The housing of the incinerator was completely renewed and is proving efficient in every way.

During the year 3,882 cart loads of refuse were removed and burnt.

(c) WATER SUPPLY.

	1929.	1930.	1931.
ZANZIBAR.—PIPE-BORNE WATER :—			
Source Springs.			
Number of linear yards	57,152	58,727	62,026
Number of standpipes along roads	87	86	80
Number of standpipes in compounds and houses	487	497	523
WELLS :—			
Public—			
Number	6	6	6
Number of pumps protected against surface water and mosquito protected	—	—	—
Private—			
Number	82	82	82
Number with pumps protected against surface water and mosquito protected	8	8	8
TANKS :—			
Public—			
Number underground	—	—	—
Number mosquito protected and served by pumps	—	—	—
Number above ground	2	2	2
Number mosquito protected	2	2	2
Number of 400 gallons capacity or less	—	—	—
Number above 400 gallons	2	2	2
Private—			
Number underground	5	9	9
Number mosquito protected	5	7	7
Number of 400 gallons capacity	408	408	408
Number mosquito protected	160	160	160
Number above 400 gallons or less	352	352	352
Number above 400 gallons	61	65	65
Nature of Tanks—			
Wood	—	—	—
Iron	156	160	160
Concrete	257	257	257
BARRELS :—			
Number	2,897	2,897	2,853
Number mosquito protected	1,169	1,169	1,169
Number unprotected	1,728	1,728	1,684

Chake Chake.—Previous remarks in annual reports still apply, as there has been no alteration in source. Until a proper mechanical filter similar to the "Jewel" type is installed at the waterworks, the

danger of contamination, and presence of algæ, other grossly contaminating vegetable matter, and sand in the drinking water will remain, and the use of household filters be an absolute necessity. In order to protect the existing watershed, action has again been necessary this year to prevent further building on same, which further proves that the existing waterworks is in a bad position, and interferes with the development of the township.

The existing water supply pipes are in a very defective condition, and leakages are continually occurring in all parts of the township. This may have very serious consequences as the pipes are often exposed, or pass under huts near cesspits, and are therefore very liable to allow pollution to enter the domestic water supply.

Mkoani.—No further steps were taken during the year towards the provision of a pipe conducted water supply. Rain water tanks and wells continued to be the main source and towards the end of the year owing to drought the position became precarious.

(d) OFFENSIVE TRADES.

No change.

(e) CLEARANCE OF BUSH AND UNDERGROWTH.

Zanzibar.—During the year 393,680 square yards of bush and undergrowth were removed by departmental labour and many owners of private land were served with notices to clear away bush.

Chake Chake.—During the year 171,922 square yards of bush and undergrowth were cleared by the Public Health Department staff on Government lands. In addition, owners of private lands were served with notices to clear bush.

Mkoani.—During the year 43,807 square yards of bush, grass and undergrowth were cleared.

(f) SANITARY INSPECTIONS.

The following table summarises the routine work of the inspectors.

Zanzibar Township.—

	1929.	1930.	1931.
No. of Sanitary Inspectors employed	6	6	5
No. of Junior Sanitary Inspectors employed	6	5	7
No. of visits to dwelling houses	494,726	464,500	476,954
No. of visits to hotels and bars	277	244	250
No. of visits to eating houses	5,532	5,361	6,147
No. of visits to lodging houses	4,424	4,590	5,152
No. of visits to aerated water factories	300	370	342
No. of visits to bakeries	473	541	428
No. of visits to food stalls	3,550	4,438	9,694
No. of visits to cowsheds and dairies	2,977	2,957	4,373
No. of visits to godowns and garages	5,864	5,525	7,068
No. of visits to markets	1,472	1,464	1,601
No. of boats and dhows inspected for mosquitoes	7,030	8,036	5,529
No. of notices served to remove insanitary conditions	2,203	2,427	4,034
No. of notices not complied with at the end of the year	15	47	15
No. of nuisances abated	5,944	6,956	6,943
No. of prosecutions for sanitary offences	50	28	63
No. of houses cleaned and disinfected	16	67	152
No. of drains, tanks and barrels oiled	4,124	4,847	4,179
No. of cesspools covered with cement concrete covers	44	36	52
No. of ruins cleaned out	97	84	46

	1929.	1930.	1931.
No. of huts demolished	8	37	36
No. of paupers removed to Walezo Poor House	48	43	33
No. of paupers buried	33	52	56
No. of cases of infectious diseases removed to Isolation Hospital	14	41	11

Zanzibar Rural.—Zanzibar Island has been divided into fourteen district dispensaries or rural sanitary areas. House to house and other inspections were made by the district dispensers when visiting in their districts. The amount of work done is a matter for congratulation in view of the fact that entirely new ground has been broken.

The following table summarises the inspections:—

	1931.
Visits to dwelling houses	13,694
Visits to eating houses	406
Visits to lodging houses	110
Visits to food shops	670
Visits to cowsheds and cattle bomas	498
Visits to markets	599
Visits to pools or other collections of water	330
Dhows or other vessels inspected	698

Wete Rural.—

	1931.
No. of Sanitary Inspectors employed	1
No. of Junior Sanitary Inspectors employed	1
No. of visits to dwelling houses	1,781
No. of visits to eating houses	139
No. of visits to aerated water factories	35
No. of visits to bakeries	66
No. of visits to food stalls	127
No. of visits to markets	581
No. of boats and dhows inspected for mosquitoes	211
No. of notices served to remove insanitary conditions	195
No. of notices not complied with at the end of the year	7
No. of nuisances abated	326
No. of convictions for not removing insanitary conditions	7
No. of cesspools emptied	1
No. of cesspools covered with cement concrete covers	21
No. of ruins cleaned out	4
No. of paupers removed	17

Chake Chake Rural.—

	1929.	1930.	1931.
No. of visits to dwelling houses	25,919	40,758	38,614
No. of visits to eating houses	326	350	431
No. of visits to aerated water factories	120	84	95
No. of visits to bakeries	85	116	136
No. of visits to godowns and garages	71	120	145
No. of visits to markets	365	365	365
No. of boats and dhows inspected for mosquitoes	132	286	214
No. of notices served to remove insanitary conditions	91	50	61
No. of convictions for not removing insanitary conditions	9	6	2
No. of houses cleaned and disinfected	2	4	9
No. of drains, tanks and barrels oiled	192	201	183
No. of cesspools oiled weekly	39	48	60
No. of paupers removed to Walezo	8	7	8
No. of paupers buried	16	19	20
No. of lepers sent to Funzi Asylum	3	3	—
No. of cases of infectious diseases notified and inspections made	6	68	63

Mkoani Rural.—

	1931.
No. of inspections of premises	16,152
No. of general nuisances found	65
No. of mosquito nuisance found	54
No. of cesspools oiled weekly	7

3. SCHOOL HYGIENE.

Zanzibar Island.—There having been no serious outbreaks of infectious disease and only one ship in quarantine during the year, the work done at the School Clinic was considerably greater than in 1930.

The daily sick parade produced 10,893 attendances of which 3,147 were new cases. The main conditions treated were minor injuries, malaria and dental caries. There was an unusual prevalence of mumps in the town during the year and many pupils from the schools were affected, the disease, however, ran a mild course and no severe complications were encountered.

Routine examination of the pupils in town schools who had not been examined in 1930 was carried out, the members from the different schools being as follows:—

1. Government Central School	309
2. Teacher's Training School	35
3. Sir Euan Smith Madressa School	432
4. Bohora School	32

Defects and diseases noted are shown in the following table:—

Defects.	Govt. Central	Teach. Train.	Smith Madressa	Bohora
	School.	School.	School.	School.
	Tot. Ex. 309	Tot. Ex. 35	Tot. Ex. 432	Tot. Ex. 32
	per cent.	per cent.	per cent.	per cent.
Nutrition	7	8	11.8	12
Cleanliness	Skin	17	20	10
	Head	41	22	4.9
	Body	23	5	5.8
Vaccination required	8	2	3.2	3
Defective Teeth	54	48	79.9	46
Nose and Throat	1	20	70	12
Tonsils	42	40	57.7	84
Adenoids	—	—	0.7	—
External Eye Disease	1	—	2.2	3
Defective Vision	5	—	—	6
Ear Disease	1	—	46.8	—
Hearing	—	—	0.2	—
Speech	—	—	0.5	—
Mental Condition	—	—	0.5	—
Heart and Circulation	26	34	25.9	34
Lungs	0.9	—	1.8	—
Nervous System	—	—	—	—
Rickets	0.3	—	1.8	—
Deformities	0.9	5	6	3
Lymphatic Glands	42	31	16.6	15
Spleen	60	42	40.7	56
Other Diseases	17	—	11	6
Malaria parasites	35	20	0.9	—
Wax in Ear	47	5	—	40
Ankylostomiasis	6	8	—	—
Trichuris	—	2	0.5	—

The following table gives the percentages of pupils examined who were found to be suffering from disease or defect in district schools:—

Defects.	Mangapwani School. Tot. Ex. 21 per cent.	Makunduchi School. Tot. Ex. 53 per cent.	Kizimkazi School. Tot. Ex. 81 per cent.	Muyuni School. Tot. Ex. 91 per cent.
Nutrition	10	19	21	11
Cleanliness { Skin	—	—	—	—
{ Head	—	2	1	2
{ Body	—	8	7	10
Vaccination required	20	37	41	33
Defective Teeth	20	17	11	22
Nose and Throat	—	—	—	—
Tonsils	5	—	—	—
Adenoids	—	—	—	—
External Eye Disease	—	—	—	—
Defective Vision	—	—	—	—
Ear Disease	—	—	—	1
Hearing	—	—	—	—
Speech	—	—	—	—
Mental Condition	—	—	—	—
Heart and Circulation	—	—	—	—
Lungs	—	—	—	—
Nervous System	—	—	—	—
Rickets	—	—	—	—
Deformities	—	—	4	2
Lymphatic Glands	—	—	—	—
Spleen	4	37	32	26
Other Diseases	30	2	—	2
Malaria parasites	5	—	—	—
Ankylostomiasis	45	50	34	61
Ascaris	15	74	67	62
Trichuris	—	41	47	51

Of the 246 boys examined in district schools 225 were from the three schools in the south of the Island. It will be seen that 16 per cent of all district school boys examined are classified as having defective nutrition. The classifications used are "Good" "Fair" and "Poor". Only boys whose physique was such as to have them classified in the last category have been shown under the "defective nutrition" heading. This high incidence of malnutrition together with the high intestinal helminth infection rate and high spleen indices were the most striking features revealed by the examinations. Defective teeth were also commonly seen but as a rule the number of carious teeth per pupil was small.

There was no obvious connexion between malnutrition and evidences of infection with malaria or helminths and there is little doubt that most of the boys attending school are underfed.

Wete.—Table of percentages of defects found on examination of the pupils as shown below:—

Defects.	Wete School Tot. Ex. 58 per cent.	Matangatwani School Tot. Ex. 48 per cent.
Nutrition	... 18	23
Cleanliness	... 39	35
Defective Teeth	... 53	56
Nose and Throat	... —	—
Tonsils	... 5	—
Ear Disease	... —	—
Mental Condition	... —	—
Lymphatic Glands	... 2	6
Spleen	... 60	46
Other Diseases	... 14	8
Malaria parasites	... 22	39
Ankylostomiasis	... 38	46
Ascaris	... 7	4

Chake Chake.—Table of percentages of defects found on examination of the pupils as shown below:—

Defects.	Chake Chake School Tot. Ex. 113 per cent.	Ziwani School Tot. Ex. 42 per cent.
Chest	... 6	7
Nutrition	... 48	5
Cleanliness	... 28	—
Defective Teeth	... 29	31
Nose and Throat	... 27	10
Tonsils	... 31	20
Ear Disease	... 2	—
Mental Condition	... 4	—
Lymphatic Glands	... 22	—
Spleen	... 54	45
Other Diseases	... —	—
Malaria parasites	... 22	—
Ankylostomiasis	... 71	95
Ascaris	... 5	3
Trichuris	... 6	24
Heart and Circulation	... 2	4
Bilharziasis	... 5	3
Scabies or Ringworm	... 21	—
Vision	... 4	3
Unvaccinated	... —	7

4. LABOUR CONDITIONS.

No change.

5. HOUSING AND TOWN PLANNING.

Zanzibar.—Progress continues under the town planning scheme. A considerable part of the Main Road was widened by the removal of two buildings.

No. of stone houses	... 3,744
No. of huts with mud walls	... 7,966
No. of huts with stone walls	... 16
No. occupied by Europeans	... 131

Chake Chake.—During the year 445 building applications were referred to the Public Health Division for inspection and sanitary recommendations. Included in this total were 43 applications to build new huts, but only 24 were approved owing to insufficient size of plots to permit the erection of sanitary huts. Improvements of existing huts included 35 applications to fix new windows, three to provide latrines, and 13 to re-roof with galvanized iron sheets or tins. A new concrete block classroom was added to the Government School, and a new Roman Catholic Mission Church was erected. As a sign of the times numerous motor garages were built in the township.

Careful consideration has been given to future housing developments, and a plan of a proposed model area for native huts has been prepared.

At the latter part of the year the Subordinates' Quarters at Tibirizi were found to be in such a bad condition that the premises were condemned as unsafe, and all occupants ordered to vacate same. At present these officials are living in rented houses and huts in the congested parts of the township.

Mkoani.—Building applications numbering 99 were referred to the Public Health Division for inspection and sanitary recommendations.

6. FOOD IN RELATION TO HEALTH AND DISEASE.

(a) INSPECTION AND CONTROL.

Zanzibar.—Inspection of food continued as before and the following foodstuffs were condemned:—

Potatoes	5 cwts.
Dry fish	54 cwts.
Dates	91 cwts.
Onions	9 cwts.
Dry mohogo	2 cwts.
Pickle	720 bottles
Condensed Milk	68 tins
Sim-Sim	1 bag

Wete.—Food condemned:—

Fish	375 lbs.
Rice	51 lbs.
Beef	50 lbs.
Soda water	53 bottles
Cow	1

Chake Chake.—Bakeries, food-shops and eating houses are regularly inspected and unsound food condemned. The owners of eating houses have now provided wire gauze covers to protect all food-stuff from flies and dust, as instructed by the Public Health staff.

Mkoani.—Fifteen milk inspections were made and except on one occasion the milk was found to be clean and of the correct specific gravity.

(b) MARKETS.

Zanzibar.—The Central Markets were inspected daily and 518 lbs. meat, 1,137 lbs. fish and 486 baskets of fruits were condemned and destroyed.

During the year 12,786 samples of milk were tested by lactometer at the Milk Depôt.

Chake Chake.—Improvements are urgently required at the Chake Chake Markets. The fly-proof room for selling meat is in bad repair, and also is too small for the amount of meat sold. The fish section requires to be made fly-proof. The present market accommodation is very limited, and during the clove picking season becomes seriously over-crowded. The best solution appears to be the construction of a new building for the sale of meat, which would relieve the present congestion in other sections.

Mkoani.—Frequent inspections of the market were made.

Fly-proofing and drainage are both necessary to make the market more sanitary.

(c) AERATED WATER FACTORIES.

Zanzibar.—No change: 110 samples were submitted to the Public Analyst for examination.

Chake Chake.—Two factories were regularly inspected, and numerous bottles of aerated water were condemned as unfit for sale. One factory was closed in July leaving only one factory now manufacturing aerated waters in the Township.

During the year samples of sweetened mineral waters were found on analysis to contain an excessive amount of copper, namely one-tenth of a grain per gallon. The sale of these minerals was stopped until the owner of the factory concerned had re-tinned parts of the machinery. Recent analysis shows the necessary improvement has been effected, as only one-seventieth of a grain per gallon is present.

(d) SLAUGHTER HOUSES.

Zanzibar.—(See Veterinary Division Report).

