

## **Annual report of the Medical Officer of Health / Nairobi Municipality.**

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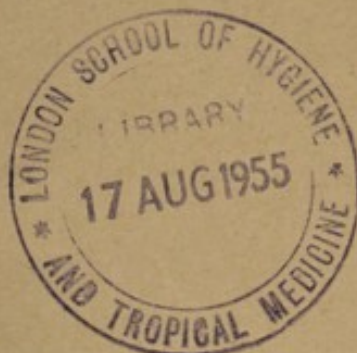
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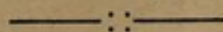


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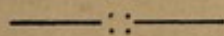
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SEVENTEENTH  
ANNUAL REPORT

of the

Medical Officer of Health



1946



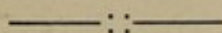
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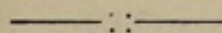
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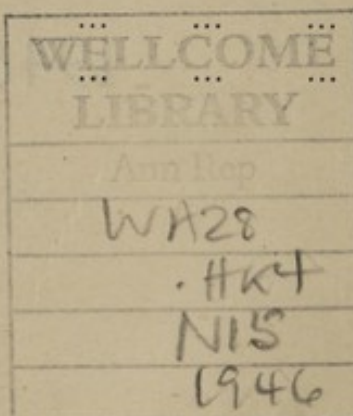


1946



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Town Hall,  
NAIROBI.  
June 1st, 1947.

The Worshipful the Mayor, Aldermen and Councillors,  
Municipal Council of Nairobi.

Your Worship, Aldermen and Councillors,

I have the honour to present to you my Annual Report on the sanitary circumstances, sanitary administration, vital statistics and other matters of health nature, of the Municipality of Nairobi for the Year 1946, as required by the "Local Government (Municipalities) Ordinance, 1928," "The Medical Officers of Health Rules, Section 2 (12 d.)"

A. T. G. THOMAS, M.D., B.S., D.P.H.,  
MEDICAL OFFICER OF HEALTH.



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## General Remarks

The period of this report has been a difficult one, since it represents a transition period from war to peace time conditions.

It is becoming evident that many irregularities which had necessarily to be tolerated during the emergency period must now receive attention. This applies particularly to the uncleanness in food handling and the occupation of temporary and unsound dwellings. Unfortunately, while there is on one hand a legacy of stagnation and arrears of work from the war period, many of the shortages and difficulties attributable to it still persist. The acute shortage of housing makes the demolition of overcrowded slums impossible; the shortage of proper equipment and accommodation makes it difficult to insist on good food preparation; and financial stringency impedes many progressive measures.

All these difficulties have been aggravated by staff problems. The keystone of an organisation which is to undertake the exacting and extensive task of reconstruction is an effective, enthusiastic, and fully qualified staff. Many factors have conspired together to hamper this. Many of the Municipal Staff have spent long periods, of the order of 10 years, without leave, owing to unavoidable circumstances, and this has been reflected in the sickness rate. The selection and arrangements for transport to the colony of suitable candidates from United Kingdom, has been a formidable task, which is still being pursued.

Delays and protracted negotiations in respect of the Government Loan to the Municipality have played their part in impeding progress.

Finally, lying deep behind efforts at Municipal progress are the many and serious defects in the Bye-laws which are so important a basis for operation. These Bye-laws form the weapons which must be at the disposal of Municipal Officers if they are to fight public undiscipline, evasion, and apathy, and these weapons often bear the relationship of a cross bow to a Sten gun.

The legal rearmament of the Municipality entails a complicated and slow process of negotiation, but it is near at hand. The legal background of Municipal work in this country is of greater importance than it might be in a Municipality in the United Kingdom. This is occasioned by the fact that public co-operation is of a very low order, possibly as the result of a long period of apathy, possibly because of deliberate and planned obstruction in self interest. The fact remains that while the Public are often ready to complain of fancied or real defects in the Municipal Service, it is very rare indeed to find any evidence of either self-help or constructive criticism.

In spite of all these difficulties, a general improvement, supported by the statistical information contained in this Report, indicates that during the past several years Nairobi has made considerable progress in the standard of general health. Broadly speaking, health is not a subject in which racial differences play a great part. The three Races forming the bulk of the population of the town are mutually inter-dependant in health matters, and all demand equal protection. It would be impossible to protect any one section of the community effectively without extending the same measures to the others. Contacts, particularly between Europeans and Africans, who prepare their food and work in a domestic capacity, are very close, and it is in the interests of the former to preserve the best standard of health possible in the latter. An out-standing social experiment is the introduction of the African Canteen, planned during 1946. One of the surest ways to encourage good health is to ensure adequate



nutrition, and any measure directed towards giving an adequate and balanced diet to a section of the community, which has difficulty at present in obtaining this, is a very wise measure of health insurance. Owing to certain factors which might complicate their interpretation, comparative statistics, showing health figures for South African and European communities, in comparison with those of Nairobi, have not been included. It can however be stated, that in taking the figures for the community as a whole, Nairobi does not at present compare unfavourably with most towns, and further improvement may be confidently anticipated. This fact, however, should not give rise in any way to complacency. Even though the health situation in Nairobi is comparable to many that of towns in Europe, such a state of affairs can only be maintained by constant effort and vigilance. Certain risks exist here which have long since disappeared in most other towns. Epidemics of plague or malaria can still occur, and it seems unlikely that these risks can be completely abolished for a number of years to come.

## Geographical, Historical and General Circumstances

Nairobi, the capital of Kenya, is situated in the Highlands about 250 miles from the coast, and is 330 miles by rail from the Port of Mombasa, and 257 miles by rail from the Port of Kisumu on Lake Victoria.

Its geographical position is :—

Latitude	...	...	1° 16' 43"	South
Longitude	...	...	36° 50'	East
Height a.s. l.	From 5,452 feet to 5,700 feet			
Area of Municipality	— 20,544 acres or 32.1 Square Miles.			

The history of Nairobi, and of the Colony generally, is not a long one. The country was unknown in 1880, and began first to be developed in 1888 by the Imperial British East Africa Company. The administration of this Company was taken over by the Imperial Government in 1895, and the country was renamed Kenya in 1920.

In 1895 the railway was begun inland from the Port of Mombasa. A settlement sprang up at the railhead, and became the nucleus of a new town. This was the beginning of Nairobi, and ten years later, in 1905, it had progressed so far that the Capital was transferred there from Mombasa.

The establishment and progress of Nairobi has always been intimately connected with the railway, and owes its present site to its influence. In the light of later experience, this was not altogether fortunate, and preferable sites could have been chosen for a town which is likely to develop to the extent to which Nairobi can be anticipated to do.

Climatic conditions obtaining in Nairobi are unique. There are many large towns situated at comparable altitudes but none so near the equator. The combined effects of altitude, and direct solar radiation upon the health of the inhabitants, will prove an interesting field for investigation. It is known that the decrease in the mean annual temperature is 2.5° for over 1,000 feet above sea level. This, therefore, gives Nairobi a mean temperature of rather less than 68° F., which is in



general, a very comfortable climate for Europeans and the effect upon new arrivals is often to produce the illusion that their environment is very similar to that at home. This is, however, not correct. The warm days are quickly followed after sunset by cool nights, and special precautions should be taken against these sudden changes of temperature, even though the extreme maximum summer temperature is not above 88.0° in the shade. It is to be noted that pneumonia is one of the frequent causes of death in the mortality figures for all races.

The Seasons are characterized by the long rains from March to May, and the short rains in October and November. Periods of very considerable rainfall can occur during the long rains, but there is considerable annual variation. The total rainfall varies between 35" to 50" per annum.

One other factor is of particular interest, in connection with the background of Nairobi, and that is the peculiar distribution of the population. In the town itself there are areas of very considerable congestion in the African Locations and Asiatic districts. The European population, however, and part of the Indian, is very considerably dispersed. Houses on plots of land varying from half to ten acres are scattered over the 32 square miles comprising the Municipality. This latter feature creates its own problems in the economy and administration of the Public Health Services, especially the Sanitary Service and the Mosquito Control. The fact that most of the residents in the district also work in Nairobi also creates considerable traffic problems in the city area, which are likely to become more and more difficult as time progresses.

### Observations Taken at Nairobi K.U.R. & H. 1946

	Mean atmos- pheric pressure (mbs)	Mean Dry Bulb °F		Dew Point °F		Monthly Rainfall (inches)	Days of Rain	Average for 30 years Monthly Rainfall (inches) Days of Rain	
		0830	1430	0830	1430				
								1946 Fall	30 yrs. Average
Jan.	24.659	65.4	81.2	55.2	53.2	0.16	1	1.47	5
Feb.	24.646	66.7	84.9	54.9	52.0	0.23	1	2.13	4
Mar.	24.646	67.5	83.2	58.1	55.8	1.43	4	5.27	9
Apr.	24.669	65.0	77.9	60.6	58.3	6.61	14	7.71	14
May	24.708	63.3	75.2	58.8	60.1	3.12	12	5.17	14
Jun.	24.735	60.9	74.8	55.2	57.0	0.11	1	1.62	8
July	24.735	59.0	71.3	53.1	53.4	0.38	2	0.59	4
Aug.	24.738	58.1	68.3	54.7	56.5	1.83	15	0.97	4
Sep.	24.709	59.5	73.6	55.6	56.7	1.66	11	0.92	4
Oct.	24.669	63.3	77.5	57.7	55.4	6.71	11	1.93	6
Nov.	24.652	64.5	75.7	59.2	56.9	3.95	10	4.02	14
Dec.	24.645	65.3	77.1	57.4	55.6	1.63	7	2.49	9
Year	24.684	63.2	76.7	56.7	55.9	27.82	89	34.29	95

		Fall	Average
Short Dry Season	(Jan. to Feb.)	0.39	3.60
Long Rains	(Mar. to May)	11.16	18.15
Long Dry Season	(Jun. to Sep.)	3.98	4.10
Short Rains	(Oct. to Dec.)	12.29	8.44



## Vital Statistics

In preparing the Annual Report for 1946, some minor variations have been introduced in connection with the tabulating of the vital statistics and figures regarding infectious diseases. The practice has hitherto been to make racial sub-divisions, taking into consideration the small minorities existing within the Municipality. It has been thought that such distinctions do not make for clarity, but in fact, tend rather to confuse the issue. The evaluation of mortality or health statistics in respect of very small populations can lead to manifest fallacies, and it is best to avoid these by simply classifying the public of Nairobi under three main headings, Europeans, Asians, Africans and others. This is logical from the Public Health point of view since each community has its own standard of living, its own special environmental circumstances, and its own set of health problems. For information, however, as to the unusual variety of races living in Nairobi, a table is given hereunder. (As the European figures are taken from the "Ration Book" Census recently held, it has not been possible to show these in separate races.)

### POPULATION FIGURES FOR NAIROBI as at 31st January, 1947

Source : Analysis of Commodity Distribution Board Records by the Statistical Section of Conference of E.A. Governors.  
(African from D.C.'s Records.)

Race/Caste			Males	Females	Total
EUROPEAN	...	...	4,988	5,389	10,377
GOAN	...	...	2,036	1,218	3,254
INDIAN :—					
Hindu	...	...	12,084	7,358	19,442
Sikh	...	...	3,776	2,245	6,021
Mohammedan	...	...	4,587	3,649	8,236
Indian Christian	...	...	64	45	109
Parsee	...	...	73	46	119
Baluchee	...	...	6	4	10
TOTAL			20,590	13,347	33,937
SOMALI	...	...	357	304	661
SEYCHELLOIS	...	...	284	323	607
ARAB	...	...	375	291	666
OTHERS *	...	...	237	212	449
Children.					
AFRICANS	...	...	47,043	7,015	6,742 60,800
GRAND TOTAL	...	...	75,910	28,099	6,742 110,751

\* OTHERS include :—

Abyssinians  
Cormorans  
Mauritians  
Chinese  
Ceylonese  
Sudanese  
Persians  
Other Asiatics.

Note :—These figures have been obtained from the analysis of those ration book covers issued in January, 1947, which gave NAIROBI as the address, less any cancellation to 31st January, 1947.



## VITAL STATISTICS

The following table gives the main vital statistics for the year 1946:—

	Estimated Population	Number of Deaths.	Death Rate per 1,000	Live Births	Birth Rate per 1,000	Number of Infant Deaths	Infant Mortality Rate per 1,000 Live Births.
Europeans ...	10,377	78	7.5	165	15.9	8	48.48
Indians and Goans ...	37,191	235	6.3	1,526	41.31	91	59.63
Africans and Others	63,183	689	10.9	1,294	20.47	192	71.09
<b>TOTAL :</b>	<b>110,751</b>	<b>1,002</b>	<b>9.92</b>	<b>2,985</b>	<b>25.89</b>	<b>291</b>	<b>59.71</b>

	Population	Death Rate.
European ...	10,377	7.5
Asian and Goan ...	37,191	6.3
African and Others ...	63,183	10.9
<b>ALL RACES</b>	<b>110,751</b>	<b>9.92</b>

### Population—Comparative Figures for 5 years

Race.	1942	1943	1944	1945	1946
European ...	8,591	9,421	10,431	10,257	10,377
Asian ...	28,530	30,829	31,877	36,517	37,191
African and Others	54,453	59,022	66,592	66,040	63,183
<b>ALL RACES :</b>	<b>91,574</b>	<b>99,272</b>	<b>108,900</b>	<b>112,814</b>	<b>110,751</b>

## MARRIAGES

The following Christian marriages were celebrated in Nairobi in 1946 :

Race.	Europeans	Indians	Goans	Seychelloise
	225	4	15	5

No record is kept of African Marriages.



## BIRTHS

Notification of births has been compulsory since the application of the "Nairobi Municipality (Notification of Births) By-Laws, 1934."