Chake Chake.—The situation of the premises continues to cause inconvenience in inspection and transport of meat to the market. An improvement has been made by transporting the meat from the creek to the market in a cart instead of being carried through the streets on the carrier's shoulders.

The following animals were slaughtered in the Government Abbatoir during the years 1929 to 1931:—

	1929.	1930.	1931.
Cattle	... 250	276	266
Goats	... 138	77	167
Sheep	... 1	17	21

Mkoani.—A new slaughter house was erected on a site north of the Customs beach. The design and construction of the building are eminently satisfactory. This was not completed until the end of the year hence out of the 30 cattle slaughtered in the vicinity of Mkoani only a few were actually killed in the slaughter house.

7. REDUCTION OF VERMIN.

Zanzibar.—*Rats.*—Trapping has continued as mentioned in last year's report.

	1929.	1930.	1931.
No. of trappers employed	... 7	7	7
Rats trapped	... 22,256	25,902	19,763

	<i>Rattus rattus.</i>	<i>Mus norvegicus.</i>	<i>Pachyura cærulea.</i>	<i>Mus musculus.</i>	<i>Cricetomys gambianus.</i>
1929	19,136	2,296	823	..	1
1930	23,098	1,885	911	..	8
1931	16,881	1,996	880	..	6

Flies.—Twenty-four fly traps have been in constant use throughout the year with the same success as before.

Wete.—*Rats.*—1,876 trapped and destroyed.

Pariah Dogs.—Beef and mutton baits poisoned with strychnine were laid regularly from March to the end of the year. As a result there were destroyed:—

Dogs	...	166
Cats	...	19

Chake Chake.—Greater attention has been paid to the important work of rat trapping, as formerly traps were often left in houses for long periods without attention. Now the number of traps has been increased, and traps removed daily for inspection and baiting. This has resulted in increased catches as follows:—

1929.	1930.	1931.
137	162	451

Pariah Dogs.—Poisoned baits were laid down in the township on 22 nights during the year, and the following were destroyed:—

Dogs	...	243
Cats	...	45
Crows	...	16

Flies.—Large cage traps are placed in all the principal places where flies are likely to congregate, and kept regularly baited. As mentioned under Food Control the majority of the sellers of food-stuffs and eating house proprietors have provided wire gauze covers or cupboards. This should greatly lessen the danger of fly-borne diseases.

Mkoani.—Rats.—Rats caught and destroyed during the year 1,233.

Flies.—Breeding places were found near the market and treated.

Pariah Dogs.—Poisoned and buried during the year 181.

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

This work has continued on the same lines as described in last year's report. The three main channels through which this knowledge is diffused being the lectures of the Jeanes Teacher, the Government School curriculum and the Museum Annexe.

(C) TRAINING OF SANITARY PERSONNEL.

Lectures and practical instruction were given to Inspectors, Junior Inspectors and Learners as in previous years.

These are trained with a view to their proceeding ultimately to Bombay to sit for the examination for the Sanitary Inspectors Certificate.

(D) RECOMMENDATION FOR FUTURE WORK.

ZANZIBAR ISLAND.

1. *Mosquito and Insect-borne Diseases.*—Further drainage is required to prevent the continuous flooding of the Recreation Park during the rainy seasons. Such work is now in progress, (see page 18).

2. and 3. *Maternity Child Welfare and Infectious Diseases Hospital.*—The recommendations of the last few years still hold good.

4. A leprosy survey, as recommended by Dr. Cochrane in his report published on the Annual Report for 1930, page 83, is necessary, if a campaign against this disease is to be undertaken.

5. Owing to the continuation of the incidence of bacillary dysentery in the Central Jail and the difficulty of satisfactory fly proofing, a pipe borne water supply is urgently required.

The recommendations numbered 4 and 5 in the 1930 report have been acted upon. Dr. Wiltshire has been appointed Pathologist in charge of the Laboratory, and additional accommodation has been provided at the Quarantine Station.

PEMBA ISLAND.

1. *European Sanitary Inspector.*—A European Sanitary Inspector has been stationed in Pemba since August, but it will not be possible to retain his services for Pemba entirely. Such an appointment, as mentioned in previous reports is necessary to maintain a satisfactory standard of sanitation.

2. *Mosquito and Insect-borne Diseases.*—Work should be continued on the same lines as last year.

3. The water supply at Chake Chake remains unsatisfactory as regards purity, and filtration by "Jewel" type of filters or chlorination is necessary.

4. A piped water supply to Mkoani Township is desirable.

5. The necessity for a Leprosy Survey mentioned above applies equally to Pemba.

B. SPEARMAN,

Deputy Director of Sanitary Services.

IV. PORT HEALTH WORK AND ADMINISTRATION.

The accompanying table shows the amount of shipping dealt with by the Port Health Service during 1931. Only one ship the B.I.S.N. Co.'s *Ellora* from Bombay was quarantined during the year, 234 passengers being placed under observation. Throughout the year all deck passengers for Zanzibar arriving from Bombay, together with all passengers arriving in dhows, were examined and, when necessary, vaccinated before being allowed to land.

PORT SANITATION RETURN, 1931.—STEAMERS.

Months.	Arrivals.			Ships quarantined.	Ships claytonised.	Passengers landed.	Passengers under surveillance.	Number of passengers vaccinated	Passengers placed in quarantine.
	British.	Foreign.	Total.						
January	31	19	50	1	1	1,726	..	204	224
February	30	18	48	..	..	1,288	..	74	..
March	30	15	45	..	..	1,366	..	30	..
April	32	18	50	..	..	2,450	..	95	..
May	31	19	50	..	..	2,183	..	8	..
June	33	19	52	..	..	2,037	..	23	..
July	34	19	53	..	..	2,147	..	17	..
August	31	18	49	..	..	1,733	..	11	..
September	31	13	44	..	..	1,393	..	17	..
October	32	14	46	..	..	1,911	..	12	..
November	31	17	48	..	..	1,917	..	10	..
December	27	16	43	..	..	1,345	..	10	..
Total ..	373	205	578	1	1	21,496	..	511	234
Total for 1930 ..	373	223	596	4	4	21,533	92	2,492	1,817

PORT SANITATION RETURN, 1931.—DHOWS.

Months.	Arrivals.			Dhows quarantined.	Dhows claytonised.	Passengers under surveillance	Number of passengers vaccinated.	Passengers placed in quarantine.	Passengers landed.
	British.	Foreign.	Total.						
January	71	39	110	..	..	..	443	..	582
February	81	62	143	..	..	..	817	..	1,134
March	95	128	223	..	..	..	233	..	616
April	172	19	191	..	..	..	54	..	241
May	122	1	123	..	..	..	25	..	290
June	148	..	148	..	..	..	25	..	154
July	140	..	140	..	..	..	24	..	319
August	83	1	84	..	..	..	30	..	263
September	121	6	127	..	..	..	12	..	199
October	190	..	190	..	..	..	13	..	631
November	82	..	82	..	..	..	15	..	181
December	68	10	78	..	..	..	81	..	249
Total ..	1,373	266	1,639	..	..	..	1,762	..	4,859
Total for 1930 ..	1,955	239	2,194	2	2	..	3,382	61	3,672

V. MATERNITY AND CHILD WELFARE.

No development of maternity and child welfare work has been possible during the past year and the position remains as recorded on page 45 of the 1930 report.

The annual report of the Zanzibar Maternity Association is included as Appendix IV, page 72 and presents the usual record of satisfactory progress.

VI. HOSPITALS AND DISPENSARIES.

(A) OUT-PATIENTS.

The total number of attendances during the past year at all Government dispensaries was 414,567, of which 140,698 were new cases and 273,869 re-attendances. These figures show an increase of 31,712 attendances, consisting of 2,876 new cases and 28,836 re-attendances, as compared with the previous year.

The following table compares the number of new cases treated at each dispensary with those for the previous two years.

ZANZIBAR ISLAND.	Cases treated.		
	1929.	1930.	1931.
<i>Zanzibar Town.</i>			
European	403	445	443
Native and Asiatic	18,380	17,543	20,042
Prison Infirmary	1,599	1,545	1,386
Police Lines	2,776	2,917	2,695
Mwembeladu	12,364	15,076	18,004
School Clinic	2,203	2,406	3,135
Tuberculosis Clinic	—	—	233
Home Treatment Service	—	—	766
Infectious Diseases Hospital	11	57	47
Quarantine Station	—	290	—
<i>Northern District.</i>			
Mkokotoni	2,579	2,669	2,723
Chaani	2,675	2,339	3,009
Mahonda	6,151	2,585	295
Mbiji	3,202	2,105	2,575
Mangapwani	3,610	2,549	2,122
Mkwajuni	4,492	4,608	307
<i>Southern District.</i>			
Chwaka	2,391	1,371	1,537
Kizimkazi	2,613	2,850	2,046
Uzini	4,240	2,994	2,626
Machui	2,007	2,407	2,445
Walezo	3,601	4,785	5,431
Tunguu	2,328	2,254	1,775
Bweleo	3,308	3,365	2,304
Mwera	4,445	3,364	2,402
Bububu	2,826	2,605	2,341
Selem	5,247	3,996	4,451
Makunduchi	6,934	7,684	7,030
Temporary Treatment Centres	523	3,399	5,487
PEMBA ISLAND.			
<i>Wete District.</i>			
Wete	6,306	4,634	6,028
Matangatwani	2,751	2,372	2,282
Tumbe	945	592	—
Mzambarani	2,431	2,185	2,391
<i>Chake Chake District.</i>			
Chake Chake	12,263	13,064	12,831
Tundaa	1,576	1,270	—
Ole	1,760	2,238	1,806
Stambuli	2,463	2,297	2,793
Banani	—	—	541

<i>Mkoani District.</i>	Cases treated.		
	1929.	1930.	1931.
Mkoani	... 6,081	5,315	6,653
Kengeja	... 3,531	2,828	2,711
Jambangome	... 2,422	2,186	2,712
Fufuni	... 809	169	—
Road Construction Camps	... 890	—	—
Kangani	... —	464	2,293
	<u>145,136</u>	<u>137,822</u>	<u>140,698</u>

DISTRICT DISPENSARY SERVICE.

In Zanzibar Island, Dr. Findlay was in charge of this Service throughout the year and made visits weekly, and at other times as required, to each dispensary. In Pemba, the Medical Officers were in charge of the dispensaries in their respective districts.

The Medical Officer in Zanzibar with the assistance of two senior native dispensers also undertakes the training of all dispensers for both islands and supervises the Home Treatment Service in Zanzibar Town. During the year three pupils passed the preliminary examination and four junior dispensers passed the second examination required after two years satisfactory service before promotion to the permanent staff.

HOME TREATMENT SERVICE.

This Service was instituted in Zanzibar Town during April. The native dispensers undergoing training, and as part of their training, visited any native patients unable to attend either of the town dispensaries as out-patients. In all 776 cases were attended in the nine months from April to the end of the year. Twenty-five of the patients were removed to hospital and 17 to the Poor House. The remainder were treated in their own homes under the supervision of a Medical Officer. Many more would have been admitted to hospital had accommodation been available, but the service has been of great value in providing some care and treatment for a considerable number of persons, more especially the old and infirm, for whom previously no assistance was available.

(B) IN-PATIENTS.

The following table shows the number of patients treated and deaths occurring in each Government Hospital during the past and two previous years:—

	1929.		1930.		1931.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
ZANZIBAR ISLAND.						
<i>Zanzibar Town.</i>						
European	... 39	1	73	1	76	—
Native and Asiatic	... 1,316	114	1,612	115	1,587	156
Prison Infirmary	... 180	10	182	12	196	12
Police Lines	... 154	1	181	—	140	1
Infectious Diseases	... 11	—	57	5	29	1
<i>Northern District.</i>						
Mkokotoni	... 75	—	49	—	125	—
<i>Southern District.</i>						
Walezo Poor House	... 330	102	350	120	430	181
Selem	... 93	—	66	1	67	1
PEMBA ISLAND.						
<i>Wete District.</i>						
Wete	... 523	47	447	26	554	33

<i>Chake Chake District.</i>	1929.		1930.		1931.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Chake Chake ...	531	40	544	30	543	46
<i>Mkoani District.</i>						
Mkoani ...	175	3	148	5	236	11
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	3,427	318	3,709	315	3,983	442
Cases remaining from previous year ...	239	—	253	—	283	—
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Total number of cases treated and deaths ...	3,666	318	3,962	315	4,266	442

The more important causes of admission and death during the year were as follows:—

	Cases.	Deaths.		Cases.	Deaths.
Enteric ...	6	2	Duodenal Ulcer ...	10	3
Malaria ...	210	3	Ankylostomiasis ...	208	15
Blackwater ...	8	3	Appendicitis ...	32	2
Small-pox ...	4	1	Hernia ...	234	5
Influenza ...	126	2	Hepatitis ...	5	2
Dysentery ...	100	6	Liver Cirrhosis ...	6	3
Tetanus ...	4	3	Peritonitis ...	2	2
Tuberculosis ...	155	45	Nephritis ...	41	15
Cancer ...	20	4	Hydrocele ...	215	5
Encephalitis ...	3	2	Puerperal State ...	64	7
Meningitis ...	3	2	Gangrene ...	13	5
Apoplexy ...	9	3	Elephantiasis ...	59	4
Paralysis ...	41	18	Fractures ...	65	13
Heart Disease ...	35	20	Other Injuries ...	251	13
Broncho-pneumonia ...	43	14	Senile Debility ...	131	101
Pneumonia ...	119	27	General Debility ...	87	24

In addition to the four cases shown above, nine cases of small-pox were treated in temporary huts. Of the latter three cases ended fatally.

A temporary structure for the reception of tuberculosis cases at the Poor House was erected during the year. Beyond this no additional hospital accommodation was provided and the urgency for this becomes yearly more acute.

1. ZANZIBAR EUROPEAN, ASIATIC AND NATIVE HOSPITALS.

Dr. Vassallo, the Resident Surgical Officer, was in charge of these hospitals throughout the year. Dr. Freeth acted as his Assistant from January to March, Dr. McCarthy from March to September and Dr. Nicklin from September to the end of the year. In addition the medical staff consisted of a Matron, 3-5 Nursing Sisters, an Assistant Surgeon for part of the year, 1-2 Sub-Assistant Surgeons and 2-3 Dispensers.

The following is a summary of the work performed during the year as compared with the previous two years:—

	1929	1930	1931
In-patients ...	1,355	1,685	1,663
Out-patients, new cases ...	18,783	18,103	20,608
Out-patients, re attendances ...	37,798	35,758	61,294
Out-Patients, total attendances ...	56,581	53,861	81,902
Operations, major ...	710	629	955
Operations, minor ...	862	910	1,039
Injections and irrigations ...	2,987	3,184	5,140
Medical boards ...	43	50	41
Medical examinations ...	225	311	221
X-ray photographs ...	335	524	707
X-ray screenings ...	34	80	11
Post-mortem examinations ...	42	38	28
Visits to patients ...	2,731	2,963	2,651
Ante-natal examinations ...	174	195	175

Among the major operations performed were appendicectomy 24, laparotomy 16, gastro-jejunosomy 8, hæmorrhoids 48, hernia 194 (radical cure 185, strangulated 9), hydrocele, radical cure 151, elephantiasis 40, orchidectomy 32, external urethrotomy 14, salpingectomy 11, ovariectomy 13, hysterectomy 12, amputations 8, cataract 11.

The deaths following operations numbered 49 as compared with 29 in 1930 and 24 in 1929. Although a greatly increased number of deaths occurred, it will be noted that the ratio to the number of major operations performed remains approximately the same.

(a) European Hospital.

Of the 76 patients admitted, 25 were officials and 51 non-officials. The more important causes of admission were:—

Enteric	2	Pyelitis	1
Malaria	23	Lymphangitis	1
Influenza	13	Bronchitis	4
Dysentery	2	Tonsillitis	5
Hæmorrhoids	1	Parturition	6
Appendicitis	6	Injuries	3

No death occurred. The daily average in hospital was 2.05 as compared with 1.41 in 1930 and 1.26 in 1929.

(b) Asiatic and Native Hospital.

The patients admitted to this hospital during the year numbered 1,587, consisting of 197 Arabs, 223 other Asiatics and 1,167 Africans with a daily average in hospital of 80.33. During 1930 the admissions numbered 1,612, consisting of 129 Arabs, 209 other Asiatics and 1,274 Africans, with a daily average of 73.26. There was therefore some decrease in the number of admissions, but a considerable increase in the daily average in hospital.

The decrease in admissions was due to the occupation of beds for long periods by tuberculosis patients. All beds in the African wards were constantly occupied throughout the year and although accommodation was always found for any acute cases this was only possible by improvising additional beds in the wards or on the verandahs. Of patients suffering from less urgent conditions there was invariably a long list awaiting admission, and unless further accommodation is provided the position will soon arise that no amount of over-crowding will enable beds to be found for even cases of the greatest urgency.

The following were the more important causes of admission and death:—

	Cases.	Deaths.		Cases.	Deaths.
Typhoid Fever	...	3	Cancer	...	9
Malaria	...	74	Other tumours	...	13
Blackwater Fever	...	2	Meningitis	...	5
Influenza	...	38	Apoplexy	...	3
Dysentery	...	12	Heart disease	...	26
Tetanus	...	4	Hæmorrhoids	...	47
Tuberculosis	...	45	Lymphadenitis	...	31
Syphilis	...	16	Bronchitis	...	29
Gonorrhoea	...	9	Broncho-pneumonia	...	2
Filariasis	...	10			

	Cases.	Deaths.		Cases.	Deaths.
Pneumonia	... 47	14	Uterine fibroid	... 15	—
Pleurisy	... 19	—	Parturition	... 22	3
Gastric ulcer	... 1	1	Gangrene	... 10	5
Duodenal ulcer	... 10	3	Abscess	... 34	2
Ankylostomiasis	... 32	1	Elephantiasis	... 47	2
Appendicitis	... 11	2	Diseases of bones	... 12	2
Hernia	... 187	4	Burns	... 15	6
Nephritis	... 9	5	Fractures	... 31	7
Hydrocele	... 137	3	Other injuries	... 91	3
Ovarian cyst	... 8	3			

2. MKOKOTONI AND SELEM HOSPITALS.

Native Dispensers were in charge of these hospitals throughout the year, the Medical Officer in charge of the District Dispensary Service making visits each week and at other times as required. As far as possible all serious cases are removed to the Zanzibar Town Hospital. The following is a summary of the work done at Mkokotoni as compared with the two previous years:—

	1929	1930	1931
In-patients	... 75	49	125
Daily average	... 3.6	2.89	4.46
Out-patients, new cases	... 2,579	2,669	2,723
Out-patients, re-attendances	... 3,922	3,119	3,226
Minor operations	... 73	51	47
Injections	... —	338	368
Vaccinations	... —	1,339	1,417

At Selem there were 67 in-patients (daily average 1.57), 4,451 out-patients, 7,390 re-attendances, 121 injections and 229 vaccinations.

3. CHAKE CHAKE AND MKOANI HOSPITALS.

Dr. McCarthy was in charge of the two hospitals until March and Dr. Freeth from March to July. From July Dr. Young took over charge of Chake Chake and Dr. Pitchford of Mkoani. In addition to the Medical Officer, the medical staff consisted of a Nursing Sister, a Sub-Assistant Surgeon and a Dispenser at Chake Chake and a Sub-Assistant Surgeon at Mkoani. The Medical Officers had also under their control seven district dispensaries and all the sanitation duties connected with Chake Chake and Mkoani townships and districts.

The following is a summary of the work performed in connexion with the hospitals and dispensaries as compared with the two previous years:—

	1929	1930	1931
Out-patients, new cases, Chake Chake	... 12,263	13,064	12,831
Out-patients, new cases, Mkoani	... 6,081	5,315	6,653
Out-patients, new cases, Districts	... 10,988	9,155	11,096
Out-patients, re attendances	... 46,215	39,180	50,797
Out-patients, total attendances	... 75,547	66,714	81,377
In-patients, Chake Chake	... 531	544	543
In-patients, Mkoani	... 175	148	236
Operations (major) Chake Chake	... 169	227	166
Operations (minor) Chake Chake	... 499	626	611
Operations (major) Mkoani	... —	—	22
Operations (minor) Mkoani	... 576	329	608
Injections, Chake Chake	... 2,989	3,128	3,421
Injections, Mkoani	... 1,100	599	347
Vaccinations, Chake Chake	... 779	20,241	1,995
Vaccinations, Mkoani	... 518	2,083	1,943
Laboratory Examinations, Chake Chake	1,006	839	1,393

The average daily number in Chake Chake Hospital was 23.72 as compared with 23.07 in 1930 and 22.96 in 1929. The more important causes of admission and death were as follows:—

	Cases.	Deaths.		Cases.	Deaths.
Malaria	... 20	—	Ankylostomiasis	... 46	5
Blackwater	... 5	2	Hernia	... 30	—
Influenza	... 23	1	Nephritis	... 12	1
Mumps	... 7	—	Schistosomiasis	... 3	1
Dysentery	... 12	—	Hydrocele	... 33	—
Tuberculosis	... 10	3	Parturition	... 8	—
Filariasis	... 8	—	Abscess	... 16	—
Cancer	... 3	—	Cellulitis	... 19	—
Heart Disease	... 4	3	Ulcers	... 37	1
Bronchitis	... 7	3	Elephantiasis	... 8	2
Pneumonia	... 13	3	Diseases of Bones	... 2	1
Broncho-pneumonia	... 35	11	Fractures	... 10	2
Pleurisy	... 3	1	Other Injuries	... 36	3

Among the major operations performed were hæmorrhoids 3, hernia 30 (radical cure 27, strangulated 3), hydrocele, radical cure 33 cystotomy 2, elephantiasis 11, orchidectomy 4, colpoperinæorrhaphy 2, amputations 2, cataract 4.

At Mkoani, the average daily number in hospital was 7.72 as compared with 2.5 in the previous year. The more important causes of admission and death were:—

	Cases.	Deaths.		Cases.	Deaths.
Malaria	... 14	—	Pleurisy	... 2	1
Blackwater	... 1	—	Ankylostomiasis	... 24	1
Tuberculosis	... 6	—	Hepatitis	... 1	1
Heart Disease	... 4	1	Ulcers	... 23	1
Broncho-pneumonia	... 1	1	Fractures	... 6	—
Pneumonia	... 6	3	Other Injuries	... 11	—

Additional hospital accommodation is urgently required for the population of 24,000 residing in this district. During the latter part of the year, while a Medical Officer was stationed at Mkoani, accommodation for only the most urgent cases could be provided and for most of these it was necessary to erect temporary structures in the hospital compound.

4. WETE HOSPITAL.

Dr. Semple was in charge of this hospital throughout the year. In addition to the Medical Officer, the medical staff consisted of a Nursing Sister, a Sub-Assistant Surgeon for 6½ months and a Dispenser for five and a half months. The Medical Officer had also under his control the Funzi Island Leper Settlement, three district dispensaries and all sanitation duties connected with Wete township and district.

The following is a summary of the work performed in connexion with the hospital and dispensaries as compared with the two previous years:—

	1929	1930	1931
Out patients, new cases, Wete	... 6,306	4,634	6,040
Out-patients, new cases, District	... 8,590	7,446	6,423
Out-patients, re-attendances	... 25,061	21,512	22,301
Out-patients, total attendances	... 39,957	33,592	34,764
In-patients	... 531	447	554
Operations (major)	... 172	116	81
Operations (minor)	... 702	477	329
Injections	... 581	610	650
Laboratory examinations	... 930	1,271	1,274
Vaccinations	... 1,307	37,044	3,251

The average daily number in hospital was 20.8 as compared with 17.48 in 1930 and 18.5 in 1929. The more important causes of admission and death were as follows:—

	Cases.	Deaths.		Cases.	Deaths.
Influenza	... 12	—	Ankylostomiasis	... 26	—
Malaria	... 20	—	Hernia	... 23	1
Tuberculosis	... 13	3	Nephritis	... 7	—
Cancer	... 4	1	Hydrocele	... 34	2
Filariasis	... 9	—	Parturition	... 6	—
Bronchitis	... 18	—	Abscess	... 30	—
Broncho-pneumonia	... 1	—	Elephantiasis	... 4	1
Pneumonia	... 42	8	Fractures	... 15	4
Pleurisy	... 5	—	Other Injuries	... 60	—

Among the major operations performed were appendicectomy 4, hæmorrhoids 10, hernia 15, (radical cure 13, strangulated 2) hydrocele, radical cure 31, elephantiasis 2, amputations 2.

Seven non-European officials of whom one died were admitted into this hospital as compared with three admissions in the previous year.

(C) OPERATIONS.

The following are the more important operations performed at all hospitals during 1931:—

1. <i>Thoracic</i> —		6. <i>Gynaecological</i> —	
Empyæma	8	Salpingectomy	11
Thoracotomy	1	Ovariectomy	13
Abscess of Lung	2	Myomectomy	3
2. <i>Abdominal</i> —		Hysterectomy	12
Appendicectomy	28	Colpo-perinæorrhaphy	4
Laparotomy	16	7. <i>Bones and Joints</i> —	
Castro-jejunostomy	8	Amputations	12
Acute Obstruction	1	Sequestrectomy	22
Cholecystectomy	1	Compound Fractures	9
Colostomy	1	Arthrotomy	4
Talma-Morrison	1	Osteotomy	2
Intussusception	1	Resection of Jaw	1
Splenectomy	2	Bone Grafts	2
3. <i>Rectal</i> —		8. <i>Eye</i> —	
Hæmorrhoids	61	Cataract	16
Prolapse	3	Iridectomy	2
Stricture	1	Enucleation	1
4. <i>Hernia</i> —		Trephining	1
Radical Cure	215	9. <i>Other Operations</i> —	
Strangulated	14	Adenectomies	25
5. <i>Genito-Urinary</i> —		Tumours and Cysts	53
Hydrocele, radical cure	225	Tonsillectomy	20
Elephantiasis	53	Cellulitis	90
Orchidectomy	37	Fistulæ	9
External Urethrotomy	14	Mastoid	2
Varicocele	6	Antrum, radical	1
Prostatectomy	6	Decompression of Brain	2
Cystotomy	6	Removal of Foreign Body	
Hæmatocele	8	under X-ray	6
Funiculitis	7	Tenoplasty	2
Lithotrity	2	Aneurysm	1
Partial Cystectomy	1	Skin Graft	2
		Plastic	1

(D) MEDICAL BOARDS AND EXAMINATIONS.

Medical Boards were held on 41 Government employees during the past year and one European and seven non-European Officials were permanently invalided out of the service. Medical examinations of candidates for Government employment numbered 102 and of officials prior to proceeding on leave 119.

(E) X-RAY EXAMINATIONS.

During the year 11 screen examinations were made and 707 photographs, including 45 barium meals, were taken. The thanks of the department are again due to the Director of Electricity and Wireless and to Mr. Roberts, Assistant Electrical Engineer, for their assistance.

(F) DENTAL SERVICE.

The financial position precluded the appointment of a whole-time Dental Surgeon. The arrangement with the Tanganyika Territory Government was therefore continued, and Captain A. S. Newton, the Dental Surgeon, paid two visits each of four weeks duration during the year. His report is included as Appendix V page 76.

(G) EYE CLINIC.

Dr. Watkins-Pitchford continued in charge until July. From this month until the end of the year no Medical Officer was available and a Sub-Assistant Surgeon attended at certain hours each day. The new cases attending numbered 1,383 and there were 15,720 re-attendances. The more common conditions treated were conjunctivitis 467, keratitis 181, cataract 114, refractive errors 98, iritis 75, optic atrophy 43, trachoma 32, foreign bodies and injuries 41, styne 32, glaucoma 23, blepharitis 23, pterygium 21, optic neuritis 19.

(H) TUBERCULOSIS CLINIC.

This clinic was opened on the 23rd of March with Dr. J. J. I. Phelan, Tuberculosis Specialist, in charge. The objects aimed at were to get into touch with as many cases of tuberculosis as possible, institute any treatment and preventive measures practicable and provide data to assist Dr. Matthews, Medical Research Council Scholar, in the investigation he was undertaking into the epidemiology of the disease in the Protectorate. At first an attempt was made to deal with all and sundry presenting themselves at the clinic, but the attendances, chiefly consisting of persons with no evidence of tuberculosis, soon became so large that it was necessary to limit examination to those referred by medical practitioners or hospitals and dispensaries. In addition to these however a large number of hospital patients, school children, prisoners, inmates of the Poor House and patients attending the dispensaries in both islands were examined, and in all 291 cases of tuberculosis were diagnosed by Dr. Phelan from the date of opening the clinic to the end of the year. Of these 201 resided in Zanzibar Township, 54 in Zanzibar Districts and 30 in Pemba. Six had recently arrived in the Protectorate from India or the mainland. Among the Zanzibar Town cases were included six prisoners and nine members of the police force. Inadequate hospital accommodation presented a great difficulty in providing satisfactory treatment. Only a few beds could be made available at the general hospitals. More could be accommodated at the Poor House, but practically only paupers with no relatives were willing to go there,

and, for the greater number of those unable to attend the clinic regularly, the best that could be done was to arrange for treatment in their own homes by private practitioners or through charitable dispensaries and the Home Treatment Service. The returns at the end of the year show that of the 291 diagnosed cases, 66 had ended fatally, 29 had left the Protectorate and 17, probably most of whom were also dead, had been lost trace of. Of the remaining 179, a considerable number showed definite improvement and it is hoped that many of these will make a complete recovery. Although the results fall far short of those attainable with hospital treatment, there is no doubt that many cures have been effected and that many lives have been prolonged and made less distressing by the provision of palliatives and necessities. It must moreover be borne in mind that many of the cases when first seen were in the last stages of the disease and that no form of treatment could have offered any prospect of recovery.

It is also hoped that much in the way of prevention has been achieved. Several hundreds of persons have been immunised and among those who completed the full course were 76 house contacts of sputum positive cases, 109 house contacts of sputum negative cases, 200 school children, 120 prisoners and 30 members of the police force. Many, especially at first, failed to complete the full immunisation course of six injections, but experience enabled steps to be taken to ensure more regular attendance in the later months of the year. The provision of disinfectants and the isolation when possible of the more infectious cases should also do something towards preventing the spread of the disease.

(I) INFECTIOUS DISEASES HOSPITAL, GULIONI, ZANZIBAR.

Returns for 1931.

	Remaining from 1930.	Admitted during 1931.	Total.	Died.	Discharged.	Remaining end of 1931.	Remarks.
<i>Cases :</i>							
Small-pox	...	2	2	†1	*1	...	*Ex. S. S. <i>Ellora</i> †Local
Chicken-pox	...	8	8	...	8	...	Local
Leprosy	3	7	10	...	†10	...	{ 2 Walezo Poor House 3 Funzi Leper Asylum 5 placed on parole
Mumps	...	11	11	...	11	...	Local
Suspected Small-pox	...	1	1	...	1	...	Local
Total	3	29	32	1	31	...	
<i>Contacts :</i>							
Small-pox	...	3	3	...	*3	...	{ *2 Ex. S. S. <i>Ellora</i> 1 Local
Cerebro-spinal Fever	...	12	12	...	12	...	Local
Total	...	15	15	...	15	...	
Grand Total	3	44	47	1	46	...	

(J) BUILDINGS.