The accompanying table gives details of births notified in Nairobi during 1946:—

### Births Notified — 1946

RACE.	RESIDENT			NON-RESIDENT			TOTAL		
	No.	Still- Births.	Live- Births.	No.	Still- Births.	Live- Births.	No.	Still- Births.	Live- Births.
European	168	3	165	117	—	117	285	3	282
Asian	1,566	40	1,526	44	2	42	1,610	42	1,568
African and Others	1,351	57	1,294	584	38	546	1,935	95	1,840
<b>TOTAL</b>	<b>3,085</b>	<b>100</b>	<b>2,985</b>	<b>745</b>	<b>40</b>	<b>705</b>	<b>3,830</b>	<b>140</b>	<b>3,690</b>

### Notification of Resident Births

Race.		1942	1943	1944	1945	1946
European	...	186	196	249	211	168
Asian	...	832	938	1,252	1,515	1,566
African and Others	...	1,002	797	1,009	2,510	1,351
<b>TOTAL :</b>	...	<b>2,020</b>	<b>1,931</b>	<b>2,510</b>	<b>3,002</b>	<b>3,085</b>

### Birth Rates

Race.		1944	1945	1946	Increase	Decrease
European	...	23.58	20.47	15.9		4.57
Indian	...	41.12	40.86	41.31	1.39	
Goan	...	36.37	38.98			
African and Others		14.67	18.88	20.47	1.59	

It will be noticed that, whereas the Asian and African birth rates have increased, there has been a substantial drop in the European birth rate. The reason for this is not easy to assess. The shortage of housing,



coupled with the disruptive influence of war upon the domestic affairs of the public, may partly be the cause. Possibly a contributory factor may be a change in the age distribution of the European population.

## DEATHS

The following statistics refer, unless otherwise stated to civilian residents of Nairobi, including the Prison and Mathari Hospital. The figures have been calculated on the estimated population for 1946. The total number of deaths reported for the year 1946 was 1,753. The number of deaths from all causes among persons said to be normally resident in Nairobi was 1,002 equivalent to a death rate for all races of 9.92 compared with 8.19 for 1945.

Of the 1,002 deaths in Nairobi among residents 662 were males and 340 females. Two hundred and ninety-one, or 39.1% of the deaths were of infants under one year. Seventy-eight deaths occurred among Europeans, equivalent to a rate of 7.5 per thousand, the same as last year.

Two hundred and thirty-deaths occurred among Asians, equivalent to a rate of 6.3 compared with 5.88 last year, and 689 deaths among Africans, equivalent to a rate of 10.9 compared with 9.56 in 1945.

### Deaths by Race and Sex

			European	Asian	African	Total.
Resident —	Male ...	...	51	156	455	662
	Female ...	...	27	79	234	340
TOTAL			78	235	689	1,002
Non-Resident —	Male ...	...	13	7	411	431
	Female ...	...	5	5	310	320
TOTAL			96	247	1,410	1,753

### Causes of Deaths by Groups, and Death Rate per 1,000 Persons

	European.	Asian.	African and Others.	TOTAL.	Percentage of all Deaths.	Death Rate,	Percentage of all Deaths, 1945.	Death Rate, 1945.
1. Infectious and Parasitic diseases ...	3	18	175	196	19.6	1.76	22.94	1.87
2. Cancer and other Tumours ...	11	4	12	27	2.7	0.25	2.92	0.23



3. Rheumatism, disease of nutrition, etc. ...	2	13	23	38	3.8	0.35	1.62	0.13
4. Diseases of the Blood, etc. —	—	3	3	6	0.6	0.05	1.29	0.10
5. Poisoning ...	1	—	2	3	0.3	0.02	0.54	0.03
6. Diseases of the Nervous System ...	14	14	54	82	8.2	0.74	5.62	0.46
7. Diseases of the Circulatory System ...	8	15	25	48	4.8	0.42	5.30	0.43
8. Diseases of the Respiratory System ...	9	46	179	234	23.4	2.11	17.85	1.46
9. Diseases of the Digestive System ...	9	24	52	85	8.5	0.76	8.76	0.71
10. Non-Venereal diseases of the genito-urinary System ...	5	6	15	26	2.6	0.23	3.35	0.27
11. Diseases of preg- nancy, child-birth and the puer- peral state ...	—	2	12	14	1.4	0.13	1.94	0.15
12. Diseases of the skin ...	—	1	2	3	0.3	0.02	0.21	0.01
13. Disease of the bones and joints ...	—	—	1	1	0.1	0.01	0.21	0.01
14. Congenital malformations —	—	1	3	4	0.4	0.04	0.65	0.05
15. Diseases of early infancy	3	41	67	111	11.1	1.01	13.63	1.11
16. Old Age ...	3	5	1	9	0.9	0.08	0.54	1.04
17. Deaths from Violence ...	7	25	42	74	7.4	0.67	7.46	0.61
18. Ill defined Diseases ...	3	17	21	41	4.1	0.37	5.08	0.41
TOTAL ...	78	235	689	1,002	100.00	9.92	100.00	8.19



## INTERNATIONAL NOMENCLATURE.

(1931 Revision).

## GROUP I.—Infectious and Parasitic Diseases :

				European	Asian	African and Others	Total
1.	Typhoid Fever	...	...	—	1	10	11
9.	Whooping Cough	...	...	—	—	3	3
10.	Diphtheria	...	...	—	3	3	6
13.	Dysentery	...	...	1	1	13	15
18.	Cerebrospinal Fever	...	...	—	—	3	3
22.	Tetanus	...	...	—	2	2	4
23.	Tuberculosis (Lungs)	...	...	—	3	48	51
24.	Tuberculosis (Other Organs)	...	...	1	—	30	31
27.	Measles	...	...	—	—	8	8
34.	Syphilis	...	...	—	1	33	34
35.	Gonorrhoea	...	...	—	—	1	1
36.	Septicaemia	...	...	—	2	11	13
38.	Malaria	...	...	—	4	10	14
44:6	Blackwater Fever	...	...	1	1	—	2
TOTAL				3	18	175	196

## GROUP II.—Cancer and Other Tumours :

				European	Asian	African and Others	Total
35.	Cerebral Tumour	...	...	—	—	1	1
53.	Unspecified — General	...	...	10	4	8	22
54.	Cyst	...	...	—	—	1	1
55.	Tumour	...	...	1	—	2	3
TOTAL				11	4	12	27

## GROUP III.—Rheumatism, Diseases of Nutrition, Etc. :

				European	Asian	African and Others	Total
59.	Diabetes	...	...	2	2	1	5
62.	Pellagra	...	...	—	—	2	2
63.	Rickets	...	...	—	1	—	1
158.	Marasmus	...	...	—	10	20	30
TOTAL				2	13	23	38



**GROUP IV.—Diseases of the blood, etc. :**

			European	Asian	African and Others	Total
44.	Pink Disease	... ..	—	1	—	1
71.	Anaemia	... ..	—	2	1	3
72.	Leukaemia	... ..	—	—	1	1
	Hodgkin's Disease	... ..	—	—	1	1
TOTAL		... ..	—	3	3	6

**GROUP V.—Poisoning :**

			European	Asian	African and Others	Total
	Poisoning (Other Organic Substances)		1	—	2	3
TOTAL		... ..	1	—	2	3

**GROUP VI.—Diseases of the Nervous System :**

			European	Asian	African and Others	Total
78.	Cerebral Abscess	... ..	—	—	1	1
79.	Meningitis	... ..	—	3	24	27
78.	Encephalitis	... ..	—	—	1	1
81.	Myelitis	... ..	—	1	1	2
82.	Cerebral Haemorrhage	... ..	10	6	10	26
82.	Paralysis	... ..	1	—	—	1
84.	Insanity	... ..	2	1	16	19
85.	Epilepsy	... ..	—	1	1	2
86.	Convulsions (Infantile)	... ..	—	1	—	1
87.	Convulsions	... ..	—	1	—	1
87.	Neuritis	... ..	1	—	—	1
TOTAL		... ..	14	14	54	82

**GROUP VII.—Diseases of the Circulatory System :**

			European	Asian	African and Others	Total
94.	Angina Pectoris	... ..	—	1	—	1
95.	Heart Disease	... ..	1	1	3	5
96.	Aneurysm	... ..	1	—	2	3

102.	Hyperpiesis	...	1	1	—	2
92.	Endocarditis	...	—	3	3	6
93.	Myocarditis	...	—	—	2	2
90.	Pericarditis	...	—	—	2	2
94.	Coronary Thrombosis	...	2	7	2	11
99.	Embolism	...	—	—	1	1
92.	Valvular Disease of the Heart	...	1	2	1	4
69.	Toxaemia	...	—	—	8	8
111.	Pulmonary Embolism	...	2	—	1	3
TOTAL			8	15	25	48

#### GROUP VIII.—Diseases of the Respiratory System :

			European	Asian	African and Others	Total
106.	Bronchitis	...	2	4	3	9
107.	Broncho-pneumonia	...	2	16	49	67
108.	Lobar Pneumonitis	...	3	24	122	149
110.	Pleurisy	...	—	—	1	1
110.	Empyema	...	—	—	1	1
112.	Asthma	...	2	2	1	5
11.	Influenza	...	—	—	2	2
TOTAL			9	46	179	234

#### GROUP IX.—Diseases of the Digestive System :

			European	Asian	African and Others	Total
73.	Ruptured Spleen	...	—	—	1	1
115.	Tonsillitis	...	—	1	—	1
103.	Haemorrhage	...	—	—	1	1
118.	Hepatitis	...	—	—	1	1
125.	Jaundice	...	—	2	1	3
119.	Diarrhoea	...	—	4	26	30
121.	Appendicitis	...	1	3	—	4
122.	Intestinal Obstruction	...	3	3	1	7
117.	Gastric Ulcer	...	—	—	2	2
124.	Cirrhosis of Liver	...	2	3	10	15
127.	Cholecystitis	...	—	1	—	1
122.	Volvulus	...	—	—	2	2
129.	Peritonitis	...	—	4	4	8
122.	Intussusception	...	—	—	1	1
122.	Paralytic Ileus	...	3	—	1	4
43.	Sprue	...	—	1	—	1
115.	Stomatitis	...	—	1	—	1
98.	Cancrum Oris	...	—	—	1	1
116.	Dysphagia	...	—	1	—	1
TOTAL			9	24	52	85



**GROUP X.—Non-Venereal Diseases of Genito-Urinary System :**

				European	Asian	African and Others	Total
130.	Nephritis	...	...	3	5	8	16
137.	Enlarged Prostate	...	...	2	—	1	3
133.	Pyonephrosis	...	...	—	—	1	1
135.	Cystitis	...	...	—	—	1	1
132.	Uraemia	...	...	—	1	4	5
TOTAL				5	6	15	26

**GROUP XI.—Diseases of Pregnancy, Child Birth and Puerperal State:**

				European	Asian	African and Others	Total
142.	Ectopic Gestation	...	...	—	—	4	4
145.	Puerperal Sepsis	...	...	—	1	—	1
149.	Difficult Labour	...	...	—	—	1	1
160.	Birth Injuries	...	...	—	1	4	5
144.	Postpartum Haemorrhage	...	...	—	—	2	2
147.	Puerperal Toxaemia	...	...	—	—	1	1
TOTAL				—	2	12	14

**GROUP XII.—Diseases of the Skin :**

				European	Asian	African and Others	Total
152.	Cellulitis	...	...	—	1	2	3
TOTAL				—	1	2	3

**GROUP XIII.—Diseases of the Bones and Joints :**

				European	Asian	African and Others	Total
154.	Osteo-myelitis	...	...	—	—	1	1
TOTAL				—	—	1	1



**GROUP XIV.—Congenital Malformations :**

			European	Asian	African and Others	Total
157.	Spina bifida	... ..	—	—	2	2
157.	Malformation of the Heart	...	—	1	1	2
TOTAL		... ..	—	1	3	4

**GROUP XV.—Diseases of Early Infancy :**

			European	Asian	African and Others	Total
158.	Marasmus	... ..	—	10	20	30
159.	Prematurity	... ..	2	30	42	74
160.	Injury at Birth	... ..	—	1	4	5
161.	Asphyxia Neonatorum	...	1	—	1	2
TOTAL		... ..	3	41	67	111

**GROUP XVI.—Old Age :**

			European	Asian	African and Others	Total
162.	Senility	... ..	3	5	1	9
TOTAL		... ..	3	5	1	9

**GROUP XVII.—Deaths from Violence :**

			European	Asian	African and Others	Total
171.	Suicide	... ..	1	3	5	9
175.	Manslaughter	... ..	—	—	1	1
175.	Homicide	... ..	1	—	—	1
181.	Burns	... ..	—	4	3	7
194.	Accident Unspecified	... ..	4	17	17	38
	Accident Motor Car	... ..	1	1	2	4
182.	Asphyxia	... ..	—	—	1	1
198.	Legal Execution	...	—	—	13	13
TOTAL		... ..	7	25	42	74



## GROUP XVIII.—Ill Defined Diseases :

				European	Asian	African and Others	Total
	Natural Causes	...	...	2	16	16	34
98.	Gangrene	...	...	1	—	—	1
152.	Abscess	...	...	—	1	4	5
	Pelvic Abscess	...	...	—	—	1	1
	TOTAL	...	...	3	17	21	41

Group 1. **Infectious and Parasitic Diseases.** This year the Infectious and Parasitic Diseases take second place to Diseases of the Respiratory System as chief cause of death. The figures are 1.76 for the former and 2.11 for the latter. This increase is chiefly due to increased deaths from the pneumonias. Tuberculosis (82 cases) and Syphilis (34 cases) are the remaining chief causes of death in Nairobi, these particularly affecting the African population. No deaths from Plague or Smallpox were recorded from within the Municipal Area, but there were ten deaths from Malaria.

Group 2. **Cancer and Other Tumours.** There has been little change in the death rate for all races from Cancers and Other Tumours. The small rise of .02 in the rate need not be considered as significant. Comparative tables showing number of deaths from Cancer for the years 1940-46 are attached for interest.