	Rs.
<i>New Buildings.</i>	
Quarantine Island	... 18,447
<i>Additions and repairs.</i>	
Administrative Offices	... 1,122
European Hospital	... 1,180
Native Hospital	... 918
Sisters' Quarters	... 108
Police Lines Hospital	... 171
Prison Hospital	... 303
Infectious Disease Hospital	... 292
Lunatic Asylum	... 9
Mwembeladu Dispensary	... 5
Mkokotoni Dispensary	... 95
Poor House	... 73
Wete Hospital	... 532
Chake Chake Hospital	... 309
Mkoani Hospital	... 1,987
Leper Settlement	... 1,629
	Rs. 27,180

VII. PRISONS AND ASYLUMS.

(A) PRISONS.

The following is a summary of the more important returns:—

	Zanzibar and Chwaka	Mkokotoni	Chake- Chake	Wete	Mkoani	Total
No. of prisoners remaining end of 1930	147	4	10	25	19	205
No. admitted during 1931	566	104	131	203	146	1150
No. discharged during 1931	563	99	129	209	147	1147
No. released on medical grounds during 1931	5	...	...	...	...	5
No. died during 1931	14	...	...	1	...	15
No. remaining in prison end of 1931	131	9	12	18	18	188
Average daily number in prison during 1931	154.92	10.66	12.27	16.46	14.35	208.66
No. of illnesses treated during 1931	1386	54	74	115	219	1848
No. admitted to Hospital during 1931	199	27	5	22	24	277

The causes of death and release on medical grounds were as follows:—

Death.—Dysentery 3, pulmonary tuberculosis 1, cerebral hæmorrhage 1, pneumonia 1, tertiary syphilis 1, general debility 3, toxæmia 1, myocarditis 1, leprosy 1, and two deaths from exhaustion following acute mania prior to certification as lunatics.

Release.—Pulmonary tuberculosis 2, dysentery 2, general debility 1.

The more common or important illnesses occurring among prisoners were malaria 209, influenza 51, dysentery 57, tuberculosis 9, conjunctivitis 37, bronchitis 125, pneumonia 2, ankylostomiasis 47, hernia 16, injuries 282. All but one of the cases of dysentery occurred at the Zanzibar Central Prison (*see* D.D.S.S.'s report).

(B) LUNATIC ASYLUM.

Summary for the year 1931:—

	Males.	Females.	Total.
Patients remaining 31st December, 1930	19	9	28
Patients admitted during 1931	12	6	18
Patients discharged cured	5	1	6
Patients discharged to care of relatives	1	—	1
Patients died	11	3	14
Patients remaining 31st December, 1931	14	11	25

Variety of alienation:—

	Remaining from 1930.	Admitted.	Discharged.	Died.	Remaining end of 1931.
Melancholia	8	1	1	1	7
Mania	8	12	5	7	8
General paralysis	1	—	—	1	—
Epileptic	1	—	—	—	1
Senile dementia	10	5	1	5	9
Total	28	18	7	14	25

Causes of death:—

	M.	F.
General Debility	5	1
Myocarditis	1	1
Exhaustion	1	—
Senility	1	—
Pneumonia	1	—
Septicæmia	1	—
Hemiplegia	1	—
Dysentery	1	—

The accommodation remains as described in previous reports.

(C) POOR ASYLUM.

The arrangement with the Roman Catholic Mission was continued during the year, and the inmates were cared for by the Sisters with the same skill and sympathy as heretofore. Towards the end of the year the erection of a temporary structure to provide additional accommodation for tuberculosis cases was completed. The following is the return of inmates for the year:—

	Males.	Females.	Total.
Patients remaining on 31st December, 1930	... 79	49	128.
Patients admitted during 1931	... 308	122	430
Patients died during 1931	... 120	61	181
Patients discharged during 1931	... 174	62	236
Patients remaining at the end of 1931	... 93	48	141

The principal causes of death were returned as senility and debility 108, tuberculosis 33, paralysis 18, nephritis 9, ankylostomiasis 7.

Included among the inmates are several "burnt out" or non-infective cases of leprosy. Most of these have been at the leper settlement for several years and have lost touch with their families and friends. Huts are provided for them and land for any willing and able to do any cultivation. No restraint of any kind is exercised on their movements. They are provided with all necessities, when ill are carefully nursed by the Sisters and live a contented and cheerful existence.

As in previous years a large number of natives living in the neighbourhood of the Poor House attended the dispensary as out-patients, the number of new cases numbering 5,431 last year and the re-attendances 14,466.

Almost daily visits were paid by a Medical Officer or Sub-Assistant Surgeon.

(D) LEPER SETTLEMENT.

(See Appendix II page 70).

VIII. METEOROLOGY.

A summary of the more important meteorological returns for the past year and a comparison with the means for previous years is contained in Table IV on page 60. From these it will be seen that in Zanzibar Town the rainfall was 11 inches above the average taken over a period of 39 years and at Banani in Pemba almost 10 inches

above an average taken over 32 years. In 1930 the rainfall was six inches above the average in Zanzibar and 15 inches below the average in Pemba, resulting in a greatly increased incidence of malaria and other mosquito-borne diseases with their sequelæ in the former island and a decreased incidence in the latter. The abnormally heavy rainfall in both islands during 1931 is also reflected in the medical returns and not only has there been an increase in mosquito-borne diseases and their sequelæ but also in respiratory diseases of all kinds.

The greatest rainfall occurred in Zanzibar Town during the months of February, 10.93 inches, April 14.35 inches, May 19.42 inches and at Banani in Pemba during April 12.72 inches, and May 35.38 inches. The greatest rainfall on any one day was 4.30 inches on the 6th of May in Zanzibar and 4.75 inches on the 19th of May in Pemba. The absolute maximum temperature was recorded as 93.5° in Zanzibar on the 21st of February and as 94.0° in Pemba on the 4th of March; the absolute minimum as 72.2° on the 10th of September in Zanzibar and as on the 71.5° on the 14th of August in Pemba. In Zanzibar Town the means for the year were maxima temperatures 85°, minima temperatures 77.2°, barometric pressures 30.125°, dew points 72.2° and relative humidities 75 per cent.

IX. SCIENTIFIC.

PATHOLOGICAL LABORATORY REPORT.

Throughout the year Dr. H. G. Wiltshire was in charge of the laboratory. The Senior Laboratory Assistant was on leave in India for the last three months, and the Junior Laboratory Assistant was seconded to the Tuberculosis Investigation Laboratory for the whole year.

Reference to the Tables will show that routine examinations of material derived mainly from the Zanzibar Hospital occupied the attention of the laboratory staff almost entirely.

The high proportion of malaria parasites of undefined type reported is due to films having been taken at a time when only very young ring forms were present. Gametocytes were rarely seen; thus, only three crescents were noted during the year.

Fractional test meals were for the first time undertaken and gave interesting results.

Blood Grouping in two cases was done for selection of a donor for transfusion in a case of Myelogenous Leukæmia: the other 25 cases were Boy Scouts who volunteered to act as donors in case of emergency.

The examination of specimens for *B. tetani* relates to the deaths of 11 lepers while undergoing treatment, and was the subject of a special report.

The medico-legal tests were made on knives, clothing, etc., submitted by the Police and included the precipitin test for human blood, for which a most satisfactory high titre serum was prepared in the laboratory.

Zanzibar Bacteriological Laboratory Return for the year 1931.

Miscellaneous examinations.	Pos.	Neg.	Total.	Pathological Material for Section.	Total.
Pus for gonococcus	55	80	135	Endothelioma	1
Pus for other organisms	11	Inflamed tissue	1
Smear for Sp. pallida	2	3	5	Fibroma	1
Nasal Smears for B. lepræ	15	38	53	Epithelioma	2
Throat Swabs for B. diphtheriæ	...	4	4	Bilharzia ova in cyst wall	1
Synovial fluid	1	Gumma of testis	1
Pleural fluid	1	T. B. glands of abdomen	1
Ascitic fluid	1	Inflamed cyst wall	1
Cerebro-spinal fluid	5	Chronic mastitis	1
Fractional Test meals	7	Spheroidal celled carcinoma	1
Skin scrapings for fungus	2	Chronic endometritis and erosion	1
Identification of pediculus ova	1	Scirrhus carcinoma	1
Identification of Blood Groups	27		
Spleen smears from rats for B. pestis	...	2,335	2,335		
Preparation of vaccines	8		
Bacteriological examination:—	1		
Condensed milk	5		
Fresh milk	72		
Water samples	1		
Examination of specimens for B. tetani	11		
Medico—legal laboratory tests			
			2,686		13

2. CHAKE CHAKE LABORATORY RETURN.

Blood Examinations Total. 680	Fæces Total. 526	Sputum Total. 83	Urine Total. 90	Skin and Nasal Examinations for M. lepræ, etc. Total - 14
<i>Malaria</i> B. T. 191	Ankylostoma	Positive T. B.	13	Positive M. lepræ 2
S. T. 55	Ascariis 3	Negative " "	40	Negative " 6
Mixed 18	Amœbic Cyst 3	Gen. Bact. 15	15	Other smear examinations 6
Undefined 37	Bilharzia 0	Gen. Hist. 15		
Negative 336	Trichuris 2			
Micro-filaria 2	Negative 96			
Differential Counts 41				

3. WETE LABORATORY RETURN.

Blood Examinations Total - 430	Urine Total - 126	Nasal Examinations for M. lepræ Total - 270	Sputum for T. B. Total - 47	Fæces Total - 401
<i>Malaria</i> S. T. 70	Sugar estimations 43	Positive 97	Negative 30	Ankylostoma 156
B. T. 15	Bilharzia 14	Negative 173	Positive 17	Ascariis 6
B. T. & S. T. ...	Rothera 25			E. histolytica 2
Microfilaria 3	Routine examinations 44			E. coli 1
Negative 225				Other examinations 236
Total 313				
Khan Tast 92				
Blood Sugar 25				

TABLE I.

A. EUROPEAN STAFF.

Name.	Rank and Appointment.	Where Stationed on 31st December, 1931.
J. A. Taylor	Director of Medical and Sanitary Services	Zanzibar
B. Spearman	Deputy Director of Sanitary Services	"
S. M. Vassallo	Resident Surgical Officer	"
J. M. Semple	Medical Officer	Wete
W. A. Young	" "	Chake Chake
A. C. Freeth	" "	Zanzibar
H. G. Wiltshire	" "	"
H. O. Watkins-Pitchford	" "	Mkoani
W. H. Smith	" "	Zanzibar
D. D. McCarthy	" "	On leave
R. Nicklin	" "	Zanzibar
T. C. Findlay	" "	"
J. J. I. Phelan	Temporary Medical Officer	"
Miss A. E. Davis	Matron	"
" M. A. McKie	Nursing Sister	"
" M. M. Richards	" "	"
" M. K. O'Shea	" "	"
" M. G. Miller	" "	On leave
" M. Cottier	" "	Wete
" A. M. Brewster	" "	Zanzibar
" M. E. Cleaver	" "	Chake Chake
" M. V. Jones	" "	Zanzibar
P. Cairns	Sanitary Superintendent	"
E. H. Lavers	Sanitary Inspector	Chake Chake

B. PRINCIPAL MEMBERS OF SUBORDINATE STAFF.

Name.	Rank.	Where Stationed on 31st December, 1931.
K. V. Joshi	Assistant Surgeon	Zanzibar
C. D. Rana	Sub-Assistant Surgeon	Chake Chake
M. L. Mehta	" "	Zanzibar
M. V. Vaidya	" "	Mkoani
R. C. Sood	" "	Zanzibar
Dipnanath Koura	" "	Wete
M. Y. Khan	" "	Zanzibar
S. B. Kulkarni	" "	"
J. F. de Cruz	Dispenser	"
A. J. Rawat	" "	"
M. da Silva	" "	Chake Chake
J. J. Antao	" "	Zanzibar
P. da Cunha	" "	"
P. S. Patel	" "	"
A. A. Madhani	Sanitary Inspector	"
A. G. Kark	Senior Laboratory Assistant	On leave
I. B. Martin	Chief Clerk	Zanzibar
F. X. F. Lobo	Cashier	"
S. B. P. Fernandes	Asst. Store-Keeper	"

C. APPOINTMENTS, CHANGES, Etc., IN STAFF.

Name.	Rank of Appointment.	Date.
APPOINTMENTS.		
(a) Europeans.		
J. J. I. Phelan	Medical Officer (Temporary)	31-1-31
Miss M. V. Jones	Nursing Sister	31-1-31
(b) Asiatics.		
S. B. Kulkarni	Sub-Assistant Surgeon	17-5-31
ACTING APPOINTMENTS.		
W. H. Smith	Medical Officer, as Acting Deputy Director of Sanitary Services	9-6-31 to 2-12-31
RETIREMENTS.		
(a) Asiatics.		
T. B. Dev	Sub-Assistant Surgeon	9-3-31
LEAVE.		
(a) Europeans.		
B. Spearman	Deputy Director of Sanitary Services	9-6-31 to 2-12-31
W. A. Young	Medical Officer	1-1-31 ,, 5-7-31
W. H. Smith	" "	1-1-31 ,, 24-4-31
M. M. Richards	Nursing Sister	1-6-31 ,, 20-12-31
M. G. Miller	" "	25-11-31 ,, 31-12-31
P. Cairns	Sanitary Superintendent	1-1-31 ,, 18-1-31
E. H. Lavers	Sanitary Inspector	12-1-31 ,, 13-8-31
(b) Asiatics.		
S. M. Khan	Veterinary Officer	1-1-31 ,, 17-5-31
K. V. Joshi	Assistant Surgeon	7-1-31 ,, 29-6-31
T. B. Dev	Sub-Assistant Surgeon	1-1-31 ,, 9-3-31
J. F. de Cruz	Dispenser	13-4-31 ,, 4-10-31
J. F. Rodrigues	Clerk	21-12-31 ,, 31-12-31
R. C. Viegas	" "	1-4-31 ,, 6-10-31
U. S. Dave	" "	26-10-31 ,, 31-12-31
A. B. Furtado	" "	28-9-31 ,, 31-12-31
A. G. Kark	Senior Laboratory Assistant	13-10-31 ,, 31-12-31
J. K. Gohel	Sanitary Inspector	22-7-31 ,, 29-11-31
INVALIDED.		
J. E. Harmston	Accountant and Storekeeper	13-6-31
OBITUARY.		
Asiatic.		
J. K. Gohel	Sanitary Inspector	29-11-31

TABLE II.

Financial.

(A) EXPENDITURE :—		
<i>Personal Emoluments :—</i>		£
Salaries and Allowances		39,231
<i>Other Charges :—</i>	£	
Books and Periodicals	37	
Staff Clothing and Uniforms	139	
Light and Power	488	
Fuel	120	
Incidental Expenses	29	
Subsistence of H. Patients	1,730	
Drugs and S. Requisites	2,213	
Fuel for Motor Boat	42	
Subsistence of Lepers	728	
Passages	1,886	
Purchase of Opium	78	
Transport Allowances	299	
Travelling Allowances	50	
Transport Expenses	466	
Fuel for Motor Vehicles	74	
Repairs to T. Vehicles	213	
Burial of Destitutes	13	
General Stores	1,773	
<i>Special Expenditure :—</i>		10,378
Courses of Instruction to Staff	240	
Anti-endemic Measures	234	
Telephones and Fans	96	
Extension to X-ray Plant	367	
Tuberculosis Investigation and Treatment	2,053	
Electric Boilers	30	
Suppression of E. Disease	223	
Icy Ball Refrigerator	12	
Table Fans	11	
Furniture	6	
		3,272
	Total Expenditure	52,881
(B) REVENUE :—		
Hospital Fees, Sale of Drugs, etc.		1,592
Contribution from other dependencies towards Quarantine Services		2,637
		4,229

TABLE III.

(1) Summary of returns of census taken on the night of the 28th of March, 1931 :—

	Zanzibar Island.	Pemba Island.	Whole Protectorate.
Europeans	243	35	278
Arabs	11,475	21,921	33,396
Africans	113,153	73,318	186,471
British Indians	11,954	2,288	14,242
Portuguese Indians	889	115	1,004
Other Races	27	10	37
	<u>137,741</u>	<u>97,687</u>	<u>235,428</u>

(2) Summary of returns from date of census to end of 1931 :—

	Births.	Deaths.	Immi-grants.	Emmi-grants.	Increase.	Decrease.	Population end of 1931.
Europeans	3	3	691	705	—	14	264
Arabs and Africans	3,040	3,586	8,116	7,314	256	—	220,123
Indians and other Races	368	192	6,167	6,053	290	—	15,573
	<u>3,411</u>	<u>3,781</u>	<u>14,974</u>	<u>14,072</u>	<u>546</u>	<u>14</u>	<u>235,960</u>

(3) Births registered in the Island of Zanzibar, 1923-1931:—

	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.
Town Area	413	501	424	437	471	526	591	603	610
Northern District	785	1,064	1,073	846	1,102	916	960	820	1,656
Southern District	837	1,069	849	915	1,033	1,088	975	742	993
Totals	2,035	2,634	2,346	2,198	2,606	2,530	2,526	2,165	3,259

(4) Deaths registered in the Island of Zanzibar, 1923-1931:—

	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.
Town Area	1,258	1,043	1,379	1,560	1,097	1,093	920	1,117	1,179
Northern District	1,009	749	854	799	658	788	707	680	844
Southern District	1,187	1,040	1,146	1,473	1,170	1,240	1,083	1,191	1,369
Totals	3,454	2,832	3,379	3,832	2,925	3,121	2,710	2,988	3,392

(5) Comparative Statement of Births and Deaths registered in the Island of Zanzibar, 1923-1931:—

	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.
<i>Town Area—</i>									
Births	413	501	424	437	471	526	591	603	610
Deaths	1,258	1,043	1,379	1,560	1,097	1,093	920	1,117	1,179
<i>District—</i>									
Births	1,622	2,133	1,922	1,761	2,135	2,004	1,935	1,562	2,649
Deaths	2,196	1,789	2,000	2,272	1,828	2,028	1,790	1,871	2,213
<i>Total—</i>									
Births	2,035	2,634	2,346	2,198	2,606	2,530	2,526	2,165	3,259
Deaths	3,454	2,832	3,379	3,832	2,925	3,121	2,710	2,988	3,392

(6) Comparative Statement of Births and Deaths registered in the Island of Pemba, 1923-1931:—

<i>District :</i>	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.
<i>Chake Chake—</i>									
Births	485	565	860	689	1,047	693	648	690	592
Deaths	366	476	446	377	422	437	420	444	418
<i>Wete—</i>									
Births	350	376	419	517	699	628	459	381	474
Deaths	621	461	441	491	530	454	462	399	526
<i>Mkoani—</i>									
Births	319	340	749	426	406	385	571	405	340
Deaths	302	342	307	317	251	290	301	320	288
<i>Total—</i>									
Births	1,154	1,281	2,028	1,632	2,152	1,706	1,678	1,476	1,406
Deaths	1,289	1,279	1,194	1,185	1,203	1,181	1,183	1,163	1,232

(7) Comparative Statement of Births and Deaths registered in the Zanzibar Protectorate 1923-1931:—

	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.
<i>Zanzibar Island :</i>									
Births	2,035	2,634	2,346	2,198	2,606	2,530	2,526	2,165	3,259
Deaths	3,454	2,832	3,379	3,832	2,925	3,121	2,710	2,988	3,392
<i>Pemba Island :</i>									
Births	1,154	1,281	2,028	1,632	2,152	1,706	1,678	1,476	1,406
Deaths	1,289	1,279	1,194	1,185	1,203	1,181	1,183	1,163	1,232
<i>Total—</i>									
Births	3,189	3,915	4,374	3,830	4,758	4,236	4,204	3,641	4,665
Deaths	4,743	4,111	4,573	5,017	4,128	4,302	3,893	4,151	4,624
Excess of deaths over births	1,554	196	199	1,187	—	66	—	510	—
Excess of births over deaths	—	—	—	—	630	—	311	—	41

(8) Births in Zanzibar Township during the year 1931:—

(a) Total number—610.	
Births, live	610
Births, still-born	38
Total	648
(b) Sex of live births—	
Males	286
Females	324
Total	610
(c) Nationality of live births—	
Europeans	6
Arabs	59
Asiatics (excluding Arabs)	405
Africans	137
Other Communities	3
Total	610

(9) Deaths in Zanzibar Township during the year 1931:—

(a) Total number—1,179.	
(b) Sex—	
Male	612
Females	567
Total	1,179
(c) Nationality—	
Europeans	3
Arabs	97
Asiatics (excluding Arabs)	251
Africans	828
Total	1,179

(10) Return of Causes of Deaths in Zanzibar Town during 1931:—

I. <i>Epidemic, Endemic and Infectious Diseases:</i>		Rupture of Spleen	1
Typhoid	1	Alcoholism, chronic	1
Paratyphoid B.	1	Toxæmia	3
Malaria	86	III. <i>Affections of the Nervous System and Organs of the Senses:</i>	
Blackwater	2	Meningitis	4
Small-pox	1	Encephalitis	3
Influenza	4	Apoplexy	31
Dysentery	9	Mental Alienation	15
Tetanus	3	Epilepsy	6
Tuberculosis, Pulmonary	56	Infantile Convulsions	37
Tuberculosis of Other Organs	1	Mastoiditis	1
Syphilis	6	IV. <i>Affections of the Circulatory System:</i>	
Gonorrhoea	1	Pericarditis	1
Septicæmia	3	Valvular Disease of Heart	13
Pyæmia	2	Myocarditis	19
Filariasis	4	Lymphangitis	1
II. <i>General Diseases not mentioned above:</i>		V. <i>Affections to the Respiratory System:</i>	
Cancer	8	Acute Bronchitis	9
Tumours (non-malignant)	2	Chronic Bronchitis	30
Acute Rheumatism	1	Broncho-pneumonia	36
Arthritis, chronic	2	Pneumonia	64
Beri-Beri	1	Abscess of Lungs	2
Rickets	2	Asthma	1
Diabetes	6		
Anæmia	2		

VI. <i>Diseases of the Digestive System :</i>		IX. <i>Affections of the Skin and Cellular Tissues :</i>	
Ulcer of the Stomach	1	Gangrene	4
Ulcer of the Duodenum	3	Abscess	2
Diarrhoea and Enteritis—		Cellulitis	2
Under two years	3	Elephantiasis	1
Diarrhoea and Enteritis—		X. <i>Diseases of Bones and Joints :</i>	
Two years and over	25	Osteo-myelitis	2
Gastro-enteritis	1	XI. <i>Malformations :</i>	
Ankylostomiasis	180	Spina-Bifida	1
Appendicitis	2	Meningocele	1
Hernia	8	XII. <i>Diseases of Infancy :</i>	
Intestinal Hæmorrhage	1	Congenital Debility	13
Intestinal Obstruction	5	Premature Birth	6
Cirrhosis of the Liver	3	Asphyxia Neonatorum	1
Hepatitis	2	XIII. <i>Affections of Old Age :</i>	
Peritonitis	3	Senility	327
VII. <i>Diseases of the Genito-Urinary System (Non-venereal) :</i>		Senile Dementia	2
Acute Nephritis	8	XIV. <i>Affections Produced by External Causes :</i>	
Chronic Nephritis	11	Suicide by Poisoning	2
Pyelitis	1	Suicide by Strangulation	1
Cystitis	2	Burns	6
Uræmia	5	Poisoning (accidental)	1
Prostatitis	2	Strangulation (accidental)	1
Hydrocele	3	Drowning (accidental)	1
Ovarian Cysts and Tumours	3	Murder	2
Salpingitis	1	Fractures	9
Fistulæ	2	External Injuries	4
Urethritis	1	XV. <i>Ill-defined Diseases :</i>	
VIII. <i>Puerperal State :</i>		Ascites	1
Ante-partum hæmorrhage	2	Oedema	2
Delayed Labour	3	Post-operative Shock	4
Puerperal Hæmorrhage	4	Hyperpyrexia	6
Septicæmia	1	General Debility	6
Eclampsia	3		1,179

TABLE IV.

Meteorological Return.

The following is a brief summary of the more important meteorological returns available for the past year, compared with the means for the years 1892-1930 in the case of Zanzibar and the means for the years 1899-1930 in the case of Pemba.

	Zanzibar (Town).		Pemba (Banani).	
	1892-1930.	1931.	1899-1930.	1931.
Mean of daily maxima	84.5	85.0	86.5	87.4
Mean of daily minima	76.5	77.2	76.3	77.0
Mean of daily range	8.0	7.8	10.2	10.4
Mean	80.5	81.1	81.4	82.2
Rainfall	60.7	71.78	79.5	89.44
Rainy days	104	132	163	192

TABLES V. AND VI.

Return of Diseases and Deaths (In-Patients) and of Diseases (Out-Patients) for the year 1931.

Diseases.	In-patients.					Out-patients.		
	Remaining in Hospital at the end of 1930.	Yearly Total.		Total Cases Treated.	Remaining in Hospital at the end of 1931.	Males.	Females.	Total.
		Admitted.	Deaths.					
I. EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES.								
1 Enteric Group—								
(a) Typhoid Fever .. ..	..	3	..	3	1	3	1	4
(b) Paratyphoid A .. ..	..	1	..	1	..	1	..	1
(c) Paratyphoid B .. ..	..	1	1	1	..	1	..	1
(d) Type not defined .. ..	..	1	1	1	..	1	..	1
2 Typhus .. ..	..	..	..	..	..	..	..	..
3 Relapsing Fever .. ..	..	..	..	..	..	..	..	..
4 Undulant Fever .. ..	..	..	..	..	..	1	1	2
5 Malaria—								
(a) Tertian	2	88	1	90	..	968	225	1,193
(b) Quartan .. ..	..	..	..	..	..	11	3	14
(c) Aestivo-autumnal .. ..	..	34	2	34	..	276	87	363
(d) Cachexia	2	15	..	17	2	240	107	347
(e) Blackwater .. ..	..	8	3	8	..	8	1	9
(f) Type not defined .. ..	..	73	..	73	..	5,578	2,642	8,220
6 Small-pox .. ..	..	4	1	4	..	6	7	13
7 Measles .. ..	..	1	..	1	..	8	1	9
8 Scarlet Fever .. ..	..	..	..	..	..	..	..	..
9 Whooping Cough .. ..	..	..	..	..	..	59	39	98
10 Diphtheria .. ..	..	..	..	..	..	..	..	..
11 Influenza	2	126	2	128	..	1,817	371	2,188
12 Miliary Fever .. ..	..	..	..	..	..	..	..	..
13 Mumps .. ..	..	26	..	26	1	494	155	649
14 Cholera .. ..	..	..	..	..	..	..	..	..
15 Epidemic diarrhoea .. ..	..	..	..	..	..	..	..	..
16 Dysentery—								
(a) Amoebic .. ..	..	5	..	5	..	4	1	5
(b) Bacillary	1	82	5	83	1	37	7	94
(c) Undefined or due to other causes	4	13	1	17	2	41	11	52
17 Plague .. ..	..	..	..	..	..	..	..	..
18 Yellow Fever .. ..	..	..	..	..	..	..	..	..
19 Spirochaetosis ictero-hæmorrhagica .. ..	..	..	..	..	..	..	..	..
20 Leprosy	22	42	2	64	33	34	10	44
21 Erysip-las .. ..	..	..	..	..	..	3	..	3
22 Acute Poliomyelitis .. ..	..	..	..	..	..	..	..	..
23 Encephalitis Lethargica .. ..	..	..	..	..	..	..	..	..
24 Epidemic Cerebro-s p i n a l Fever .. ..	..	1	..	1	..	1	..	1
25 Other Epidemic Diseases—								
(a) Rubella (German Measles) .. ..	..	..	..	..	..	..	1	1
(b) Varicella (Chicken-pox). .. ..	..	11	..	11	..	12	..	12
(c) Kala-azar .. ..	..	..	..	..	..	..	..	..
(d) Phlebotomus Fever .. ..	..	..	..	..	..	..	..	..
(e) Dengue .. ..	..	1	..	1	..	1	..	1
(f) Epidemic Dropsy .. ..	..	..	..	..	..	..	..	..
(g) Yaws .. ..	..	22	..	22	..	3,123	1,536	4,659
(h) Trypanosomiasis .. ..	..	..	..	..	..	..	..	..
Carried forward	33	558	19	591	40	12,778	5,206	17,984

TABLES V. AND VI.—(Continued.)

Diseases.	In-patients.					Out-patients.		
	Remaining in Hospital at the end of 1930.	Yearly Total		Total Cases Treated.	Remaining in Hospital at the end of 1931.	Males.	Females.	Total.
Admitted	Deaths.							
Brought forward ..	33	558	19	591	40	12,778	5,206	17,984
I. EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES—(Contd.).								
26 Glanders .. ..	..	..	..	..	..	..	..	..
27 Anthrax .. ..	..	..	..	..	..	..	..	..
28 Rabies .. ..	..	..	..	..	..	..	..	..
29 Tetanus .. ..	..	4	3	4	..	6	1	7
30 Mycosis .. ..	..	..	..	..	..	..	..	..
31 Tuberculosis, Pulmonary and Laryngeal	9	142	44	151	19	403	103	506
32 Tuberculosis of the Meninges or Central Nervous System .. ..	..	1	..	1	7	1	..	1
33 Tuberculosis of the Intestines or Peritoneum .. ..	..	1	1	1	..	1	..	1
34 Tuberculosis of the Vertebral Column .. ..	..	3	..	3	..	2	2	4
35 Tuberculosis of Bones and Joints	1	3	..	4	..	4	..	4
36 Tuberculosis of other Organs—								
(a) Skin or Subcutaneous Tissue (Lupus) .. ..	..	..	..	..	..	4	1	5
(b) Lymphatic system	1	5	..	6	1	10	6	16
(c) Genito-urinary System .. ..	..	..	..	..	..	..	..	..
(d) Other organs .. ..	..	..	..	..	..	1	..	1
37 Tuberculosis disseminated—								
(a) Acute .. ..	..	..	..	..	..	..	..	..
(b) Chronic .. ..	..	..	..	..	..	..	..	..
38 Syphilis—								
(a) Primary .. ..	..	5	..	5	..	129	28	157
(b) Secondary .. ..	..	5	..	5	1	75	49	124
(c) Tertiary	1	20	3	21	1	106	33	139
(d) Hereditary .. ..	..	..	..	..	..	..	..	..
(e) Period not indicated .. ..	..	1	..	1	..	6	2	8
39 Soft Chancre .. ..	..	6	..	6	2	52	6	58
40 A.—Gonorrhœa and its complications	2	23	2	25	1	1,484	165	1,649
B.—Gonorrhœal Ophthalmia .. ..	..	5	..	5	..	6	2	8
C.—Gonorrhœal Arthritis .. ..	..	12	..	12	1	63	14	77
D.—Granuloma Venereum .. ..	..	..	..	..	..	..	..	..
41 Septicæmia	1	8	2	9	..	15	1	16
42 Other Infectious Diseases—								
Filariasis	7	45	..	52	2	181	37	218
II. GENERAL DISEASES NOT MENTIONED ABOVE.								
43 Cancer or other malignant Tumours of the Buccal Cavity	1	5	2	6	..	4	1	5
44 Cancer or other malignant Tumours of the Stomach or Liver	1	..	..	1	..	3	1	4
45 Cancer or other malignant Tumours of the Peritoneum, Intestines and Rectum .. ..	..	1	..	1	..	1	..	1
Carried forward ..	57	853	76	910	75	15,335	5,658	20,993

TABLES V. AND VI.—(Continued.)