## Comparative Tables—Deaths from Cancer—1940/1946

	Euro- pean	Indian	Goan	African	Somali	Sey- chelloise	Arab	Nubian	Others.	Total
1940	4	4	—	5	1	—	—	—	—	14
1941	8	5	—	2	—	2	1	—	—	18
1942	9	1	—	9	—	—	—	—	—	19
1943	7	8	—	5	1	—	—	—	—	21
1944	6	3	—	9	—	—	—	—	—	18
1945	9	6	—	12	—	—	—	—	—	27
1946	11	4	—	11	—	—	—	—	—	26
Total	54	31	—	53	2	2	1	—	—	143

1940

Group II.—Cancer and  
Other Tumours :

	European	Indian	Goan	African	Somali	Arab	Seychellois	Abyssinian	Nubian	Mauritians	TOTAL.
46. Stomach	...	—	1	—	3	1	—	—	—	—	5
47. Pleura	...	—	—	—	1	—	—	—	—	—	1
50. Breast	...	—	1	—	—	—	—	—	—	—	1
51. Prostate	...	1	—	—	—	—	—	—	—	—	1
52. Face	...	1	—	—	—	—	—	—	—	—	1
53. Malignant tumour	...	2	—	—	—	—	—	—	—	—	2
Carcinoma sacrum	...	—	1	—	—	—	—	—	—	—	1







1945

**Group II.—Cancer and Other Tumours :**

		European	Indian	Goan	African	Somali	Arab	Seychellois	Abyssinian	Cingalese	Comorians	TOTAL.
45. Tongue	...	—	—	—	1	—	—	—	—	—	—	1
Tonsils	...	—	—	—	1	—	—	—	—	—	—	1
46. Pancreas	...	—	1	—	1	—	—	—	—	—	—	2
„ Oesophagus	...	—	1	—	—	—	—	—	—	—	—	1
Stomach	...	1	—	—	—	—	—	—	—	—	—	1
Rectum	...	1	1	—	—	—	—	—	—	—	—	2
Liver	...	2	1	—	—	—	—	—	—	—	—	3
Retro-Peritoneal	...	—	1	—	—	—	—	—	—	—	—	1
48. Uterus	...	3	1	—	—	—	—	—	—	—	—	4
50. Breast	...	—	—	—	3	—	—	—	—	—	—	3
51. Prostate	...	1	—	—	—	—	—	—	—	—	—	1
53. Unspecified	...	—	—	—	2	—	—	—	—	—	—	2
Generalised	...	—	—	—	1	—	—	—	—	—	—	1
54. Uterine Fibroid	...	—	—	—	3	—	—	—	—	—	—	3
66. Goitre	...	1	—	—	—	—	—	—	—	—	—	1
TOTAL												27

Group 3. **Rheumatism and Diseases of Nutrition.** The increase in the rate from 0.13 to 0.35 is caused by the higher number of cases of Marasmus in children.

Group 4. **Diseases of the Blood.** This group shows a decrease of 0.05.

Group 5. **Poisoning.** A death rate of 0.02. Decrease of 0.01 is of no import.

Group 6. **Diseases of the Nervous System.** Meningitis, Cerebral Haemorrhage, and Insanity, in Africans, and Cerebral Haemorrhage in Europeans form the main bulk of these cases of death. There is an increase in the death rate of 0.28.

Group 7. **Diseases of the Circulatory System.** There is no important change in the mortality rate.

Group 8. **Diseases of the Respiratory System.** The death rate has increased from 1.46 to 2.11. This is due to an increase in Asian and African cases of broncho and lobar pneumonia.

		TOTAL CASES			DEATH RATES		
		1944	1945	1946	1944	1945	1946
Broncho Pneumonia	...	66	53	67	0.66	0.47	0.60
Lobar Pneumonia	...	101	100	149	0.93	0.88	1.34

Group 9. **Diseases of the Digestive System.** The number of deaths in this group shows a slight increase from 0.71 to 0.76.

Group 10. **Non-Veneral Diseases of the Genito-Urinary System.** A diminution of 0.04 is shown.



Group 11. **Diseases of Pregnancy and the Puerperal State.** Again there were no deaths among Europeans, and a reduction in the death rate amongst Asians and Africans of 0.02 is shown. This rate, while useful for information is not statistically reliable, owing to defective notifications.

Group 12. **Diseases of the Skin.** There was an increase in the mortality rate of 0.01. These deaths were all from Cellulitis.

Group 13. **Diseases of the Bones and Joints.** The death rate remains unchanged at 0.01.

Group 14. **Congenital Malformations.** There is no significant change.

Group 15. **Diseases of Early Infancy.** The death rate has dropped by 0.1. Out of a total of 111, three were European.

Group 16. **Old Age.** There were nine deaths from senility, of which three were Europeans, five Asians, and one African. This shows a decrease from 1.04 in 1945 to 0.08 in 1946.

Group 17. **Deaths from Violence.** There is no significant change. There were 13 legal executions as against 18 for 1945. All were Africans.

Group 18. **Ill Defined Diseases.** There is no significant change.

The highest causes of death shown below, in numerically decreasing importance, in the three race groups were:—

EUROPEAN	ASIAN	AFRICAN
Diseases of the Nervous System.	Diseases of the respiratory system.	Diseases of the respiratory system.
Cancer and other tumours.	Diseases of early infancy.	Infectious and parasitic diseases.
Diseases of the Respiratory and Diseases of the Digestive Systems.	Deaths from Violence.	Diseases of early infancy .
Diseases of the Circulatory System.	Diseases of the digestive system.	Diseases of the Nervous system.
Deaths by Violence.	Infectious and parasitic diseases.	Diseases of the digestive system.

## Infant Mortality

The infant mortality rate for all races as expressed by the number of deaths of infants under one year of age, per 1,000 live births, was 59.73 for the year. The number of infant deaths was 291 or 27.71% of the total deaths. Corresponding figures for 1945 were 253 or 27.3 of the total deaths.

The large amount of work being done in the way of health education amongst the African population has borne fruit, as is shown in the sharp drop from 131 African infant deaths per 1,000 live births in 1945 to 71 per 1,000 live births in 1946.



The Asiant infant death rate has risen from 56 per 1,000 live births in 1945 to 60 per 1,000 live births in 1946.

### Infant Mortality Rates

RACE.	Live Births	Infant Deaths	Rate per 1,000 Live Births.
European ... ..	165	8	48.48
Asian ... ..	1,526	91	59.63
African and Others ...	1,294	192	71.09
TOTAL ... ..	2,985	291	59.73

### Comparison Infant Mortality Rates for Seven Years

YEAR.	European.	Asian.	African & Others.	All Races.
1940	56	174	248	187
1941	20	146	180	149
1942	33	127	165	137
1943	36	95	207	135
1944	49	62	154	97
1945	33	56	131	86
1946	45	60	71	59

### Maternal Mortality Rates

RACE.	Live & Still Births.	Maternal Deaths.	Rate/1,000 Births.
European ... ..	168	1	0.59
Asian ... ..	1,566	5	0.32
African & Others ...	1,351	4	0.29
All Races ... ..	3,085	10	1.2

### INFANT MORTALITY

#### Monthly Totals

							TOTAL
January ...	19	May ...	18	September ...	34		71
February ...	15	June ...	25	October ...	13		53
March ...	12	July ...	34	November ...	32		78
April ...	29	Aug. ...	33	December ...	27		89
...	75	...	110	...	106		291



## Causes of Infant Deaths

	European.	Asian.	African & Others.	TOTAL
Asphyxia Neonatorum	1	—	2	3
Anaemia	—	1	—	1
Anencephaly	—	—	1	1
Birth Injury	—	1	3	4
Bronchitis	—	2	2	4
Congenital Syphilis	—	—	22	22
Convulsions	—	1	1	2
Cerebral Haemorrhage	—	—	3	3
Cellulitis	—	1	—	1
Congenital Heart Disease	—	1	—	1
Cirrhosis of Liver	—	1	—	1
Diarrhoea	—	5	9	14
Dysentery	1	—	4	5
Gastro Enteritis	—	4	4	8
Hydrocephalus	—	—	1	1
Influenza	—	—	2	2
Intestinal Obstruction	1	—	—	1
Ill Defined	—	3	14	14
Jaundice	—	1	—	1
Leukaemia	—	—	1	1
Marasmus	1	9	12	22
Meningitis	—	1	1	2
Meningitis Tuberculous	—	—	1	1
Measles	—	—	2	2
Nephritis	—	—	1	1
Opthalmia Neonatorum	—	—	1	1
Paralysis	1	—	—	1
Pneumonia (Lobar)	—	10	28	38
Pneumonia (Broncho)	—	15	31	46
Prematurity	3	31	28	62
Peritonitis	—	1	—	1
Rickets	—	1	—	1
Stomatitis	—	1	—	1
Septic Umbilicus	—	—	2	2
Spina bifida	—	—	1	1
Tuberculosis (Lungs)	—	—	6	6
Toxaemia	—	—	6	6
Tetanus	—	—	1	1
Volvulus	—	—	1	1
Whooping Cough	—	—	1	1
	8	91	192	291

The highest cause of infant death amongst the European section was prematurity. Amongst the Asians also prematurity accounted for most deaths, with lobar pneumonia next. Pneumonia was highest among the Africans, with prematurity a close second. There were 22 African infant deaths from congenital syphilis, a total of just over 10% of the whole.



## Notifiable Infectious Diseases

The number of infectious diseases notified during the year was 717 compared with 582 during 1945, malaria accounted for 463, typhoid fever 69, and tuberculosis 72.

Excluding malaria, the remaining total of 254 is less than that for 1945, which was 272. The typhoid figures show a marked decrease, as do the tuberculosis. Twenty cases of diptheria were notified, which however, are six more than in 1945, the highest incidence again being among Asians. Ten cases of anthrax occurred among Africans, nine of which recovered. There were two cases of poliomyelitis, and five of leprosy, three of these being Asians and two Africans. Only seven cases of cerebrospinal meningitis were notified, although 31 deaths were recorded. This is thought to be caused by country cases amongst the Africans being brought into the Civil Hospital. Eighteen cases of scarlet fever made their appearance, 17 being Europeans. This infectious disease accounted for the highest European rate. Twelve cases occurred in July, four in June, and one in August. The other odd case was in March. There were three cases of Malta fever.

Below is given a comparison between the various rates relating to tuberculosis and typhoid fever for the years 1944 to 1946:—

### TUBERCULOSIS :

	Death Rate.	Incidence.	Case Mortality.
1944	0.79	1.42	56.1%
1945	0.55	0.85	65.6%
1946	0.74	0.93	79.6%

### TYPHOID FEVER :

	Death Rate.	Incidence.	Case Mortality.
1944	0.32	0.13	28.4%
1945	0.14	1.10	12.8%
1946	0.11	0.62	16.0%

## Infectious Diseases Notified

(Excluding Malaria)

	EUROPEAN.	ASIAN.	AFRICAN & OTHERS.	TOTAL.
Anthrax	—	—	10	10
Blackwater Fever	—	3	—	3
Cerebrospinal Meningitis	—	2	5	7
Diptheria	6	10	4	20
Dysentery	—	3	—	3
Leprosy	—	3	2	5
Malta Fever	—	2	1	3
Opthalmia Neonatorum	—	—	1	1



Poliomyelitis	...	...	1	—	1	2
Puerperal Sepsis	...	...	1	1	—	2
Scarlet Fever	...	...	17	1	—	18
Smallpox	...	...	—	—	28	28
Tuberculosis	...	...	1	4	67	72
Typhoid Fever	...	...	3	23	43	69
Typhus	...	...	2	2	7	11
<b>TOTAL</b>	...	...	31	54	160	254

**Monthly Table of Infectious Diseases Notified During 1946**  
(Excluding Malaria)

	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
Anthrax	—	—	1	1	2	—	—	2	2	1	—	1	10
Blackwater Fever	1	—	—	—	—	—	1	—	—	—	1	—	3
Cerebrospinal Meningitis	2	—	1	—	1	—	—	—	1	1	1	—	7
Diphtheria	1	5	1	1	1	2	2	—	6	1	—	—	20
Dysentery	—	—	—	—	—	—	—	—	—	—	—	3	3
Leprosy	—	—	1	1	1	1	—	—	1	—	—	—	5
Malta Fever	2	—	—	—	—	—	—	—	—	1	—	—	3
Ophthalmia Neonatorum	—	—	1	—	—	—	—	—	—	—	—	—	1
Poliomyelitis	1	—	—	—	—	1	—	—	—	—	—	—	2
Puerperal Sepsis	1	—	1	—	—	—	—	—	—	—	—	—	2
Scarlet Fever	—	—	—	1	—	4	12	1	—	—	—	—	18
Smallpox	—	—	2	1	—	1	6	—	13	5	—	—	28
Tuberculosis	5	4	3	6	11	13	16	7	3	3	1	—	72
Typhoid Fever	2	9	4	5	7	2	8	6	8	5	6	7	69
Typhus	—	3	1	2	2	1	1	—	—	—	—	1	11
<b>TOTALS</b>	15	21	16	18	25	25	46	16	34	17	9	12	254

### INOCULATIONS

The following vaccinations and inoculations were performed :

	European.	Asian.	African.	TOTAL.
Yellow Fever	2,234	9,643	1,732	13,609
T. A. B.	167	98	4,417	4,682
Diphtheria	28	12	4	44
Smallpox	4,038	344	215	4,597
<b>TOTALS</b>	6,467	10,097	6,368	22,932



# ADMISSIONS TO HOSPITAL: 1946

## Admissions to Hospital and Patient Days

Hospital.	EUROPEAN.		ASIAN.		AFRICAN & OTHERS.		TOTAL	
	Admis- sions.	Patient days.	Admis- sions.	Patient days.	Admis- sions.	Patient days.	Admis- sions	Patient days.
European ...	3	107	—	—	—	—	3	107
Native Civil ...	—	—	10	169	82	2,503	92	2,672
Infectious Diseases ...	12	182	2	413	737	13,004	751	13,599
Total ...	15	289	12	582	819	15,507	846	16,378

## Communicable Diseases as Affecting Races Treated in Hospital During 1946

			EUROPEAN.	ASIAN.	AFRICAN & OTHERS.	TOTAL.
Acute Poliomyelitis	...		1	1	—	2
Anthrax	...	...	—	—	20	20
Chickenpox	...	...	—	—	95	95
B. Influenzal meningitis	...		—	—	1	1
Cerebrospinal meningitis			—	1	6	7
Diphtheria	...	...	—	2	5	7
Leprosy	...	...	—	3	6	9
Malta Fever	...	...	—	1	—	1
Measles	...	...	3	—	187	190
Mumps	...	...	2	—	118	120
Scarlet Fever	...	...	7	—	—	7
Smallpox	...	...	—	—	27	27
Tropical Typhus	...	...	—	—	9	9
Tuberculosis	...	...	—	1	84	85
Typhoid Fever	...	...	2	3	39	44
Whooping Cough	...		—	—	69	69
Contacts	...	...	—	—	153	153
TOTAL	...	...	15	12	819	846





*MUNICIPAL COUNCIL OF NAIROBI*  
*Kenya Colony,*

*With the Compliments*  
*of*  
*The Medical Officer of Health.*

*Public Health Department,*  
*Town Hall,*  
*Nairobi,*  
*Kenya.*





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## Sanitary Administration

During the period under review, the circumstances of Sanitary administration show little change. As in most branches of the Public Health Department, the effects of the change over from war-time to peace-time conditions made themselves felt. One legacy was the number of Military Camps, vacated by their previous occupants, which were handed over in an unsatisfactory condition. While it is agreed that the Army were confronted with considerable difficulty in obtaining labour, there was also a tendency for the camps to be evacuated with little regard for their condition. Contact with the appropriate authority was established with difficulty, and after repeated representations, some improvement was effected. It is to be noted that even though the camp may be left tidy, it becomes more of a nuisance if left empty, than if in continued occupation.