Diseases.	In-patients.					Out-patients.		
	Remaining in Hospital at the end of 1930.	Yearly Total		Total Cases Treated.	Remaining in Hospital at the end of 1931.	Males.	Females.	Total.
		Admitted.	Deaths.					
Brought forward ..	57	853	76	910	75	15,335	5,658	20,993
II. GENERAL DISEASES NOT MENTIONED ABOVE—(Continued).								
46 Cancer or other malignant Tumours of the Female Genital Organs ..	..	1	..	1	..	..	2	2
47 Cancer or other malignant Tumours of the Breast ..	..	1	..	1	1	..	2	2
48 Cancer or other malignant Tumours of the Skin ..	2	..	1	2	..	..	..	..
49 Cancer or other malignant Tumours of organs not specified ..	..	12	1	12	..	6	6	12
50 Tumours non-Malignant ..	4	18	1	22	..	67	24	91
51 Acute Rheumatism ..	..	3	..	3	..	12	2	14
52 Chronic Rheumatism ..	..	11	..	11	..	673	353	1,026
53 Scurvy (including Barlow's Disease) ..	..	..	..	..	..	..	..	..
54 Pellagra ..	..	..	..	..	..	1	..	1
55 Beri-Beri ..	..	8	..	8	2	14	6	20
56 Rickets ..	..	..	..	..	..	2	2	4
57 Diabetes (not including Insipidus) ..	1	1	..	2	..	19	4	23
58 Anæmia ..	..	..	..	..	..	320	315	635
59 Diseases of the Pituitary Body ..	..	..	..	..	..	..	..	..
60 Diseases of the Thyroid Gland—								
(a) Exophthalmic Goitre ..	..	..	..	..	..	1	1	2
(b) Other Diseases of the Thyroid Gland, Myxœdema ..	..	..	..	..	..	..	7	7
61 Diseases of the Para-Thyroid Glands ..	..	..	..	..	..	..	1	1
62 Diseases of the Thymus ..	..	..	..	..	..	..	..	..
63 Diseases of the Supra-Renal Glands ..	..	..	..	..	..	..	..	..
64 Diseases of the Spleen ..	..	6	1	5	..	241	172	413
65 Leukæmia ..	1	..	..	1	..	..	..	..
66 Alcoholism ..	..	..	..	..	..	..	..	..
67 Chronic poisoning by mineral Substances (lead, mercury, etc.) ..	..	..	..	..	..	..	..	..
68 Chronic poisoning by organic substances (Morphia, Cocaine, etc.) ..	..	..	..	..	..	..	..	..
69 Other General Diseases ..	..	12	1	12	1	15	6	21
III. AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES.								
70 Encephalitis (not including Encephalitis Lethargica)..	..	3	2	3	..	5	..	5
Carried forward ..	65	929	83	994	79	16,711	6,561	23,272

TABLES V. AND VI.—(Continued.)

Diseases.	In-patients.					Out-patients.		
	Remaining in Hospital at the end of 1930.	Yearly Total		Total Cases Treated.	Remaining in Hospital at the end of 1931.	Males.	Females.	Total.
Admitted.	Deaths.							
Brought forward ..	65	929	83	994	79	16,711	6,561	23,272
III. AFFECTION OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES—(Continued).								
71 Meningitis (not including Tuberculous Meningitis or Cerebro-Spinal Meningitis) ..	..	3	2	3	..	2	1	3
72 Locomotor Ataxia ..	..	4	..	4	..	17	3	20
73 Other Diseases of the Spinal Cord ..	5	25	..	30	3	29	15	44
74 Apoplexy—								
(a) Hæmorrhage ..	..	4	3	4	..	4	..	4
(b) Embolism ..	..	1	..	1	..	2	3	5
(c) Thrombosis ..	..	1	..	1	..	1	..	1
75 Paralysis—								
(a) Hemiplegia ..	2	11	..	13	..	33	17	50
(b) Other Paralysis ..	9	30	18	39	12	44	12	56
76 General Paralysis of the Insane ..	..	..	..	..	..	..	..	..
77 Other forms of Mental Alienation ..	2	3	1	5	..	15	6	21
78 Epilepsy ..	1	5	1	6	..	12	1	13
79 Eclampsia, Convulsions (non-puerperal) 5 years or over.	..	..	..	..	..	..	..	..
80 Infantile Convulsions ..	..	..	..	..	..	3	..	3
81 Chorea ..	..	..	..	..	..	..	1	1
82 A.—Hysteria ..	..	2	..	2	..	1	2	3
B.—Neuritis ..	..	10	..	10	..	97	83	180
C.—Neurasthenia ..	..	4	..	4	..	23	3	26
83 Cerebral Softening ..	..	..	..	..	..	1	..	1
84 Other affections of the Nervous System ..	..	15	..	15	..	1,735	644	2,379
85 Affections of the Organs of Vision ..	9	90	..	99	3	3,739	1,681	5,420
86 Affections of the Ear or Mastoid Sinus ..	..	5	1	5	..	1,740	704	2,444
IV. AFFECTIONS OF THE CIRCULATORY SYSTEM.								
87 Pericarditis ..	..	1	1	1	..	1	1	2
88 Acute Endocarditis or Myocarditis ..	..	5	4	5	..	7	1	8
89 Angina Pectoris ..	..	1	..	1	..	3	..	3
90 Other Diseases of the Heart								
(a) Valvular—								
Mitral ..	..	12	4	12	..	26	12	38
Aortic ..	..	..	..	..	..	1	..	1
Tricuspid ..	..	..	..	..	..	..	..	..
Pulmonary ..	..	..	..	..	..	..	..	..
(b) Myocarditis ..	1	16	11	17	..	21	2	23
(c) Other Diseases ..	..	..	..	..	..	15	12	27
Carried forward ..	94	1,477	129	1,271	97	24,283	9,765	34,048

TABLES V. AND VI.—(Continued.)

Diseases.	In-patients.					Out-patients.		
	Remaining in Hospital at the end of 1930.	Yearly Total		Total Cases Treated.	Remaining in Hospital at the end of 1931.	Males.	Females.	Total.
Admitted.	Deaths.							
Brought forward ..	94	1,177	129	1,271	97	24,283	9,765	34,048
IV. AFFECTION OF THE CIRCULATORY SYSTEM—(Continued).								
91 Diseases of the Arteries—								
(a) Aneurism ..	..	1	..	1	..	1	..	1
(b) Arterio-Sclerosis ..	..	..	..	..	..	..	..	..
92 Embolism or Thrombosis (non-cerebral) ..	..	1	..	1	..	..	2	2
93 Diseases of the Veins—								
Hæmorrhoids ..	2	61	1	63	3	133	57	190
Varicose Veins ..	..	3	..	3	..	11	12	23
Phlebitis ..	..	..	..	..	..	5	3	8
94 Diseases of the Lymphatic System—								
Lymphangitis ..	..	6	..	6	..	176	41	217
Lymphadenitis, Bubo (non-specific) ..	4	56	..	60	4	366	26	392
95 Hæmorrhage of undetermined cause ..	..	..	..	..	..	8	..	8
96 Other affections of the Circulatory System ..	..	2	1	2	..	..	2	2
V. AFFECTIONS OF THE RESPIRATORY SYSTEM.								
97 Diseases of the Nasal Passages ..	..	7	..	7	..	1,692	383	2,075
98 Affections of the Larynx ..	..	..	..	..	..	..	..	..
Laryngitis ..	..	1	1	1	..	56	26	82
99 Bronchitis—								
(a) Acute ..	2	61	1	63	..	6,184	3,197	9,381
(b) Chronic ..	..	17	2	17	1	369	188	557
100 Broncho-Pneumonia ..	..	43	14	43	3	54	16	70
101 Pneumonia—								
(a) Lobar ..	5	106	26	111	8	174	30	204
(b) Unclassified ..	1	13	1	14	..	20	1	21
102 Pleurisy, Empyema ..	1	54	2	35	2	65	12	77
103 Congestion of the Lungs ..	..	..	..	..	..	2	..	2
104 Gangrene of the Lungs ..	..	..	..	..	..	..	..	..
105 Asthma ..	..	10	..	10	1	382	211	593
106 Pulmonary Emphysema ..	..	..	..	..	..	2	..	2
107 Other affections of the Lungs ..	..	7	2	7	..	20	3	23
VI. DISEASES OF THE DIGESTIVE SYSTEM.								
108 A.—Diseases of Teeth or Gums ..	..	13	13	13	..	3,996	1,716	5,712
B. Other affections of the Mouth ..	..	..	..	..	..	226	76	302
Carried forward ..	109	1,619	180	1,728	119	38,225	15,767	53,992

TABLES V. AND VI.—(Continued.)

Diseases.	In-patients.					Out-patients.		
	Remaining in Hospital at the end of 1930.	Yearly Total		Total Cases Treated.	Remaining in Hospital at the end of 1931.	Males.	Females.	Total.
Admitted.	Deaths.							
Brought forward ..	1.9	1,619	180	1,728	119	38,225	15,767	53,9. 2
VI. DISEASES OF THE DIGESTIVE SYSTEM—(Continued).								
109 Affections of the Pharynx or Tonsils ..	..	14	..	14	1	1,128	340	1,468
110 Affections of the Oesophagus ..	..	2	..	2	..	4	1	5
111 A.—Ulcer of the Stomach ..	..	2	1	2	..	3	1	4
B.—Ulcer of the Duodenum ..	..	10	3	10	5	16	..	16
112 Other affections of the Stomach—								
Gastritis ..	..	8	..	8	..	46	16	62
Dyspepsia, etc. ..	2	4	..	6	..	953	485	1,438
113 Diarrhoea and Enteritis—								
Under two years ..	..	5	2	5	..	159	57	216
114 Diarrhoea and Enteritis—								
Two years and over ..	..	69	3	69	4	1,750	547	2,297
114a Sprue ..	..	..	..	..	..	..	1	1
115 Ankylostomiasis ..	16	208	15	224	16	7,697	5,762	13,459
116 Diseases due to Intestinal Parasites—								
Cestoda (Tænia) ..	..	1	..	1	..	7	..	7
Nematoda (other than Ankylostoma)—								
Ascaris ..	..	..	..	..	..	331	273	604
Other parasites ..	..	2	..	2	..	8	2	10
117 Appendicitis ..	2	32	2	34	..	27	10	37
118 Hernia ..	14	234	5	248	16	440	12	452
119 A.—Affections of the Anus, Fistula, etc ..	..	14	2	14	..	33	14	47
119 B.—Other affections of the Intestines ..	..	7	4	7	1	9,390	5,599	14,989
120 Acute Yellow Atrophy of the Liver ..	..	..	..	..	..	..	..	..
121 Hydatid of the Liver ..	..	..	..	..	..	..	..	..
122 Cirrhosis of the Liver ..	1	6	3	7	..	7	5	12
123 Biliary Calculus ..	..	1	..	1	..	3	..	3
124 Other affections of the Liver—								
Abscess ..	..	..	..	..	..	1	..	1
Hepatitis ..	2	5	2	7	..	91	8	99
Cholecystitis ..	..	3	..	3	..	6	2	8
Jaundice ..	..	4	1	4	..	72	38	110
125 Diseases of the Pancreas ..	..	..	..	..	..	..	..	..
126 Peritonitis (of unknown cause) ..	..	2	2	2	..	3	..	3
127 Other affections of the Digestive System ..	..	5	2	5	..	13	6	19
Carried forward ..	146	2,257	227	2,403	160	60,413	28,946	89,359

TABLES V. AND VI.—(Continued.)

Diseases.	In-patients.					Out-patients.		
	Remaining in Hospital at the end of 1930.	Admitted.	Deaths.	Total Cases Treated.	Remaining in Hospital at the end of 1931.	Males.	Females.	Total.
Brought forward ..	146	2,257	227	2,403	160	60,413	28,946	89,359
VII. DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL).								
128 Acute Nephritis ..	..	13	3	13	1	30	45	75
129 Chronic Nephritis ..	4	28	12	32	..	51	30	81
130 A.—Chyluria ..	..	..	..	..	..	8	..	8
130 B.—Schistosomiasis ..	..	15	1	15	..	614	55	669
131 Other affections of the Kidneys ..	1	9	..	10	1	27	12	49
132 Urinary Calculus ..	..	4	..	4	..	5	..	5
133 Diseases of the Bladder ..	..	32	2	32	1	183	58	246
134 Diseases of the Urethra—								
(a) Stricture ..	1	16	1	17	1	97	..	97
(b) Other Diseases ..	2	20	..	22	1	76	..	76
135 Diseases of the Prostate ..	..	11	5	11	3	12	..	12
136 Diseases (non-Veneral) of the Genital Organs of Man ..	..	..	..	..	..	..	..	..
Epididymitis ..	..	9	..	9	1	60	..	60
Orchitis ..	1	43	2	44	1	488	..	488
Hydrocele ..	9	215	5	224	16	403	..	403
Ulcer of Penis ..	1	10	..	11	1	262	..	262
Phimosis ..	1	15	..	16	..	259	..	259
Para-phimosis ..	..	3	..	3	..	8	..	8
Other Diseases ..	..	5	..	5	..	28	..	28
137 Cysts or other non-malignant Tumours of the Ovaries ..	1	10	3	11	..	..	14	14
138 Salpingitis ..	1	18	1	19	2	..	49	49
139 Uterine Tumours (non-malignant) ..	1	19	1	20	1	..	73	73
140 Uterine Hæmorrhage (non-puerperal) ..	..	..	..	..	..	..	2	2
141 A.—Metritis ..	..	4	..	4	..	..	27	27
B.—Other affections of the Female Genital Organs ..	..	..	..	..	..	..	..	..
Displacement of Uterus ..	1	3	..	4	..	..	14	14
Amenorrhœa ..	..	..	..	..	..	..	175	175
Dysmenorrhœa ..	..	1	..	1	..	..	72	72
Leucorrhœa ..	..	..	..	..	..	..	22	22
Other affections ..	..	8	..	8	2	..	206	206
142 Diseases of the Breast (non-puerperal)—								
Mastitis ..	..	3	..	3	1	..	23	23
Abscess ..	..	..	..	..	..	..	47	47
VIII. PUERPERAL STATE.								
143 A.—Normal Labour ..	..	36	..	36	1	..	40	40
Delayed Labour ..	..	7	3	7	..	..	8	8
B.—Accidents of Pregnancy—								
(a) Abortion ..	..	6	..	6	..	..	14	14
(b) Fetopic Gestation ..	..	..	..	..	..	..	..	..
(c) Other accidents of Pregnancy ..	1	3	2	4	..	..	22	22
Carried forward ..	171	2,823	268	2,994	194	63,039	29,954	92,993

TABLES V. AND VI.—(Continued.)