In spite of the fact that the statistics for 1946 show an apparent diminution of the total population of the town, the problem of housing and accommodation has become more and more acute. Overcrowding, especially in the Asian quarters, has reached a degree of almost complete saturation, in which it is usually impossible to squeeze any more human bodies into a given space. The African locations are full and overflowing, and the European population is in no better plight. In these circumstances anxiety must be felt that the occurrence of an epidemic of infectious disease might prove disastrous, and it can only be hoped that conditions may be improved without a happening of this sort. Quite apart from the actual difficulty in building, the shortage of labour and materials, there is a great and almost insuperable difficulty of alternative accommodation. Many owners of tottering property would be willing to rebuild it soundly if their tenants could be alternatively housed, but that can not be effected without a Court Order which is not granted without alternative accommodation. This causes complete paralysis. The remedy is to establish a camp to house dispossessed persons, but it is doubtful if this is an entirely practicable proposition.

The co-operation shown by the general public to the sanitary staff was of the usual low order. The general attitude is compounded of evasion of responsibilities, apathy, alternating with ill-informed criticism of any short-coming, or fancied short-coming on the part of the various departments. This attitude is understood and borne in mind. As many prosecutions as possible are instituted, but the penalties imposed by the Bench are unsatisfactory, and lacking in disciplinary value.

During the year revised by-laws have been in preparation and these offer some degree of encouragement. It is hoped that the ensuing year will see their adoption by the Council, and their approval by the various other authorities. A particular feature of the new Bye-laws is a strengthening of the present inadequate control over the preparation and sale of food, which is at present of a low standard.

### SANITATION

#### Summary of Works Performed

##### NUISANCES

Inspections made to :

Dwelling Houses	...	...	...	...	5,455
Laundries	...	...	...	...	264



Offensive Trades	...	...	...	...	24
Stables & Cattle Sheds	...	...	...	...	2
Trade Premises & Offices	...	...	...	...	5,260
Camps	...	...	...	...	23
Public Buildings	...	...	...	...	296
Open Spaces Streets, etc.	...	...	...	...	3,389

### COMPLAINTS & INVESTIGATION

Complaints Investigated	...	...	...	...	273
House to House Inspections	...	...	...	...	618
Interviews	...	...	...	...	1,114

### DEFECTS REMEDIED

Premises dirty or verminous	...	...	...	...	528
Dwellings unfit for habitation	...	...	...	...	79
Yards unpaved	...	...	...	...	30
Rat infested premises	...	...	...	...	27
Latrine Accommodation Defective or inadequate	...	...	...	...	272
Drains (pipe) choked or defective	...	...	...	...	142
Drains (open) choked or defective	...	...	...	...	75
Drains absent or inadequate	...	...	...	...	21
Septic tanks or pits choked or defective	...	...	...	...	71
Waste Water disposal defective or inadequate	...	...	...	...	80
Accumulations of Refuse	...	...	...	...	584
Food unprotected against rats	...	...	...	...	50
Sleeping in kitchens or foodstores	...	...	...	...	34
Mosquito Breeding	...	...	...	...	80
Overgrown plots (381 acres)	...	...	...	...	270
Miscellaneous	...	...	...	...	630

### DEFECTS REMEDIED FOLLOWING :

Verbal Intimation	...	...	...	...	1,993
Written Intimation	...	...	...	...	326
Statutory Notices	...	...	...	...	654

### LICENCES

Trade Premises inspected and re-inspected	...	...	...	...	1,925
Taxi Cab Inspections	...	...	...	...	83
Food Carts: Milk-Meat-Bread-Sweetmeats	...	...	...	...	121

### ERECTION & ALTERATION OF BUILDINGS

Plans scrutinised	...	...	...	...	1,116
Inspections made	...	...	...	...	2,309
Completion Certificates issued	...	...	...	...	333

### INFECTIOUS DISEASES

Inspections made of premises following infectious disease notification	...	...	...	...	209
Cases investigated	...	...	...	...	176
Rooms with contents disinfected	...	...	...	...	72



**NOTICES SERVED**

Intimation	...	...	...	646
Public Health Ordinance (Nuisance)	...	...	...	311
Public Health Ordinance (Others)	...	...	...	17
Rats & Mice Rules	...	...	...	13

**BY-LAWS**

Drainage By-Laws	...	...	...	102
Mosquito Control	...	...	...	136
Bakehouse By-laws	...	...	...	3
Food Rules	...	...	...	6
Miscellaneous Notices	...	...	...	7
By-law No. 189	...	...	...	5
" " " 268	...	...	...	12
" " " 465	...	...	...	4
" " " 509	...	...	...	11
" " " 510	...	...	...	38
" " " 513	...	...	...	25
" " " 518	...	...	...	13
" " " 565	...	...	...	20
" " " 566	...	...	...	11

**LEGAL PROCEEDINGS**

Prosecutions	...	...	...	41
Convictions	...	...	...	35
Discharged	...	...	...	4
Withdrawn	...	...	...	2
Fines and Costs	...	...	Shs. 5,773/—	
Bound Over	...	...	...	1
Imprisonment	...	...	...	3

**Inspections of Premises subject to Special Control**

Premises.	No. of Inspections.
Aerated Water Factories	152
Bakeries	208
Butchers	479
Dairies and Milk Shops	592
Eating Houses	1,290
Fishmongers	180
Food Factories	262
Groceries and Provisions	839
Hotels and Bars	203
Markets	89
Restaurants and Tea Rooms	490
Vegetable Sellers	930



## Inspection and Supervision of Food and Food Premises

During the period of the Report an effort has been made to increase the scope of this important branch of supervision. As usual, during the war years, various difficulties, especially in respect of accommodation and storage, have impaired the safety of food supply to the public, defective storage houses have exposed bulk stores to damage and contamination by rats, and the relaxation of normal restrictions has allowed the preparation of food in premises which fall far below the proper standard. This latter state of affairs has been aggravated by weaknesses in the Municipal Bye-laws in respect of conditions required for licensing.

During the years preceding the last war, an increasing amount of attention was being directed on both sides of the Atlantic to improvement in cleanliness in the preparation and handling of foods. The grounds for this were partly hygienic and partly aesthetic, and prompted not so much by the occurrence of various outbreaks of food poisoning, or by the frequent spread of disease by food, as by an awakening consciousness of the principles of prevention. The conditions prevailing during the war, food shortages and necessities for economy in packing, hampered progress, but the basic ideas have persisted, and will no doubt develop further as world conditions approach normal.

Circumstances in this country are such that, apart from the desirability of keeping pace with general development in the hygienic handling of food, this matter should be given greater prominence than in Europe or America. The underlying reasons for this are simple. Firstly, that a large number of foods capable of carrying infection pass at some stage during their course from producer to consumer through one, or maybe several pairs of non-European hands: secondly, that the owners of these hands are often heavily infected with intestinal diseases, such as typhoid and paratyphoid fevers, dysentery, and worm infections, the normal channel of infection of which is by food. Next there is the fact that, especially in the case of meat, and milk, certain diseases of cattle endemic in this country, such as trichiniasis, find ready spread. Finally, there is the difficulty of inculcating in the native mind the elements of hygiene in handling food, and the further difficulty of ensuring that such principles, even though understood, are consistently carried out. These dangers attach to a large variety of foods. Vegetables may be grown in sewage infected fields, and convey infection directly if not properly cleansed. Milk, the adulteration of which with water is the rule rather than the exception under our present conditions, may be diluted with water from unmentionable sources.

This is a formidable picture, but the fact that it is not exaggerated can be quickly established by the figures of the incidence of intestinal diseases in Europeans and in the general population of this town. It is astonishing to find in any community the defeatist acceptance of amoebic dysentery which appears to be regarded in much the same light as a European regards the common cold, oblivious of the fact that it can be a most debilitating and sometimes fatal disorder.

What is the remedy? It is quite obvious that this state of affairs cannot be accepted complacently. Unfortunately there is no single panacea. The only course of action is to institute a campaign of control, propaganda and inspection, which will have to continue for years. Manufacturers



must be encouraged to produce and distribute food in a cleanly manner, and, most importantly, the public must be encouraged to demand this. It will not be until Nairobi has a system of handling the various foods in distribution which is better than in any town in Europe that the additional dangers implicit in infected food can be regarded as adequately guarded against.

As examples of measures which must inevitably be introduced in such a campaign, are sterilisation and bottling of milk, wrapping of bread, wrapping of cooked meats, care in handling of meat, radical improvement in food handling and preparation in restaurants, strict control of mineral waters and ice cream, and many other items.

Dysentery has been made notifiable to the Municipality and observation of the figures in connection with this disease will give a good index as to the general ineffectiveness of measures taken to procure safe food. It is hoped that these may ultimately attain a degree of efficiency which will eliminate the preventable group of intestinal infections.

**Ice Cream.**—For a number of years it has been known that ice cream can be an extremely dangerous substance in the spread of epidemics. This has been shown by the number of outbreaks of diseases certainly traced to it, one of the most recent of which occurred at Aberystwyth, North Wales, last July, causing 140 cases of typhoid fever, with several deaths.

Much of the trouble with ice cream arises from the delusion that freezing kills bacteria. Actually there is no better method of preserving their life for long periods; this is true at least of all those which enter the body through the mouth.

The examination of an ice cream sample consists of estimating the number of bacteria in it. Obviously if "harmless" bacteria can be present, harmful ones can also find their way into it, thus causing an epidemic. In the case of the Aberystwith epidemic, typhoid germs were introduced into the ice cream by the person preparing it, who carried the germs in his intestine. If the ice cream, even in this case, had been properly handled, the epidemic might not have happened.

A systematic examination of samples of ice cream taken from all classes of vendor in Nairobi reveals an alarming state of affairs. Nearly all samples showed indications of bacterial pollution, indicating that, if they came in contact with personnel carrying or infected with disease, in the course of preparation or sale, the ice cream would become a dangerous infective agent. A study was made of the actual preparation of ice cream at several local establishments, and it was found that in most instances methods were extremely unsatisfactory. Ingredients were often stored where they could be contaminated by rats. Milk and water were used unboiled, vessels and apparatus were dirty, and very often handling was carried out in an extremely dirty fashion. Advice was given regarding the cleanliness in preparation, but it is regarded as necessary to maintain continued supervision of this industry. Even so it will not be possible to effect a complete safeguarding of ice cream until a Municipal Bye-Law has been established giving power to refuse a licence to a trader who persists in supplying dangerous ice cream to the public.

**Milk.**—The whole situation regarding milk in the Municipality is unsatisfactory. The examination of milk is divided broadly into two main sections:—



- (a) Examination for quality, that is to say, for the addition of water.
- (b) Examination for purity, to determine bacteriological contamination, caused by unclean handling.

In Nairobi, unlike England, there is a close relationship between the two problems, since the dilution of milk for the purpose of fraud is often carried out with unclean water, and therefore milk may be both fraudulently diluted and dangerously contaminated. To illustrate, it is known that persons have extracted milk from sealed churns in transit, and refilled them by putting them in a stream, thus delivering the milk grossly diluted and contaminated, but with the seal intact.

In the case of testing for purity, tests are carried out either by bacterial count or by the methylene blue test, now generally acceptable in England as a reliable means of assessing contamination.

Sampling by the various methods above has revealed a disturbing degree of impurity and adulteration, which is illustrated in the figures given in the table below:—

e.g., out of 18 samples of milk submitted to the methylene blue test, nine were unsatisfactory.

It will readily be appreciated that sources of contamination of milk may be many, and the tracing and rectification of these sources is a most complex matter. Contamination can occur—

- (a) from disease of the cow,
- (b) from the milker,
- (c) from his vessels,
- (d) from vessels used for transport,
- (e) in the dairy itself,
- (f) from bottles used in distribution.

Add to this that dirty water may be introduced at any point. Responsibility is moreover divided between producer, transporter, and distributor, and each is eager to blame the other when trouble occurs.

As the rules stand at present, any person passed medically fit at one examination is entitled to be registered as a purveyor of milk, whether he has his own cattle or not. At present, out of 169 registered dairies there are—

- 46 Africans with cows, and 11 working at dairies, living in Pumwani.
- 11 Africans with cows, and 17 working at dairies, living at Kariakor.
- 10 Africans with cows, and 1 working at a dairy, living at Shauri Moyo.
- 1 African with cows, and 2 working at dairies, living at Kaloleni.

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Total 68 Africans with cows and 31 working at Dairies.

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These sixty-eight are sleeping at these locations, and the majority of cattle are kept in the nearby districts, Katani, Dagoretti, Ruaraka, Kamiti, etc., a matter of a few miles from Nairobi.

Accordingly, other persons are required to bring the milk from these districts to the purveyors and to take the containers back again. These persons should be removed from the locations to their own domicile nearby, and a purveyors' licence should be refused to all persons living in locations where the conditions of keeping and handling milk with no conveniences for washing utensils exist.



From all this it will be seen that, as circumstances are at present, it is a matter of greatest difficulty to exert firm control over milk supplies within the Municipality. Outside it, the situation has become distinctly worse, lately. In the past it has been the practice for persons sending milk into the Municipality to be licensed, such a licence being granted after inspection of their premises by the Medical Authority of Kiambu District Council. Through their inability to cope with this, owing to shortage of staff, this has now had to be abandoned. The only remedy for this highly unsatisfactory state of affairs, is the establishment as soon as possible of a Milk Pasteurizing and Distributing Depot. Fortunately, such a scheme is under active consideration, but it will not be until it is operating that the public can safely drink milk without boiling it.

### **Bread Carts**

There is no provision in the Bye-laws for the regulation or licensing of bread-carts. It would be advisable to make Bye-laws that all carts be of a pattern approved by the Medical Officer of Health, and the carts be maintained at all times in a good, clean, dust-proof condition. It should be an offence to use other than a clean, dust-proof cart approved by the Council.

### **Fishmongers**

In considering the granting of licences to premises, it is necessary that the boxes conveying fish from suppliers to retailers should be of a pattern approved by the Medical Officer of Health, similar to hand carts conveying foodstuffs in the Township.

## **Sewerage and Drainage**

As in 1945, very fair progress has been made, a total of 15,829 linear feet of sewers having been laid. This compares with an average of 10,000 linear feet per year for the previous thirteen years. Possibly greater progress might have been made if the financial situation had been clearer.

200 linear feet of replacements were also made.

In addition to financial uncertainty, delays and difficulties have been experienced owing to exhaustion of stocks of piping and delays in delivery of new supplies. Sand and cement have also been difficult to obtain.

During the year the following schemes were prepared or investigated:

- (1) A comprehensive sewerage scheme to include the entire Municipal area.
- (2) Extensions to sewage disposal works.

This latter item is in need of further attention, since the quality of the sewage effluent is not satisfactory.

The storm water sewage system has been examined and improvements prepared in conjunction with the comprehensive sewerage scheme.

The total length of sewer in Nairobi is now 35.47 miles.



## Housing

### African Housing

The principal work of Council for the Year was the Makongeni Housing Scheme which had been taken over from the Government the previous year. All work under the first contract was completed during the year. This included the first portion of the housing, the East and West shops and the Community Centre. The second contract was let early in the year, and despite many delays caused by lack of materials generally and more particularly by the default of the contractor supplying stone, the scheme was nearing completion at the end of the year. Work was also well advanced on the Charcoal Stores, Maintenance Depot and Child Welfare Clinic.

The Abattoir Loan Housing in Pumwani was completed, and all seventy dwellings occupied early in the year. A contract was let in January for the temporary housing scheme for African Bachelors prepared the previous year and this too was rapidly completed and occupied. This scheme provides accommodation for 1200 African Bachelors and is complete with roads, paths, kitchens, lavatory and ablution blocks, and an independent water supply from a borehole situated within the scheme.

### Asian Housing

The Ngara Flats designed by Mr. H. E. Henderson and started in 1945, were completed by the end of the year. No other Asian housing was erected by Council during the year.

### Other Major Building Works

1. An open Air Market for the use of Africans situated behind the Municipal Market, in Stuart Street.
2. Storage Galleries and new office to Municipal Stores, Race Course Road.
3. Temporary Asian Clinic, Eastleigh.
4. Stores and Workshop at the Municipal Abattoir — designed by Mr. James Ward.
5. Conversion of old Police lines in Pumwani into a Child Welfare Clinic.
6. Alterations to Town Hall to provide additional offices.
7. Various alterations and additions to 'Ann's House.'

In addition to the above various other minor works and maintenance of Municipal Property were carried out during the year. Work was also started on the African Canteen off Jeevanjee Street. Various schemes were prepared in the Drawing Office and assistance given to the Town Planning Team.

## Town Planning

During 1946 Town Planning matters were in abeyance pending receipt of the report by the team of Town Planners. At the end of the year final report was still awaited. The Railway Administration had however investigated the practicability of the team's suggestions for the area for Heavy Industries, etc., to be South East of the town, and had put forward amended proposals, which, although differing from the Team's 'Master Plan' adhered to the principles it delineated. These proposals were generally agreed but confirmation by Professor Thornton White was awaited. He was expected to arrive in Nairobi by January 1947.



The height of buildings received consideration. It was decided that buildings in a central zone of the Commercial Area could be erected to a maximum height of 100 feet; buildings in the remainder of the municipality being restricted to 50 feet except in exceptional circumstances. Instructions were given for the Building Bye-laws to be amended accordingly.

## Water Supply

### 1. Sources of Supply

The new 12" main from Ruiru River was brought into operation in March and enabled an adequate quantity of water to be supplied to the Municipality. For the first three months of the year the supply of water was considerably less than that required and severe restriction had to be imposed. The borehole at the temporary Native Housing was equipped and set to work during June. After chlorination the supply was found to be satisfactory for human consumption. Various Military boreholes continued to augment the supply of water during the first four months of the year.

The Nairobi Dam on the Ngong River was in the main completed in May 1946, but the locality and incidence did not continue to give an adequate flow in the river. The maximum depth of water impounded in the reservoir was approximately 10 feet, representing about 22 million gallons of which 20 million gallons were below the level of the lowest draw-off pipe.

### 2. Rainfall

Statistics for the Lari Forest Station situated on the Ruiru Dam catchment and for Nairobi are as follows :—

Lari Forest Station.				Nairobi
				(Gauge at Nairobi Royal Golf Club).
1946	...	...	57.02	28.11
1945	...	...	46.43	33.41
Average for 38 years			55.56	35.10

The higher rainfall at the Lari Forest Station and generally over the area of the Ruiru Dam catchment was reflected in a considerable increase in river flows compared to the previous year. As an example the flows in the river on December 31st 1946 and 1945 respectively were 13.28 curces and 1.29 curces despite an additional abstractum of 1.5 curces to Nairobi in 1946.



## DELIVERY AND CONSUMPTION OF WATER

Average Deliveries per Head Per Day Are Based on a Population of 112,000. Quantities Expressed in Thousands of Gallons.

Source.	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	Total Previous Year.
Kikuyu Springs and Swamp daily ...	905	972	932	1069	933	944	1178	1150	1167	1179	1175	1173	—	—
Ruiru River daily ...	616	720	913	899	1275	1333	1349	1282	1265	1282	1240	1259	—	—
Municipal Boreholes daily	9	9	12	12	—	2	6	6	6	6	6	6	—	—
Military Boreholes daily	84	32	99	101	30	—	—	—	—	—	—	—	—	—
Total delivery per day ...	1614	1733	1956	2081	2238	2279	2533	2438	2438	2467	2421	2438	—	32
Daily Loss filter washing etc. ...	1	1	1	1	1	1	207	101	1	13	17	37	—	—
Nett. Daily delivery ...	1613	1732	1955	2080	2237	2278	2326	2337	2437	2454	2404	2401	—	—
Nett. Monthly delivery ...	50003	48496	60605	62400	69347	68340	72106	72447	73110	76477	72120	74431	799882	716539
Nett. Monthly consumption	47858	43439	47524	50922	54566	55372	57338	56167	58247	61317	57342	66874	656966	599261
Monthly Loss ...	2145	5057	13081	11478	14781	12968	14768	16280	14863	15160	14778	7557	142916	117278
Monthly Loss % ...	4.3	10.4	20.3	18.4	21.1	18.9	20.4	22.4	20.3	19.8	20.5	10.1	17.9	15.0
Average daily delivery per head (gallons) ...	14.4	15.4	17.5	18.6	20.0	20.3	20.8	20.9	21.8	21.9	21.5	21.4	19.6	17.5



### 3. Delivery and Consumption of Water

The table below shows the daily quantity of water supplied from the various sources during the year, the total monthly and yearly deliveries at the filtration plant and the average daily delivery and consumption.

### 4. Purity

The situation regarding the purity of the water supplied by the Municipality remains unsatisfactory, and must be regarded as such until it is possible to remove the present instructions regarding boiling.

The necessity for boiling water during an epidemic or during a temporary contamination of the supply is not unreasonable, but if carried out as a perpetual routine is very cumbersome, and uneconomic. The inevitable result is that members of the public become slack in the observance of this precaution in their homes, whilst hotels and restaurants are apt to ignore it. Nevertheless, it is not possible to withdraw the advice given to the public regarding the boiling until a period of frequent and general sampling has shown that the water can invariably be depended upon to be free from contamination.

Happily, there appear to be reasonable grounds for hoping that this state of affairs may be achieved in the not too remote future. Systematic testing has given evidence that the principal source of contamination of the general water supply is the small Hill Reservoir, and steps are being taken to remedy this. It may be that the location of the defect, though difficult, will be easier than its remedy, and that it will be necessary to construct a completely new storage reservoir. However, it is satisfying to know that at least some progress has been made.

## Native Burials

### LANGATA CEMETERY

	Burials
C.M.S. Adults ... ..	12
C.M.S. Children ... ..	31
Gospel Furthering Fellowship ...	8
Pagan Cemetery ... ..	1,081
<b>TOTAL</b>	<b>1,132</b>

### AFRICAN CEMETERY — KARIAKOR

	Burials
Roman Catholic ... ..	71
C.M.S. ... ..	23
Salvation Army ... ..	4
Kikuyu Independent Church ...	22
<b>TOTAL</b>	<b>120</b>

## Ambulance

Ambulances in Nairobi are administered by the Authority most concerned with the specific need.

**Infectious Diseases.** Four vehicles are operated by the Medical Department through the Infectious Diseases Hospital. This number is not always available, but varies with the needs of other Branches.



**Municipal Ambulance.** This vehicle is kept at the Fire Station. During the year it responded to 286 calls, showing an increase by exactly double on the previous years total. The miles covered were 2,347, namely:

European	Asian	Miscellaneous	Miles
169			1920
	38		263
		79	164
169	38	79	2347

### Accidents

One vehicle is retained for accident cases. As these cases are in the range of Police Inquiries, this single vehicle has been found sufficient for the calls made on the Service.

### African Locations

The ambulance supplied to the African Locations continues to fill a real need, as patients, often seriously ill, had previously to wait many hours before removal to a hospital.

## Municipal Pound

The Pound maintained by the Municipal Council in the vicinity of the abattoir lairages accommodated during the year the following animals and poultry for varying periods.

Oxen & Cattle	928	Donkeys	46
Dogs	217	Turkeys	5
Goats & Sheep	230	Fowls	43

### CARCASES REMOVED.

Oxen	...	...	...	...	...	30
Dogs	...	...	...	...	...	43
Pony	...	...	...	...	...	1

Total Charges collected — Shs. 1,135/-.

## Abattoir

The recommendations submitted from time to time for additional accommodation and alterations to facilitate inspection have not received the attention that these essential requirements warrant and now that Government intends to erect a central abattoir further hesitation on the part of the Council to incur considerable expense on the present abattoir is to be expected.



It is perhaps not fully realised that the absence of cooling or inspection halls make it necessary to keep carcasses in the slaughter halls, where they are frequently packed so closely that drying and cooling is delayed to the extent of accelerating decomposition and considerable movement of the carcasses is required for inspection purposes.

The lighting of the slaughter halls is very poor and is aggravated by sunlight streaming through the unprotected roof lights.

The arrangements for preventing blood and stomach contents reaching the Nairobi River are ineffective. There is gross pollution and at times of drought when the volume of water is insufficient to prevent stagnation, the river bed rapidly becomes offensive.

The training of the African Health Assistants in Meat Inspection commenced in November. Two attend at the abattoir daily for duty and instruction.

This arrangement has made it possible to release one European Sanitary Inspector from duty at the abattoir.

It is too early to predict how long a period of training will be necessary; at present there is every indication that in twelve months time they should be of considerable assistance.

## NAIROBI MUNICIPAL SLAUGHTER HOUSE

### Meat Inspection Report for the year ending Decemebrr 1946

INSPECTED.	CONDEMNED:—				Emaciated animals (included in condemned.)	
	Number.	All causes rate %	C. Bovis Rate %	Weight in lbs. Meat & Offal		
Grade Oxen	4409	238 ... 5.4	2.2	883,274	133	
Native Oxen	16,757	2896 ... 17.2	10.7		1134	
Calves	807	115 ... 14.2		7,203	19	
Grade Sheep	12,924	99 ... 0.7		20,326	66	
Native Sheep	9248	428 ... 4.6			336	
Goats	11,522	1037 ... 9.0		23,800	677	
Pigs	11,613	83 ... 0.7		21,311	3	
Total	67,280	4896 ... 7.2		955,914	2368	

1351 Carcasses infested with C. Bovis passed.

### Conditions Necessitating Condemnation

	G. Oxen.	N. Oxen.	Calves.	G. Sheep.	N. Sheep.	Goats.	Pigs.	Total
Bruising	13	6	—	1	—	—	2	22
Cancer	2	1	—	—	—	—	—	3
C. Bovis	101	1798	83	—	—	—	—	1982
C. Cellulosae	—	—	—	—	—	13	—	13
Lymphadenitis	—	—	—	—	—	5	—	5
Dropsy	—	10	—	8	26	10	2	56
Dropsy & emaciation	95	832	7	38	335	508	1	1816
East Coast Fever	—	20	—	—	—	—	—	20
Fevered	25	179	—	8	6	27	11	256
Foot and Mouth	—	5	—	—	—	—	—	5



Heartwater	...	—	—	19	45	418	—	482
Immaturity	...	—	17	—	—	—	—	17
Jaundice	...	1	11	2	—	4	—	22
Pleuro Pneumonia	...	—	3	—	1	—	—	4
Moribund	...	—	3	—	—	1	—	5
Pyæmia	...	—	—	—	—	—	—	—
Rinderpest	...	—	—	—	—	—	—	—
Septic Condition	...	5	49	4	24	11	68	205
Tuberculosis	...	1	6	—	—	—	—	7
Pleurisy & Peritonitis	...	5	—	—	—	—	1	6
Navel Ill	...	—	—	2	—	—	—	2
Ealariasis	...	—	—	—	—	—	1	1
Polyarthrititis	...	—	—	—	—	—	3	3
Total	...	248	2923	115	99	428	1036	4932

### Organs Condemned

Hearts.	Heads.	Tongues.	Kidneys.	Livers.	Lungs,	Spleens.	Stomachs.	Intestines.
2217	418	359	922	14398	9133	295	78	74

### Summary as to Disposal of Beef Carcasses

Rejected for C. Bovis and passed for cooking by Council	1,553	{ or 85.3% approx.
Passed for conversion into inedible by-product	1,566	{ or approx. 7.4%
Rejected and incinerated	...	{ or approx. 7.3%
Passed	...	{ or approx. 7.3%
Total	21,166	100%

### Poultry

Inspected 79,265. Condemned 911.