Diseases.	In-patients.					Out-patients.		
	Remaining in Hospital at the end of 1930.	Y'ly. Admitted.	Deaths.	Total Cases Treated.	Remaining in Hospital at the end of 1931.	Males.	Females.	Total.
Brought forward ..	171	2,823	268	2,994	194	63,039	29,954	92,993
VIII. PUERPERAL STATE—(Cont).								
144 Puerperal Hæmorrhage ..	..	5	1	5	1	..	6	6
145 Other accidents of Parturition ..	1	1	..	2	..	..	2	2
146 Puerperal Septicæmia ..	..	2	..	2	..	..	3	3
147 Phlegmasia Dolens ..	..	..	..	..	..	..	..	..
148 Puerperal Eclampsia ..	..	1	1	1	..	..	1	1
149 Sequelæ of Labour ..	..	3	..	3	..	..	4	4
150 Puerperal affections of the Breast ..	..	..	..	..	..	..	..	..
IX. AFFECTIONS OF THE SKIN AND CELLULAR TISSUES.								
151 Gangrene ..	2	13	5	15	2	21	3	24
152 Boil ..	..	3	..	3	1	861	142	1,003
Carbuncle ..	..	4	..	4	1	18	3	21
153 Abscess ..	3	100	2	103	1	587	196	783
Whitlow ..	1	4	..	5	3	696	210	906
Cellulitis ..	1	68	1	69	3	566	159	725
154 A.—Tinea ..	..	..	..	..	..	686	236	922
B.—Scabies ..	..	..	..	..	..	4,166	2,390	6,556
C.—Tropical Ulcer ..	1	140	3	141	1	615	153	768
D.—Other Ulcers ..	9	40	..	49	6	11,090	2,939	14,029
155 Other Diseases of the Skin ..	..	..	..	..	..	100	2	102
Erythema ..	..	..	..	..	..	26	8	31
Urticaria ..	..	..	..	..	..	462	175	637
Eczema ..	..	..	..	..	..	28	4	32
Herpes ..	..	..	..	..	..	16	2	18
Psoriasis ..	..	..	..	..	..	171	19	190
Elephantiasis ..	1	59	4	60	2	4	2	6
Myiasis ..	..	..	..	..	..	533	197	730
Chigoes ..	..	..	..	..	..	1,037	233	1,270
Other Disease ..	1	24	..	25	1	..	..	..
X. DISEASES OF BONES AND ORGANS OF LOCOMOTION (OTHER THAN TUBERCULOUS).								
156 Diseases of Bones ..	..	21	3	21	1	45	7	52
157 Diseases of Joints—	..	..	..	..	..	..	..	..
Arthritis ..	..	23	..	23	2	480	137	617
Synovitis ..	1	22	..	23	..	127	19	146
158 Other Diseases of Bones or Organs of Locomotion ..	..	26	..	26	3	1,990	1,120	3,110
XI. MALFORMATIONS.								
159 Malformations ..	..	5	..	5	..	7	2	9
XII. DISEASES OF INFANCY								
160 Congenital Debility ..	..	1	..	1	..	10	5	15
161 Premature Birth ..	..	..	..	..	..	..	..	..
162 Other affections of Infancy ..	..	1	1	1	..	9	2	11
163 Infant Neglect (infants of three months or over) ..	..	..	..	..	..	..	1	1
Carried forward ..	192	3,389	289	3,581	222	7,390	38,336	125,726

TABLES V. AND VI.—(Continued.)

Diseases.	In-patients.					Out-patients.		
	Remaining in Hospital at the end of 1930.	Y'ly. Total		Total Cases Treated.	Remaining in Hospital at the end of 1931.	Males.	Females.	Total.
		Admitted.	Deaths.					
Brought forward ..	152	3,389	289	3,581	222	87,990	38,336	125,726
XIII. AFFECTIONS OF OLD AGE.								
164 Senility ..	61	131	101	192	54	212	178	390
Senile Dementia ..	..	7	1	7	..	7	5	12
XIV. AFFECTIONS PRODUCED BY EXTERNAL CAUSES.								
175 Food Poisoning ..	..	3	..	3	..	5	2	7
176 Attacks of Poisonous Animals								
Snake Bite ..	..	2	..	2	..	4	..	4
Insect Bite ..	..	..	..	..	..	74	8	82
177 Other accidental Poisonings ..	..	..	..	..	..	1	1	2
178 Burns (by Fire) ..	..	20	8	20	3	266	141	407
179 Burns (other than by Fire)..	..	4	..	4	..	33	16	49
182 Drowning (accidental) ..	..	..	..	..	..	2	..	2
183 Wounds (by Firearms, war excepted) ..	..	1	..	1	1	3	..	3
184 Wounds (by cutting or stabbing Instruments) ..	5	106	1	111	3	2,916	509	3,425
185 Wounds (by Fall) ..	3	70	3	73	1	3,009	288	3,297
186 Wounds (in Quarries or Mines) ..	..	2	..	2	..	188	..	188
187 Wounds (by Machinery) ..	..	1	..	1	..	12	2	14
188 Wounds (crushing, e.g., railway accidents, etc.) ..	..	1	..	1	..	3	..	3
189 Injuries inflicted by Animals, (bites, kicks, etc.) ..	..	6	..	6	..	37	19	56
192 A.—Over fatigue ..	..	..	..	..	..	..	..	..
B.—Hunger or Thirst ..	..	..	..	..	..	..	..	..
191 Exposure to Heat—								
Heatstroke ..	..	..	..	..	..	12	..	12
201 A.—Dislocation ..	1	5	..	6	1	21	5	26
B.—Sprain ..	..	7	..	7	..	274	16	290
C.—Fracture ..	3	65	13	68	5	98	20	118
202 Other external Injuries ..	2	28	1	30	1	2,356	414	2,770
203 Deaths by Violence of unknown cause ..	..	..	..	..	..	..	..	..
XV. ILL-DEFINED DISEASES.								
204 Sudden Death (cause unknown) ..	..	..	..	..	..	..	..	..
205 A.—Diseases not already specified or ill-defined ..	..	..	..	..	..	..	..	..
Ascites ..	..	5	..	5	..	16	6	22
Cerebromeningitis ..	..	8	..	8	..	65	10	75
Asthenia ..	16	87	24	103	16	898	402	1,300
Shock ..	..	2	..	2	..	3	1	4
Dentition ..	..	..	..	..	..	5	8	13
Hyperpyrexia ..	..	..	..	..	..	..	..	..
Pyrexia of uncertain origin ..	..	24	1	24	..	1,710	499	2,209
N. Y. D. and Unclassified ..	..	9	..	9	..	117	62	179
B.—Malingering ..	..	..	..	..	..	12	1	13
Total ..	283	3,983	442	4,266	307	99,749	40,949	140,698

APPENDIX I.

REGISTRATION OF MEDICAL PRACTITIONERS, DENTISTS AND DRUGGISTS.

The Registration Board consists of the Director of Medical and Sanitary Services, the Deputy Director of Sanitary Services and one registered private medical practitioner. Dr. R. S. Taylor acted throughout the year as the non-Government member of the Board.

Five meetings of the Board were held during the year and seven medical practitioners (two in Government service) and one dentist were registered. The names of three medical practitioners, one dentist and one druggist were removed from the Register.

At the beginning of the year there were on the Register, 27 medical practitioners, 4 dentists and 20 druggists; at the end of the year 31 medical practitioners, 4 dentists, and 19 druggists. Actually resident in the Protectorate at the end of the year there were 23 medical practitioners, 1 dentist and 19 druggists of whom 12 medical practitioners and 4 druggists were in Government service.

APPENDIX II.

FUNZI ISLAND LEPER SETTLEMENT.

JOINT REPORT BY MISS PRYOR, SUPERINTENDENT, AND DR. J. M. SEMPLE, VISITING MEDICAL OFFICER.

1. During the year 1931 there was a considerable decrease in the number of lepers on Funzi. From 112 at the end of 1930 the population decreased to 79 at the end of 1931.

This is accounted for in the first place by the number of lepers paroled, secondly by deaths from natural causes—mostly old age—and thirdly by a series of eleven deaths in October and November due apparently to tetanus. Though there is little doubt clinically that these were cases of tetanus, the bacteriological report is not ready in time to include in this report.

2. The lepers have been very contented and the fact that several almost cured cases have been allowed to live in selected houses in the vicinity of district dispensaries and attend the dispensaries for treatment by the Medical Officer, has undoubtedly contributed to this contentment by offering better prospects of an early parole. Even during the very trying period of the tetanus epidemic, only three lepers escaped (by canoe) and all three have since returned voluntarily.

3. Routine examinations continued to be carried out quarterly or—as numbers decreased—more frequently. A Kahn test was done on nearly all new arrivals as well as repeated Kahns on all those who had received courses of antisyphilitic treatment. The stools of all lepers were examined frequently for ankylostoma or other parasites and appropriate treatment given. Specific leprosy treatment was carried on with Alepol until the end of October when the tetanus outbreak occurred, but from then until the end of the year no further injections were given.

4. The shop and school were well patronised in 1931, and the wages fund was utilised to its limit every month.

5. In January a carpenter's shop was instituted and placed in charge of a young leper who had been trained in the Government School in Zanzibar. Another leper volunteered to be taught by him and he was able to profit by this instruction until September when the carpenter was paroled.

6. Both the babies born on Funzi in 1931 thrived but left the settlement during the course of the year, one going to relatives, and the other leaving with its parents when they were paroled.

7. During the year the settlement was visited ten times by the Provincial Commissioner or Acting Provincial Commissioner, and twice by the Director of Medical and Sanitary Services who on his second visit was accompanied by Dr. Wade of the Culion Leper Settlement in the Phillipine Islands. Dr. Wade's visit was much appreciated by the staff and many interesting points of diagnoses and treatment were learnt.

8. In the course of the year presents in kind were received from His Excellency the British Resident; the Captain of H.H.S. *Cupid*; the Captain, Chief Officer, and 2nd Officer of H.H.S. *Khalifa*; Mrs. Majid; the Rev. Father Weigall and ladies of the U.M.C.A.; and the Agriculture Department.

9. The following tables give statistical particulars of the asylum during the past year:—

	M.	F.	Total.	M.	F.	Total.
Number of Lepers in Asylum 1st January, 1931	67	45	112			
Number of new cases admitted during 1931	16	3	19			
Number of lepers re-admitted during 1931	4	—	4			
				87	48	135
Number of deaths in Asylum	10	16	26			
Number paroled from Asylum as below:—						
	M.	F.				
To Walezo	9	2	22	8	30	
To Homes	13	6				
Number remaining in Asylum at beginning of 1932	53	26	79	85	50	135

APPENDIX III.

CONTROL OF OPIUM.

The following are the particulars regarding opium addicts:—

	1929.		1930.		1931.	
	M.	F.	M.	F.	M.	F.
Number of opium addicts remaining from the previous year	66	28	57	24	57	24
Number of applications for permits during the year	6	2	4	2	2	—
Number of permits granted during the year	6	2	4	2	2	—
Number of permits refused during the year	—	—	—	—	—	—
Number of permits cancelled—						
(a) Owing to death	4	1	5	0	2	—
(b) Owing to other causes	11	5	—	—	—	—
Number of opium addicts remaining at the end of the year	57	24	56	26	57	24
Amount of opium issued to addicts during the year	ozs. 358.08		ozs. 429		ozs. 455	
Amount received in payment for opium issued	Rs. 2,238-05		Rs. 2,598-75		Rs. 2,843-12	

APPENDIX IV:

THIRTEENTH ANNUAL REPORT OF THE ZANZIBAR MATERNITY ASSOCIATION
FOR THE YEAR ENDING 31ST DECEMBER, 1931.

The progress of the Association continues to be satisfactory, more cases having been attended by its midwives during the year under review than in any previous year. As against 414 cases attended during 1930, 463 were attended during 1931, which is equivalent to ten times the number attended during the Association's first complete year of working (1919). It is gratifying to be able to record the fact that of the total of 610 live births registered during 1931 in the Zanzibar Town area, 397 (or 65%) were attended by the Association's midwives. Particulars of cases attended during 1931 will be found in Schedule "A" and comparative statistics of cases attended during the period 1919-1931 in Schedule "B".

2. The number of cases admitted to the Maternity Home totalled 121 as against 117 in 1930 and 82 in 1929. Of this number 74% were Africans.

3. The welfare attendances at the Home for ante-natal, post-natal and gynaecological advice and treatment created a new record of 11,706, exceeding those recorded in 1930 and 1929 by 6,382 and 8,111 respectively.

4. At the general dispensary which is run in connexion with the Home, the attendances of women and children for the treatment of ailments of various descriptions amounted to 35,846. Of this number 13,180 were new cases and 22,666 were re-attendances.

5. A statement of receipts and payments for the year will be found in Schedule "D". Owing to a slight increase in the amount of fees collected and to a substantial increase in subscriptions and donations, the Association was able to close its 1931 accounts with a credit balance of Rs. 10,163-57 cts. as against Rs. 8,830-88 cts. at the end of 1930.

6. The Association desires to place on record its deep appreciation of the services so cheerfully and tirelessly rendered by the Matron, Miss B. J. Locket, to whom the progress revealed in this report is largely due. She has been ably assisted by Mrs. Hemlata, Mrs. Young, Bibi Saada Maawia and a willing band of young ladies, to all of whom the Association owes a debt of gratitude.

7. In conclusion, the Association tenders its thanks to the Honourable Mr. G. D. Kirsopp who audited the accounts for the year and to the Honorary Treasurer, Mr. A. A. Albuquerque, who performed the duties of his office with his customary zeal and success.

J. P. JONES,

Honorary Secretary.

SCHEDULE "A"

Statement showing the number of cases attended by midwives of the Association during 1931 as compared with the number of births registered in the Zanzibar Town area.

Nationality	Live Births.	Still Births.	Miscarriages.	Total	Live Births Registered.
African Natives	76	10	15	101	92
Arabs	44	3	2	49	59
Shihiris	9	1	—	10	22
Comorians	18	—	2	20	23
Bohoras	50	1	8	59	52
Ismaili Khoja	17	1	1	19	90
Ithnasheri Khoja	89	8	11	108	91
Bhatias	16	—	1	17	117
Hindoos other than Bhatias	37	1	1	39	
Memons	4	—	—	4	
Other Asiatic Mohamedans	14	—	—	14	24
Goans	20	—	—	20	31
Other communities	3	—	—	3	9
Total	397	25	41	463	610

SCHEDULE "B"

Comparative statistics of cases attended by midwives of the Association during the period 1919-1931.

	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
African Natives	—	—	11	11	12	18	18	38	44	83	77	99	101
Arabs	—	—	20	13	21	31	27	18	17	13	30	35	49
Comorians	—	2	6	6	4	6	7	12	8	12	20	15	20
Shihiris	—	—	—	1	4	2	3	2	1	2	5	7	10
Total	—	2	37	31	41	57	55	70	70	110	132	156	180
Other Communities	46	59	55	147	96	184	197	196	180	210	246	258	283
Grand Total	46	61	92	178*	137*	241	252	266	250	320	378	414	463

*Note—Including miscarriages, the 1923 and 1924 figures were 151 and 256 respectively. (†) 7 cases of Twins.

SCHEDULE "C"

Mwembeladu Maternity Home.

(a)

Particulars of cases admitted to the Home during 1931.

Community	Births.	Miscarriages.	Total.
African Natives	85	12	97
Arabs	12	1	13
Comorians	8	—	8
Shihiris	8	—	8
	—	—	—
Total	113*	13	126
	—	—	—

*Including 5 cases of Twins.

(b)

Welfare Attendances at the Home

(1929-1931).

	1929.	1930.	1931.
Ante-natal	967	1,371	2,763
Post-natal	863	978	1,372
Gynaecological	1,765	2,975	7,571
	—	—	—
Total	3,595	5,324	11,706
	—	—	—

(c)

Out-patient Attendances at the Home Dispensary

(1930-1931).

	1930.	1931.
New cases	9,688	13,180
Re-attendances	22,489	22,666
	—	—
Total	32,177	35,846
	—	—

SCHEDULE "D"

Statement of Receipts and Payments for the Year ending 31st December, 1931.

RECEIPTS.		PAYMENTS.	
By	Rs. Cts.	To	Rs. Cts.
Balance at 1st January, 1931	8,830 88	Salaries	15,025 00
Subscriptions	6,000 00	House Allowances	1,080 00
Fees	4,816 00	Rickshaw Allowances	150 00
Donations	150 00	Uniforms	15 00
Miscellaneous Receipts	160 00	Incidental Expenses (including cost of one single rickshaw)	368 25
Government Grant	7,500 00	Maternity Home:—	
		Servants' Wages and Allowances to Apprentices	420 00
		Incidental Expenses	64 00
		Light and Power	171 06
			17,293 31
		Balance at 31/12/31:—	
		Fixed Deposit with N.B. of India	9,000 00
		Current Account "	1,163 57
			10,163 57
		Total Rs.	27,456 88

Audited and found correct.

G. D. KIRSOPP,

Hon. Auditor.

A. A. ALBUQUERQUE,

Hon. Treasurer.

APPENDIX V.