### MEAT INSPECTION

#### Carcases Inspected

	1944	1945	1946
Oxen	25,566	22,415	21,116
Calves	491	802	807
Grade Sheep	9,489	11,469	12,924
Native Sheep & Goats	34,628	23,716	22,172
Pigs	5,052	7,425	11,613
Poultry etc.	189	86,698	79,265
TOTAL	75,415	152,525	147,897



### Quantity of Meat Passed

		1944		1945		1946
BEEF						
Grade	lbs.	1,846,122	...	2,569,976	...	*3,059,916
Native	"	4,314,755	...	3,340,312	...	*3,122,165
MUTTON	"	291,459	...	343,093	...	411,857
Grade						
Native Sheep	"	865,200	...	592,800	...	519,250
and Goats						
CALVES	"	28,546	...	54,762	...	54,233
PORK	"	649,809	...	855,132	...	1,085,457
POULTRY	"	28,200	...	216,745	...	198,162
MEASLEY BEEF						
(Sterilized)	"	313,930	...	368,440	...	259,803
TOTAL	"	8,338,021	...	8,341,260	...	8,710,843

\*Includes 1351 Measley Carcasses=lbs. 337,750.

### Carcases Condemned

	Number	All Causes Rate	Weight in lbs. Meat & Offal.	Emaciated Carcases included in Condemned.
Grade Oxen	... 238	... 5.8	...	133
Native Oxen	... 2896	... 17.2	... 883,274	1134
Calves	... 115	... 14.2	... 7,203	19
Grade Sheep	... 99	... 0.7	...	66
Native Sheep	... 428	... 4.6	... 20,326	336
Goats	... 1037	... 9.0	... 23,800	677
Pigs	... 83	... 0.7	... 21,211	3
Poultry	... 911			
TOTAL	... 5807	... 7.2	... 955,914	2368

## Malaria, Aedes Control and Rodent Destruction

### MALARIA

There were many changes in the Malaria Control Organisation during the year. The Army Unit, No. 91 Malaria Control Company, who had been responsible for the control in Nairobi and District from 1941 to 1946 was disbanded towards the end of the year, and handed over to the control of the Civil Authority, Nairobi Municipal Council, in February, 1946.

The Council was fortunate to secure the services of five members of the Army Unit as Inspectors in its new organisation, whereas the Malaria Control prior to the war was carried out by two individuals, the



organisation was now strengthened. The experience of the Army showed that it was necessary to have a staff of at least five men to carry out the work in the township. It was not until August that all the new members of the Staff arrived back in Nairobi after obtaining their discharge from the Services.

A word as to the organisation would not be out of place here. The area of the town, and some portions outside the town, has been divided into four main divisions each division having an Inspector in charge, with a gang of oiling boys and searchers. Each division is divided into daily sections. Adult stations of which there are 52 are strategically arranged and carefully picked so as to form a central circle around the heart of the town with a second circle of stations between the central circle and the periphery of the area under control. There is a third circle of stations more or less on the periphery of the control, some are just outside, being chosen for suitability. The system adopted is broadly adult searches every Monday of all stations. The oiling gang commences its duties of weekly oiling on Mondays and continues to Saturday. The searchers visit the oiled sections the day after the oiling as a check on the efficiency of the oiling. No anti-adult work was done though it is hoped to commence this in 1947—funds permitting.

The Army have disbanded the Malaria Sections and Hygiene Companies except for some four personnel. Council has had to assume the control of Military Camps within the township. These are checked over every Saturday. For details of Camp Inspections the reader is referred to the section on Military Camps.

Anti-Malaria works have continued under the direction of the Roads and Anti-Malarial Engineer, the programme being part of that prepared in 1943. Considerable difficulty was experienced in maintaining some of the temporary work started by the Army.

The Nairobi Dam was built in October and rain fell shortly after its completion. Game and cattle were permitted to drink at the dam and it was not fenced. Active measures had to be taken, and it was found that the system of anchoring sacks filled with oiled sawdust around the margins, about three yards out was most effective, as no larvæ were found during the year.

A special report on the control of the dam was submitted but not all the recommendations have been adopted.

On the whole, as will be seen from the figures of notified cases of malaria, the case rate, and mortality rate, has been maintained at a low level. There were 14 deaths, a death rate of 0.12 per thousand. Of residents, the European case rate is the lowest recorded, being 13 only for the year. The case mortality was 0.23, and the incidence 0.53.

Of the cases reported it is not at all certain that returns of primary cases are strictly accurate. There is proof that a considerable percentage of relapses are reported as "primary" as it is not always easy to ascertain from Asian and African patients that they have not previously suffered from malaria. In many cases Asians visit a number of practitioners in turn, over a period of a few months. It has been ascertained that an individual had been reported as a primary case by five practitioners, one after the other!

The following table shows the full figures for the year:—



**Residents (Contracted in Nairobi)**  
**Malaria—Primary and Relapses**

	EUROPEAN.			ASIAN.			AFRICAN.			TOTAL.
No. of Cases	...	...	...	13	...	271	...	179	...	463

**Malaria Cases by Months (See Graph & Rainfall)**

	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
EUROPEANS	...	2	—	1	—	1	5	3	—	—	—	1	13
ASIANS	...	11	16	8	9	37	37	60	38	16	8	11	271
AFRICANS	...	6	3	15	19	18	14	35	19	27	9	9	179
TOTAL	...	19	19	24	28	56	56	98	57	43	17	20	463

**Form of Notification.**—It is becoming increasingly obvious that the form of notification requires some amendments particularly with reference to the possible point where infection occurred. Numbering of houses and naming of houses and streets would also facilitate enquiry and investigation—addresses given by patients are invariably vague.

**Peak Period.**—The peak period was as usual in July, and the curve is usually even with a minor peak following a second rainfall peak at the end of the year.

**Analysis of Returns.**—Residents who contracted malaria outside the town, numbered in all 125, being Europeans, 40; Asians, 61; and Africans, 24. A large proportion of the 40 European cases were contracted in Mombasa, which has suffered a bad year, there having been 7,000 odd cases notified. Of the 60 Asians many contracted malaria in Dar es Salaam when they went to attend the H.H. Aga Khan Festivals. The African cases appear to be mostly amongst men who returned from their reserves after spells of leave.

The resident European cases were all recorded from different parts of the town. The majority of Asian cases are concentrated in the Commercial Area, including River Road, Ngara Road, Eastleigh and Fairview areas with a few cases from Parklands. The African cases, as is to be expected, were nearly all from the locations, the remainder being resident in the Commercial area or Eastleigh. It is noted that amongst non-residents that a number of cases are recorded from Ruaraka and Dandora, to the east of the town.

Non-residents contracting malaria outside Nairobi numbered 233, being 39 Europeans, 50 Asians, and 144 Africans. Of interest is the number of children under six who developed malaria within ten days after their arrival in Nairobi (see table).

Analysis of the cases notified is of interest in that of 494 cases where data was complete, 92 African children and 45 Asian children contracted malaria. Of all Asian cases, 162 were over 20 years of age, 79 between 5 and 20, 45 under 5 years of age.

Sub-tertian cases numbered 483, benign tertian 1, and quartan 3. Of 494 cases 414 were regarded as primary infections.



### Malaria—Analysis of Cases

	S.T.	B.T.	Q.	CL.	Prim.	Rec.	Male.	Female.	Under 5.	5-20.	Over 20.
European	16	—	—	—	10	6	9	7	1	3	12
Asian ...	277	1	3	5	258	28	202	84	45	79	162
African ...	191	—	—	1	146	46	109	83	92	43	57
TOTALS	484	1	3	6	414	80	320	174	138	125	231
	494				494		494		494		

**Adult Collection.**—Adult collection was commenced in the catching stations in April. Each searcher has three or four stations to search during the course of a morning, so that he has plenty of time to do this thoroughly. Torches and hand tubes are used. The stations consist as far as possible, of three rooms, with at least two inmates per room, or else a round thatched hut. In some cases cattle "bomas" are used, in conjunction with the herd's hut. The same rooms are always searched.

The graph of adult catches of *A. gambiae* follows the malaria curve with its peak in July, and a small secondary peak in December. No *A. funestas* are recorded during the year.

### Stations Producing *A. Gambiae*

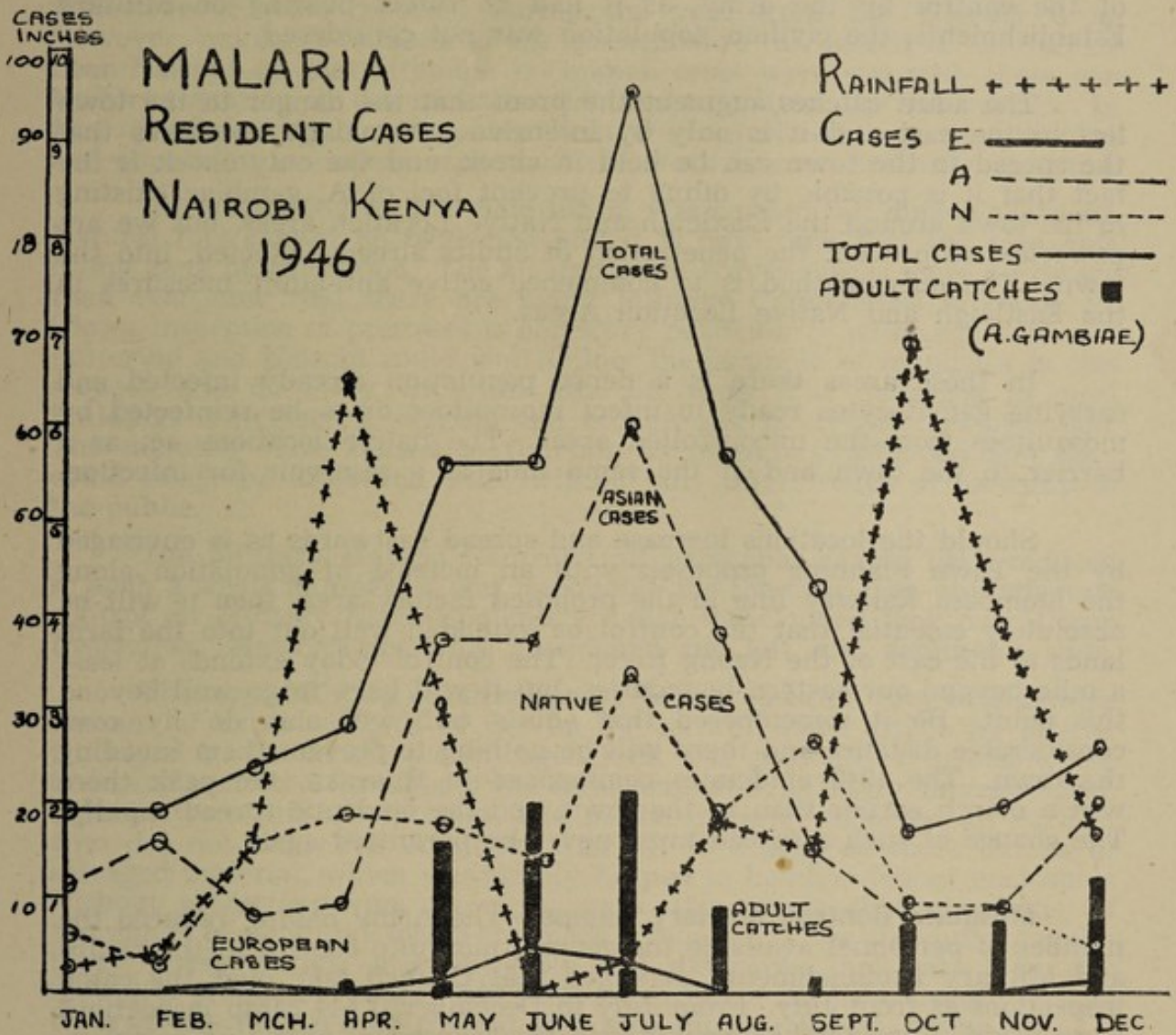
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
<i>A. Gambiae</i> ...	1	16	20	22	8	2	4	4	12

The stations produced most *A. gambiae* during the month of June when 112 specimens were caught, May produced 65 and July 93, with 49 in December.

The peripheral stations to the East of the town were by far the most prolific producers of *A. gambiae*. These stations are at Ruaraka, Dandora, and along the Ngong River to Etcoville and the Railway Quarries. One or two of the inner circle stations in the east were prolific producers as the result of invasion from outside.

The 52 stations produced 351 *A. gambiae* during the year and of this number 252 were found in the ten eastern peripheral stations, 71% of the total catch. The 16 stations in the eastern section of the town produced 291 or 83% of the total, and peripheral stations produced 267 or 76%, inner circle stations 62 or 17.6%, and central stations 22 or 6.4%. The Nairobi Swamp station still produces *A. gambiae*, one in May, seven in June, and one in October. The odd single specimens taken from some of the stations were probably brought into the town by vehicles, no larval foci were found in the vicinity of these stations. Twenty-one of the stations gave nil returns, only culicine and an odd non-vector anopheline species being found. These stations are on the west side of the town.





Graph Showing the number of stations producing *A. gambiae* and the number of catches per week per month.



From this data and evidence the following conclusions can be drawn. So long as an intensive campaign of oiling is continued on the west of the town, malaria can be kept to such a low level that it need not be regarded as a problem, but the oiling cannot be reduced at any time. There is the evidence of the epidemic in the Kikuyu Native Land Unit to be borne in mind all the time. This area suffered a severe epidemic with a high death rate, and as it is densely populated, its presence on the boundary can only be regarded as a constant potential threat to the west. In 1939-40 the control extended well into this area which was cut out of the control by the army, as it had no direct bearing on Military Establishments, the civilian population was not considered.

The adult catches augment the proof that the danger to the town lies to the east and it is only by intensive anti-malaria measures that the spread to the town can be held in check, and the only check is the fact that it is possible by oiling to prevent foci of *A. gambiae* existing in the town around the Eastleigh and Native Location areas, but we are powerless to prevent the penetration of adults already affected, into the town. The only method is to commence active anti-adult measures in the Eastleigh and Native Location Areas.

In these areas there is a dense population already infected and carrying gametocytes ready to infect mosquitoes or to be reinfected by mosquitoes from the uncontrolled areas. The native locations act as a barrier to the town and at the same time as a reservoir for infection.

Should the locations increase and spread eastwards as is envisaged by the Town Planning proposals with an increase of population along the Mombasa Railway line in the proposed factory area, then it will be absolutely essential that the control be extended well out into the farm lands to the east of the Ngong River. The control today extends at least a mile beyond our eastern boundaries, but it will have to go well beyond this point. Be it remembered that adults can, will and do fly over considerable distance and there will be nothing to prevent them invading the town. The 1940 epidemics commenced in Ruaraka, the peak there was a month earlier than in the town, and the epidemic spread rapidly. The chance of such a spread must never be permitted again.

**Mosquito Control, Military Camps.**—The Army having reduced the number of personnel available for general mosquito control in the camps and Military Establishments, arranged that Council take over the camp inspections as from July. From July to December, 1,444 camp inspections were made. Considerable trouble was experienced in obtaining co-operation in the control of the camps. Hygiene personnel not being available the camps soon became very neglected. Mosquito breeding was extensive, as tins, drums and fire buckets were neglected. Gully and grease traps were never attended to, and drains had been allowed to become overgrown and had silted up. Many camps were evacuated and left in a shocking state. Vigorous action had to be taken to obtain improvements, and it was not until the end of the year that some improvement became apparent, though the camps are yet far from being perfect.

In July, after 113 camps had been examined, the mosquito index was 75.2 with an aedes index of 8.8. After July the general index was considerably lowered to an average, for the remaining months of the year, of 23.0 and aedes index of 2.9. In all 42 collections of aedes and 357



collections of culicines and anophelines were made. The indices for the year were as follows:—

No. of Camps.	Aedes.	All Species.
1,444	2.07%	27%

**Yellow Fever—Aedes (Domestic) Mosquito Control.**—No cases of yellow fever were reported during the year from the Nairobi area. However, monkeys immune to the disease were discovered in the forests near Nairobi, so that although no human cases were reported, there can be no relaxation in the measures adopted to control the mosquitoes. In fact it is becoming more apparent that the control requires strengthening and expansion in certain aspects of the work is now obviously essential.

No scavenging or tree hole filling was carried out during the year. Natural foci cannot be neglected and it is now time that the tree hole filling gang be reinstated. The all important scavenging is more necessary than ever now that there are many Military Camp areas to clean up. Closer inspection of premises is necessary particularly with regard to roof guttering and Nairobi could well follow the example of Mombasa in this respect, and do away with this kind of focus. The guttering in most buildings is neglected, sagging and broken and never receives attention. The majority have ceased to function as originally intended and they could easily be dispensed with, without any interference or hardship to the public.

The Military Malaria Control Unit personnel having been reduced to such a small number, it was impossible for them to keep any effective control on Military Establishments, so that the Council took over Camp Inspection. Many camps were abandoned and left in a deplorable state.

The large Military organisation in Nairobi caused a very considerable amount of extra work to be put on the control, since article by article, truckload by truckload, the salvaged junk was gradually returned to the town and scattered throughout the area, commercial, factory, or residential. Owners were difficult to trace, and in the majority of cases, an African who did not know his employer was left in charge of these dumps of salvaged material, which was simply heaped in bamboo fenced enclosures without protection from the rain, with the result that hundreds of thousands of potential foci were made available to the mosquito population. These dumps are unsightly and dangerous, not only from the mosquito production aspect, but form an excellent rat harbourage. Special by-laws are required to combat this new menace to the town.

The opening and second paragraphs of the 1945 report must be repeated in this report. It is felt that we have now reached a limit with normal control measures and that a policy of "policing" may have to be adopted to bring the general public to a point where they will realise that unless co-operation is forthcoming, legal action will have to be taken in every instance of contravention of the Mosquito By-Laws, 1944. The notices despatched clearly show how little effect they have on the persons on whom they are served. It is essential that prosecutions should be impartial, and persons in all walks of life should be treated without bias.

A great deal of the time of the overseers has been occupied in the serving of notices, since it is necessary that they should be delivered to the addressee personally. As many as six visits have been made to a single individual in order to carry this out. This procedure is extravagant



and costly, and requires an excessive expenditure of time on the part of an overseer which might have been spent more profitably in checking the work of the African mosquito searchers. Some amendment of this procedure is suggested.

When opportunity permitted, cases were prosecuted, and in the few heard, convictions were secured.

**The Aedes Index.**—Despite the great increase in the focus potential and the conditions under which the organisation has worked there has been no increase in the index.

1940	1941	1942	1943	1944	1945	1946
6.3%	1.47%	0.413%	0.09%	0.08%	0.08%	0.07%

### Total Premises Searched and Indices

		Total Premises in Control.		Average No. of Premises Searched per week.		Total Inspections made.		Aedes Index.
1944	...	262,704	...	5,052	...	293,185	...	0.08%
1945	...	385,254	...	5,485	...	319,780	...	0.08%
1946	...	332,521	...	6,463	...	380,083	...	0.07%

Details of inspections are given in the Appendix.

The figures for potential foci examined show an increase in 1946:—

1944	...	1,368,619
1945	...	1,500,983
1946	...	1,542,570

It cannot be pretended that all potential foci were examined since it would have taken the gang employed days to even count the foci in some of the salvage dumps, in these cases only foci containing water were counted.

Table No. 1 will give some idea of the numbers of, and varieties of permanent and temporary foci where breeding was obtained. Tins produced 66 collections of aedes larvae and rain water storage tanks 50 collections. Drums, pots, motor tyres, and water meter boxes also produced a number of aedes. The greatest number of collections of *A. aegypti* were made during the months of November and December — nine weeks producing 80 collections out of the total of 269 for the whole year.

Table No. 2 following gives an indication of the condition existing in the various parts of the town. Eastleigh area produced 273 foci, only three of which were aedes, but since the Aerodrome is within the Eastleigh area it is essential that every step possible must be taken to reduce the index in this area were soakage pits of which three were found with larvae. The pits are a menace to the area and should not be permitted, and the sooner steps can be taken to have all these plots connected to the sewer system, the better it will be for the aerodrome and Nairobi. The Eastleigh area should also be subject to a comprehensive drainage scheme, which should be put in hand without delay. The Council requires a better system of protecting water metres as 37 of the boxes protecting the metres in this area were found with larvae, and in all 205 of these boxes



produced larvae during the year in the town, and included anopheline larvae.

Upper Parklands area follows Eastleigh with 196 foci of which 29 were *Aedes aegypti*. The principle foci in the area were rain water tanks 20, (16 aedes); sunken drums 20, bath water pits, 20, earth drains 31, and tins 21.

Fairview area produced 184 foci, soakage pits producing 37 collections, and drums 18. Motor tyres produced 27. Muthaiga produced 186 collections of which 53 were *Aedes aegypti*. Ngara and Parklands shared with 166 foci each, the latter with 30 lots of *Aedes aegypti*.

***Aedes aegypti*.**—Muthaiga produced 53 collections and the other areas in the following order:—

Upper Parklands	...	...	...	49
Parklands	...	...	...	30
City Park	...	...	...	26
Hill	...	...	...	30
Kilimani	...	...	...	18
Burnbrae	...	...	...	14
Fairview	...	...	...	11
Kabete Road	...	...	...	9

Thus it can be seen that the residential areas produce the greatest number of *aegypti*. This is simply on account of bad sanitary and conservancy habits. With the exception of rainwater storage tanks (50 collections), all the other *A. aegypti* foci were small containers, drums, tins, motor parts, pots, tyres, buckets and tree holes. Table No. 1 following gives the type of foci and the species of larvae found.

As was the case in 1945, permanent foci had a fair share of the total types of foci producing larvae, 65, compared with 205 temporary foci. (See table following). Of the permanent foci, rainwater tanks took first place with 50 collections of aedes, and have the highest index of any type of container. This type of container should be abolished by by-law.

The figure for permanent foci for all species for 1946 is only slightly lower than that for temporary foci, 1,121 compared with 1,255; the breeding in the permanent foci could easily be eliminated if the public would co-operate.



TABLE OF INDICES

Permanent Foci	No.	Aedes Aegypti		Aedes Other Species	Culex	Total all Species	Aedes Aegypti	Aedes other Species	Culex	TOTAL—ALL SPECIES.
Rainwater Tanks ...	45,300	...	50	...	43	93	0.11%	...	0.09%	0.2%
Septic Tanks ...	83,946	...	—	...	133	133	0.0%	...	0.15%	0.16%
Soakage Pits, ...	21,684	...	3	...	203	206	0.01%	...	0.93%	0.94%
Sunken Drums and Bath Pits ...	36,208	...	6	...	203	206	0.016%	...	0.68%	0.7%
Gully Traps ...	177,772	...	6	...	119	125	0.003%	...	0.06%	0.06%
Earth Drains ...	124,451	...	—	...	225	225	—	...	0.18%	0.18%
Concrete Drains ...	334,900	...	—	...	87	87	—	...	0.02%	0.02%
Total ...	824,261	...	65	...	1,056	1,121	0.007%	...	0.012%	0.13%
Temporary Foci ...	718,309	...	204	...	1,031	1,235	0.02%	...	0.14%	0.17%
Grand Total	1,542,570	...	269	...	2,087	2,356	0.01%	...	0.13%	0.15%



## FOCI BREEDING PER BLOCK &amp; INDICES

BLOCK	Increase over 1945	No. of Houses 1945	No. of Houses 1946	Aedes Aegypti 1945 — 1946	Anopheles	Culex 1945	Culex 1946	Total all Species 1945	Total all Species 1946
A. Burnbrae E.	16	184	200	32	—	89	61	121	75
B. Kilimani E.	12	160	172	6	—	72	105	78	123
C. Hill Area E.	8	238	246	13	—	54	136	67	143
D. Hill Area E.	20	224	244	15	4	76	124	91	151
E. Groganville E.	14	209	223	12	1	38	41	53	60
F. Upper Parklands E.A.	46	212	258	80	—	95	147	177	196
G. Parklands A.	39	233	272	33	—	119	136	153	166
H. City Park A.	50	360	410	7	—	82	120	89	146
J. Muthaiga E.	21	164	185	55	—	78	95	135	148
K. Commercial Mixed	2	210	212	—	—	84	55	84	55
L. Commercial A.	3	209	212	—	—	22	34	22	34
M. Commercial A.	31	269	300	—	—	51	62	51	64
N. Ngara A.	66	451	517	—	—	55	166	56	166
O. Pumwani N.	88	440	528	1	—	29	96	30	96
P. Pumwani N.	33	401	434	—	—	26	15	26	16
Q. Racecourse A.	20	419	539	—	—	58	51	58	51
R. Fairview A.	56	254	310	8	1	92	172	100	184
S. Eastleigh A.	56	253	309	1	—	221	272	222	275
T. Farms E.A.	—	5	5	—	—	22	20	22	23
U. P.W.D. Mixed	260	473	733	2	—	110	90	112	90
V. Eastleigh A.N.	1	19	20	—	—	4	14	4	15
X. Kabete Road E.	32	80	112	—	—	9	67	9	76
Y. Government House	11	11	22	1	—	2	8	5	9
Mixed	...	...	...	...	...	...	...	...	...
	885	5488	6463	266	6	1488	2087	1765	2362

NOTE:—E. European Area. A. Asian Area. N. Native Area.



## RODENT CONTROL

No rodent officer was appointed during the year to fill the vacancy occasioned by the resignation of Mr. Mathews and it was only in December that Council gave instructions that one of the mosquito inspectors be seconded to Rodent work.

From May to October the African Rodent Gang was taken off normal work to become vaccinators on the Anti-Smallpox campaign, and the result has been that Rodent Work has not received the attention that it should have had.

The infestation rate for Nairobi was 87% in 1944 and 76% in 1945. No accurate figures can be arrived at to show the incidence for 1946, but it cannot be much less than 1945. No plague was reported during the year but cases occurred in the endemic area outside the Township.

Rat examinations for B. Pestis could not be made throughout the year on account of the resignation of the Laboratory assistant.

### Control Work:—

#### Inspection of Buildings, and Trapping.

Buildings Inspected outside African Locations.	Buildings Inspected in African Locations.	No. and Percentage Infested.
669	...	239 or 35.6%
...	956	575 or 60%

36 special inspections were made on request of the Public.

There were 99 special inspections of food premises.