REPORT BY CAPT. A. S. NEWTON, DENTAL SURGEON, TANGANYIKA
TERRITORY.

Pending a decision regarding the future dental policy of the Protectorate following the reports submitted for the years 1929 and 1930, it is not here proposed to do more than emphasise the points dealt with therein.

The position is as unsatisfactory to-day as it was when the dental problems of the Islands were first drawn attention to by the writer.

During the two visits paid to Zanzibar during 1931 in January-February and September-October the following is the record of work for the European Officials, their wives and families. As in previous reports this does not represent the bulk of the work done by the writer i.e. for the Asiatic Subordinate staff and families, school children and casual natives.

European :—

Attendances	231
Fillings	33
Extractions	19
Pulp Treatment	11
Scalings and Gum Treatment	31

As on previous occasions denture work was not possible.

Appendix V in Medical Report of 1929 and Appendix V in the 1930 Report should be re-read with this.

ANNUAL VETERINARY REPORT.

For the Year 1931.

SECTION I.—ADMINISTRATION.

A. STAFF.

The Veterinary Staff for the year consisted of:—

Veterinary Officers	2
Veterinary Assistant	1
Veterinary Cadets	2
Attendants	12

Veterinary Officer, Mr. Shah Muhamed Khan returned from leave in May.

Veterinary Cadet, Deria Hassan proceeded on 96 days privilege leave on 1st November.

Veterinary Assistant, Muhamed bin Said was stationed in Pemba from 1st January, 1931 to 11th February, 1931.

Veterinary Cadet Sultan bin Muhamed was transferred to Pemba on 11th February, 1931 and remained there until 1st September, 1931.

Veterinary Assistant, Muhamed bin Said was stationed in Pemba from 1st September, 1931 to 28th October, 1931 and was replaced by Veterinary Cadet Sultan bin Muhamed who is still working in Pemba.

The Veterinary Assistant posted in Pemba supervises the veterinary activities there. He is stationed at Chake and visits Wete and Mkoani once a week.

B. FINANCIAL.

The Revenue from Veterinary Services totalled Rs. 23,797-28 cents and is derived from the following sources:—

	Rs.	Cts.
Cattle importation and exportation fees	...	7,355 25
Veterinary Hospital fees	...	397 00
Abattoir fees	...	6,814 75
Landing of cattle fees	...	2,535 17
Wharfage charges for the landing of animals	...	1,246 11
Rent for Mji Mpia Dairy Sheds	...	4,824 00
Rent for Dairy Shed Sites at Mji Mpia	...	108 00
Goat Lairage at Gulioni	...	385 00
Cremation fees	...	132 00
Total Rs.	23,797	28

Expenditure on new buildings, repairs, etc., during the year was as follows:—

	Rs.	Cts.
Mji Mpia Dairies	...	351 00
Pigaduri Cattle Quarantine Station	...	2,241 00
Total Rs.	2,592	00

C. LEGISLATION.

1. Decree No. 10 of 1931 to amend the Diseases of Animals Decree, 1923. Prohibits the importation of animals into the Protectorate by air.

2. Government Notice No. 93 of 1931. Cancels Government Notice No. 176 of 1929 and prohibits the importation until further notice from the Colony and Protectorate of Kenya of any canine or feline unless such canine or feline is accompanied by a certificate from a qualified Veterinary Surgeon to the effect that the animal is free from infectious or contagious disease and has come from an area free from rabies.

SECTION II.—DISEASES OF ANIMALS.

A. DISEASES OF RUMINANTS.

Cattle.

Rinderpest.—There was an outbreak of this disease at the Cattle Quarantine Park, Pigaduri, at the end of June 1931, in a herd of 31 oxen which arrived by the S.S. *Ayamonte* from Lamu on 20th June. One bullock died and the remaining animals were slaughtered in Quarantine. The disease did not spread. From enquiries made it was proved that this particular batch was drawn from a place called Vidu situated in the district of Lamu.

East Coast Fever.—Local Cattle.—70 cows and 21 calves were examined for this disease and one cow found infected.

Pleuro-pneumonia Contagiosa Bovis.—This disease made its appearance for the first time at Mji Mpia during the month of July. Suspicion was aroused when a few cows and calves were noticed sick showing a rise in temperature, debility, diminution in milk supply, lack of appetite and in some animals an œdema around the throat. These symptoms were accompanied by short but violent dry cough manifested after the smallest exertion. One cow died on 17th July and a post-mortem examination was performed. The lesions found were undoubtedly typical of the disease.

All animals housed at Mji Mpia were temperatured daily and any showing a rise was removed from the site and segregated at the Veterinary Hospital at Kisiwandui—a place having an isolated situation and not frequented by stock.

In all 39 animals, including a few calves, were segregated during the months of July, August and September. The last case was removed on 9th September. The disease was responsible for the death of 13 cows and 10 calves. At this time it was found necessary to adopt drastic measures to combat the disease and to check its further spread.

Section 12 of the Diseases of Animals Decree 1923 was applied and the owners ordered to slaughter their diseased animals. Out of 5 owners, one agreed and slaughtered 9 cows and calves between 3rd and 6th September. Seven cows and calves, the property of 4 owners who had not obeyed the order and which were still left alive at Kisiwandui, were sold to the butchers by auction by order of the Government and the money obtained paid to the owners. Since then no fresh case has occurred.

It is presumed that the infection came from Kenya in the month of April when six cows and five calves were imported. These animals were detained in quarantine for the usual period of a 14 nights but showed no sign of illness.

Probably there was an old "lunger" in the herd which was responsible for the spread of the disease at Mji Mpia.

Trypanosomiasis.—(Imported Stock).—During the year 258 oxen, 99 cows and 11 calves were examined. Of the oxen, four were found infected showing *T. congolense*. Animals infected with this disease are not allowed to pass out of quarantine and are slaughtered there.

Sheep and Goats.

Pleuro-pneumonia Contagiosa of Goats.—This disease is quite distinct from *Pleuro-pneumonia Contagiosa* of bovines. At certain seasons, especially during the North Eastern monsoon, when large flocks of goats arrive here by dhow from various Somaliland and Jubaland ports, the disease makes its appearance and causes serious losses among these animals. No cases have been seen amongst our local goats.

Hæmonchiiasis.—Quite a common disease among imported as well as local goats.

Ocsophagostomiasis.—A very common disease of goats.

Sheep Scab.—A few sheep were found infected in quarantine. These had been landed by a dhow from Adalla.

B. DISEASES OF EQUINES.

Horse Sickness.—There were two cases of this disease found in mules kept at Mji Mpia.

The animals were removed to the Veterinary Hospital. One of these died and the other recovered.

Trypanosomiasis.—Three horses, thirty-four donkeys and seven mules were examined and none found infected.

Epizootic Lymphangitis.—No case of this disease was seen during the course of this year.

C. DISEASES OF CANINES.

Rabies.—No case reported or seen.

Piroplasmosis.—The blood of four dogs was examined microscopically and one found infected. This animal was treated and recovered.

Distemper.—No case reported or seen.

D. DISEASES OF BIRDS.

Fowl Cholera.—No outbreak of this disease was reported during the year under review.

Coccidiosis.—Three fowls and a parrot were examined and one fowl found infected.

SECTION III.—GOVERNMENT DAIRY MJI MPIA.

Total number of animals kept at Mji Mpia on 31st December, 1931 was as follows:—

Cows	328
Calves and heifers	236
Bulls	12
Total	<u>576</u>

Of these 190 cows, eight bulls and 122 heifers and calves, were housed in Government Sheds for which the owner of the animals paid a monthly rental. The remainder were kept in sheds approved by the Sanitary Authorities and built privately on Government land situated in the vicinity of the Mji Mpia dipping tank. The owners pay a small rental.

As recorded previously under the Diseases of Cattle there was an outbreak of contagious bovine pleuro-pneumonia.

The animals kept at Mji Mpia are regularly and systematically dipped at a week's interval, the total number of dippings performed being 26,932. i.e. 15,708 for cows and 11,224 for calves.

The dipping fluid is examined monthly by the Government Chemist and kept at proper strength.

SECTION IV.—MEAT INSPECTION.

The animals are slaughtered in the Government Slaughter House under the supervision of this Division. They are brought to the Abattoir in the afternoon of the previous day when an ante-mortem inspection is made and unfit animals are rejected.

Slaughtering begins at 4 a.m. and the dressed carcasses are examined before removal to the market. Meat slightly infected with *C. bovis* is thoroughly boiled on the premises and handed over to the owner and sold at a cheap rate. If heavily infected, the carcass is cremated.

During the year 17,955 animals were slaughtered. Out of these 6,706 were partially and 155 wholly condemned.

Occasionally sanction is given by the Provincial Commissioner after consultation with the Health Officer, to slaughter an animal (usually a goat) on private premises for religious purposes. Such animals are also examined before slaughter.

SECTION V.—PIGADURI QUARANTINE STATION.

All live-stock imported into the Protectorate undergo a period of quarantine; for cattle a fortnight and for goats and sheep five days.

Horses and mules imported and not accompanied by a satisfactory certificate of health are subjected to the "Mallein Test".

Blood films are taken from many imported animals and examined for trypanosomiasis, any found infected are forthwith slaughtered or, if the owner so wishes, returned to their port of origin.

The importation of dogs and cats is forbidden unless accompanied by a certificate from a Veterinary Surgeon to the effect that the animal is free from rabies.

The dipping tank was continually in use throughout the year and the cattle were dipped at a three-day interval. Dippings numbered 9,582.

The repairs to the kraals and roofs of various sheds were completed.

SECTION VI.—LAIRAGE FOR GOAT AND SHEEP.

There are 10 sheds, accommodating 500 goats which are leased to importers for housing their animals.

TABLE I.

Comparative table of deaths among stock in Zanzibar Town and Quarantine Station during the year 1929-1931:—

	1929.	1930.	1931.
Milch cows	34	22	39
Calves	31	20	32
Bullocks and oxen	8	7	12
Goats	45	37	11
Sheep	3	1	2
Horses	2	1	1
Donkeys	14	25	16
Mules	4	1	6
Dogs	2	4	—
Total	143	118	119

Compared with the previous two years there was an increase in the number of cows, calves and bullocks and oxen which died during the year 1931. As stated previously this increase was due to an outbreak of contagious bovine pleuro-pneumonia.

TABLE II.

Comparative table of animals imported during the three years 1929-1931:—

	1929.	1930.	1931.
Oxen	2,632	3,336	3,304
Cows	41	46	87
Calves	24	36	70
Goats	8,327	9,950	10,414
Sheep	2,418	2,891	3,424
Horses	2	—	6
Donkeys	4	73	25
Camels	6	21	2
Dogs	3	2	7
Cats	1	—	—
Rabbits	—	—	3
Total	13,458	16,355	17,342

Compared with the year 1929 and 1930, there was a considerable increase in the number of goats, sheep, cows, calves and horses.

There was a decrease of 32 oxen as compared with the year 1930. Milch cows and calves were imported from the highlands of Kenya. The number of animals imported from Tanganyika Territory totalled as follows:—24 oxen, 10 cows, 6 calves, 255 goats and 25 sheep.

TABLE III.

Comparative table of animals exported during the three years 1929-1931:—

	1929.	1930.	1931.
Oxen	244	262	348
Cows	1	—	—
Calf	—	1	—
Goats	436	214	470
Sheep	22	100	2
Camels	2	—	—
Donkeys	38	6	19
Kids	—	5	—
Dogs	8	1	3
Pig	1	—	—
Total	752	589	842

This table shows an increase of 86 oxen, 256 goats and 13 donkeys, but a decrease of 98 sheep.

The majority of these animals went to Pemba.

TABLE IV.

Table showing the number of animals treated as In and Out-patients during the year 1931:—

Horses	169
Mules	69
Donkeys	355
Bulls	51
Cows	951
Heifers	13
Calves	138
Dogs	53
Cats	60
Fowls	9
Sheep	2
Parrots	6
Pigeon	1
Total	1,577

The above table includes both new cases and repetitions.

TABLE V.

Table showing the number of animals examined and slaughtered in the Government Abattoir during the year 1931, compared with the previous two years:—

Species.	Slaughtered in Government Abattoir.			Wholly Condemned.			Partially.			Slaughtered at Pigaduri.			Rejected.		
	1929	1930	1931	1929	1930	1931	1929	1930	1931	1929	1930	1931	1929	1930	1931
Oxen	2,347	2,925	3,052	18	69	70	1,405	1,529	2,162	...	...	66	...	...	...
Cows	186	75	162	3	..	...	8	12	21	...	...	...	...	...	...
Calves	27	19	31	...	...	...	1	15	...	...	...	...	...	...	...
Goats	9,822	9,988	11,179	47	57	60	2,832	3,156	3,257	...	...	...	...	...	...
Sheep	1,841	2,906	3,510	14	10	25	754	976	1,283	...	...	...	...	...	...
Camels	9	20	...	...	...	...	8	25	...	...	...	...	...	...	...
Total	14,232	15,933	17,934	82	136	155	5,008	5,713	6,723	..	...	66	...	...	...

Seventy oxen were condemned for measles.

Forty-one goats were condemned for pleuro-pneumonia and nineteen for emaciation and five for pleuro-pneumonia and contusions.

TABLE VI.

Table showing the number of examinations carried out in the Veterinary Laboratory during 1931:—

	Local Stock.			Imported Stock			Total Local and Imported Stock.		
	No. examined	Positive	Negative	No. examined	Positive	Negative	No. examined	Positive	Negative
TRYPANOSOMIASIS									
Cows	66	..	66	99	..	99	165	..	165
Calves	11	..	11	11	..	11	22	..	22
Horses	3	..	3	..	..	..	3	..	3
Donkeys	31	2	29	3	..	3	34	2	32
Mules	7	..	7	..	..	..	7	..	7
Dogs	4	..	4	2	..	2	6	..	6
Goats	2	..	2	..	..	..	2	..	2
Oxen .. ..	..	..	..	258	4	254	258	4	254
Total	124	2	122	373	4	369	497	6	491
EAST COAST FEVER									
Cows	51	1	50	70	..	70	120	1	121
Calves	29	..	29	11	..	11	40	..	40
Oxen .. ..	..	..	..	50	..	50	50	..	50
Total	100	1	99	140	..	140	240	1	239
PIROPLASMOSIS									
Dogs .. ..	..	..	..	4	1	3	4	1	3
Total .. ..	..	..	..	4	1	3	4	1	3
COCCIDIOSIS									
Fowls	3	1	2	..	..	..	3	1	2
Parrats	1	..	1	..	..	..	1	..	1
Total	4	1	3	..	..	..	4	1	3
MALTA FEVER									
Goat	1	..	1	..	..	..	1	..	1
Total	1	..	1	..	..	..	1	..	1
WORMS									
Cat	1	..	1	..	..	..	1	..	1
Total	1	..	1	..	..	..	1	..	1

TABLE VII.

Table showing the number of Post-Mortems performed during the year 1931:—

Species.	Bovine Pleuro-pneumonia	E. C. Fever	Piroplasmosis canis	Septicæmia	Pneumonia	Trypanosomiasis	Horse-Sickness	Rinderpest	Pneumonia	Malnutrition	Colic	Typhantes	Paralysis	Senility	Pericarditis	Not Diagnosed	Total.
Oxen	1	1	..	..	..	1	..	1	..	4
Cows	6	..	1	..	..	4	..	..	3	..	2	..	2	30
Calves	6	6	..	..	..	..	..	..	15
Goats	1	..	..	..	..	3	..	..	1	..	..	..	..	10
Horse	1	..	..	..	..	..	1
Mules	2	..	..	1	..	..	..	1	..	..	..	..	..	4
Donkeys	3	..	..	..	..	..	..	4	..	..	..	..	..	8
Dogs	2	2
Total	15	..	2	12	..	1	1	1	19	6	6	4	1	3	1	2	74

SHAH MOHAMMED KHAN,
Veterinary Officer.

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