**Rats Examined** (Period of 2 months only: November and December).

Rats Killed and Trapped.	Examined for B. Pestis.	Examined for Fleas.	Percentage with Fleas.
3851	1101	783	88 or 11.1%

The majority of inspections were carried out by the African Assistant Overseer.

Thousands of poison baits were laid but no count was possible of rats killed by poisons.

On the whole few premises in the Commercial area and Native Locations can be called rat proof and notices were despatched to occupiers and owners of premises to rat proof their buildings. When these notices were not complied with the addressees were prosecuted.

No. of convictions Nine.

Total Fines Shs. 1,643/- ranging from Shs. 50/- to Shs. 388/-.

In the last year rat harbourage has greatly increased due to the activities of dealers in Military salvage who are littering the town with innumerable scrap and iron dumps. Many new outside garages have sprung up with piles of motor vehicle parts strewn about plots. Temporary buildings of waste and scrap material have been built on a large number



of plots and provide excellent harbourage. The work of bringing the town's rat population to a reasonably low level is going to be a very great task which warrants a full time rodent officer and assistant, with sufficient Africans otherwise the position will grow steadily worse.

Action by trapping and poisoning is merely palliative, and it is essential that preventative measures are undertaken rapidly, together with rodent destruction measures. This can only be achieved by co-operation both from the public and Government bodies.

### Smallpox

9,594 routine vaccinations were performed during 1945 and routine work continued up to May 1946, when 6 non resident smallpox cases were reported from areas close to Nairobi. There were two fatal cases, one at a place near Karura and the other at a Somali village in the Game Reserve.

On May 19th an order was issued under Section 106 of the Public Health Ordinance calling upon all persons in the Township to be vaccinated.

Vaccination posts were set up at the Town Hall and the Rodent Gang worked in couples acting as vaccinators in the African locations and in the commercial area of the town. Each couple was a self-contained unit, and worked in a small folding hut which could be rapidly set up at various vantage points. The Railway Station and roads leading into the town were checked by the vaccinators. The Municipal Council Child Welfare Clinics vaccinated women and children in the locations. A few Asian Welfare Centres and the Railway also helped considerably.

The Campaign lasted from May to October when a total of 174,061 persons had been vaccinated.

Total vaccinations for the year were 179,028.

Cases were reported as follows :

Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Deaths
1	1	6	2	5	7	10	4	10

All deaths were African.

## APPENDIX TO SECTION ON MOSQUITO CONTROL

### List of Foci Examined and Larvae Located During the Year

	Potential Foci	Culicine Species Larvae found in
Graves	1	1
Saw Pits	1	1
Rivers	1	1
Duck Ponds	22	22
Plants not specified	1,053	—
Sisal	48,519	1
Bamboo	5,539	4
Cacti	4,195	—
Bananas (Cultivated)	102,395	—



	Potential Foci	Culicine Species Larvae found in:
Bananas (wild)	461	1
Tree Holes	12,090	6
Coconut Shells	12,113	—
Palms	1,702	—
Pineapples	720	—
Unspecified	9,519	—
Soakage Pits	21,684	206
Baths	1924	11
Bird Baths	9709	7
Rubbish pits	315	4
Troughs	8261	22
Karais	4629	7
Water Meters	17449	205
Buckets	5,565	18
Basins	791	3
Pots	4443	35
Wells	1915	21
Air Raid Shelters	81	—
Fish Ponds	1382	14
Hot Water Tanks	7249	18
Cement Tanks	1573	28
Underground Tanks	415	5
Hand Grip in Inspection Covers	647	3
Egg Shells	918	—
Wheel Barrows	71	—
Barrels	1008	28
Cooling Tanks	677	—
Batteries	3481	4
C.I. Sheets	20	1
Small Drums	1	—
Tar Boilers	117	—
Holes	95	22
Sumps	1695	38
Swimming Baths	10	1
Shells	40	—
Boats	1	1
Tarpaulins	6	3
Metal Boxes	2	—
Rock Holes	62	2
Prams	1	1
Iron Tanks	21	1
Splash Sink	1	1
Murram Pits	2	—
Pits	4	—
Trenches	6	—
Transformer Tanks	5	3
Rainwater Tanks	45,300	93
Septic Tanks	83,946	133
Sunken Drum/Bath Pits	36,208	252
Gully Traps/Road Gullies	177,772	125
Guttering	3,185	1
Earth Drain	124,451	225
Concrete Drains	334,900	87
Tins	176,653	135
Drums	157,489	259



	Potential Foci	Culicine Species Larvae found in:
Bottles ... ..	10,955	10
Tyres ... ..	63,401	147
Motor Parts ... ..	39,023	51
Hollows ... ..	3,867	88
<b>TOTAL</b>	<b>1,542,570</b>	<b>2,356 plus 6 anopheles =2,362</b>

## Cleansing Department

The amount of work performed by the Cleansing Department showed a big increase during the year.

With the expansion in all branches of the Department future requirements are very difficult to estimate. Many improvements were held up owing to the slowness of delivery of materials from overseas. The supply position did not improve but appeared to become worse towards the end of the year and extended delivery dates and increases in prices were all forecast.

During the year the first Scammell vehicle arrived and was put to work. It proved satisfactory and reduced the cost per cubic yard of refuse collected as well as the number of collectors required on a vehicle. These advantages were off-set by a big increase in the amount of refuse collected in the area in which this vehicle is working. Further vehicles are urgently required if the 1947 estimates are adhered to. More details of the increases in work performed and improvements can be found under each section of the report.

The very big increases which are shown by this report should be noted, and the fact that in 1945 there were 545 Africans employed. The handing over of latrines in the Locations increased the labour by 82 Africans.

Scavenging Labour ... ..	265 an increase of 50
Refuse Removal ... ..	118 an increase of 11
Public Conveniences ... ..	146 an increase of 82
Conservancy ... ..	134 an increase of 11
Miscellaneous Labour ... ..	3 an increase of 3

Total labour employed by the Department 666

All the additional labour has been necessary for additional services given in the Native Locations and the expansion of Kaloleni.

**Staff.**—The staff of the Department consisted of the following European personnel:—

Cleansing Superintendent: R. A. McDonell.  
 Assistant Superintendent: T. E. Davies.  
 Overseers: T. F. Pienaar and W. F. Viljoen.  
 Clerk: Miss D. M. Ewing.  
 Incinerator Attendant: A. Keller.  
 Mr. Viljoen left on 31st December, 1946.  
 Mr. D. D. Luies was transferred to the Roads Department as a Road Foreman on 31st August, 1946.



Mr. G. Barrow resigned on 28th September, 1946.

Mr. Vel was summarily dismissed on 28th February, 1946.

Mr. A. Keller commenced work on 1st November, 1946.

Owing to the grave shortage of supervisory staff the standard of work declined towards the end of the year and complaints increased.

## Conservancy Services

There was an increase of 624 buckets during the year, but as the evacuation of Military Camps had commenced and had not been recorded in many instances, a sharp decline early in 1947 can be expected.

The first vehicle for a proper double bucket system left England in December and should arrive early in 1947. The first of the pressed steel buckets for this system are now in the stores.

A total of 4,067 loads were collected and disposed of as against 3,570 loads in 1945. No figure for mileage is available for 1945 but the 1946 figure was approximately 78,000 miles.

The state of exhausters caused considerable anxiety as they are all decrepit and replacements are urgently required. These have been on order for some time but the date of delivery here is still uncertain.

1,881 Conservancy Tanks were emptied as against 987 in 1945.

450 Septic Tanks were emptied as against 307 in 1945.

8,914 Waste Water Pits were emptied as against 5,952 in 1945.

From the above figures it will be seen how heavily these vehicles were taxed during the year. Great credit is due to the garage which kept these vehicles on the road almost continuously. As a total of 263 days were spent in the garage double shifts were worked on one or other of the vehicles to keep the work going.

**Street Cleansing Services.**—Owing to the increase in work at private houses, the gullies were not emptied as frequently as necessary. New vehicles are essential if gullies are to be kept in a proper state. These vehicles were ordered but up to the end of the year had not arrived in this country.

Street washing, which would make a great difference to the state of the roads, could not be undertaken. The vehicle ordered for this work has not arrived yet. Hair brooms were issued for pavement work, but owing to the poor quality, were not very satisfactory. Without an Overseer in this section the standard became poor and the labour did not work well towards the end of the year.

Every effort should be made to obtain litter boxes in 1948. Enquiries suggest that these will not be obtainable in 1947. Further enquiries will be made in Britain.

Increased work in the street cleansing section has been undertaken on a number of roads outside the Commercial Area, and a considerable area is now swept daily.

Prior to 1946 street sweepings were removed by the vehicles employed on general refuse removal from premises and no separate records exist for this work prior to that date. In 1946 it was found necessary to employ one vehicle on the removal of refuse which litters the streets, and from records kept last year it has been shown that a total of 5,452 loads of sweepings were disposed of. This quantity is not



entirely litter, a large proportion consists of earth brought into the town by vehicles and pedestrians and where it is not removed would result in unpleasant clouds of dust.

In order to accomplish all this work a total of 666 African labourers is employed. This total could be reduced if the public would co-operate by reducing the amount of refuse to be collected daily, and by taking care not to litter the streets to the extent that takes place at present.

**Refuse Removal Services.**—This section showed a big increase over the year before. The 1945 tonnage was 29,320. The 1946 tonnage was 41,510—an increase of 12,190 tons during the year. As the Army decreases in the Nairobi area this amount will decline to a figure from which the increase will probably be much slower.

New vehicles are essential for this service as the present fleet is in a very bad condition, and no reduction in vehicles can be contemplated whilst these are in use. Should the present quantities of refuse continue to come in no reduction can be made, in fact increases may be necessary.

**Refuse Disposal.**—The tips had to deal with increased quantities during the year. The incinerator totals decreased by 971 tons but the tips took an additional 13,160 tons. The daily average disposed of was 113.7 tons. The Makuru tip has now nearly filled in and a new site near there will have to be opened shortly.

Owing to the fact that no effort is made to destroy any refuse on premises a very high average rate of removal is shown.

**Refuse Removal Vehicles.**—Criticisms have been made that the Department wastes labour employed on refuse removal vehicles. In this connection it must be pointed out that the average African employed on these vehicles is only about five feet high, and he is unable to empty a full bin without assistance. Additional labour has, therefore, to be employed on the vehicles to take the bins from the collectors and tip the contents into the truck.

**Public Conveniences.**—The latrines in the Native Locations were again transferred back to the Department at the beginning of the year, and as Kaloleni and a few new latrines in the Pumwani Area came into use, increases in the labour force had to be made.

A number of latrines were converted from the broken pan type to trough latrines and Council should install this type only in the future and those not yet converted should be altered as soon as convenient.

The Sweeper Service is now given to 325 premises.

**Sewer Maintenance.**—There were many stoppages during the year and the equipment held by the Department for cleaning sewers requires replacement due to the breaking of rods, etc. Exhausters had to be frequently employed to open choked sewers. These are a constant source of trouble, but in many instances the choke can be traced to sand and ashes, used for cleaning pots and pans, having been allowed to wash into the sewers. Such items as newspaper, pieces of material and hessian, mealie cobs, branches and twigs, etc., are also allowed to get into the sewers, and as a result they become choked. Sewers are not designed to carry away such matters, and to allow them to become choked like this is to cause discomfort to other householders and additional expense to Council.



The cost to the public for these services has risen from a total of £13,382 in 1940 to £34,038 in 1946. If the public assists by reducing the quantity of refuse for removal and has regard to the other suggestions put forward here reductions in costs are possible, but only if all communities play their part.

## Lady Grigg African Maternity Hospital

**African Staff.**—The year opened with a Head African Staff Nurse and one acting Staff Nurse. This was very difficult in view of the fact that the hospital was short of European Sisters. The Head Staff Nurse left in April, when three certificated midwives of Mombasa Lady Grigg Hospital were appointed. These girls have worked well. One left on sick leave in December and her return is doubtful. Two Buganda certificated midwives were appointed during May.

Five trainees, having passed the Government Examination, took up their appointments, excepting one who remained as Staff Nurse. Seven applicants were admitted on 1st February, 1946, followed by eight others during the month. Five were admitted in March of whom three were married women living in the location with their husbands, coming by the day, and living in for one month when their turn for night duty came round. One retired in March, two in May, one in June, and two in August. One married woman retired in November for eight months unpaid leave. Only one married woman remains as a trainee. While she personally is satisfactory, this system is not working well.

Shauri Moyo Annexe was opened on 7th January with two Staff Nurses, an Ayah and a Dhobi. One left during March, and from then until June it has been used for lying-in cases from the main hospital. Since August the nurses have had the responsibility of the normal cases and the scheme works well. They have conducted 138 deliveries and have had the Annexe continually full with their own cases and convalescents from the main hospital.

A Welfare Committee of Africans from the Advisory Council, the various Missions, and the Social Services have held meetings when necessary since April, and have made many useful suggestions in the case of the trainees.

**European Staff.**—The hospital was without a Matron until September 1945, when Matron K. M. Foord arrived from England.

The Nursing Staff have had to contend with much sickness during the year. Sister Wiegert's arrival brought the permanent staff up to full strength, namely, Matron and three Nursing Sisters. Six married Sisters came to help out, giving the hospital from one month to nine months' service.

1947 opens with a full permanent staff, the first since October, 1944.

**General.**—The number of patients remains high, and the situation is complicated by the septic and venereal cases. As there are not yet any isolation arrangements at the hospital, these cause serious alarm.

Cases of abortion and miscarriage have had to be sent to the Native Civil Hospital as there are no beds at all available for them.

In spite of the increase of ten beds at Shauri Moyo Annexe cases still have to be discharged too early.



**ANALYTICAL TABLES.**

Admission: Resident	...	1011			
Non-Resident	...	874	Total	1885	
Discharges	...	...	...	1869	
Of Non-Resident cases, 387 had husbands Resident in Nairobi.					
Total Patients Days	...	...	...	8669	
Baby Days	...	...	...	7108	
Motherless Baby Days	...	...	...	318	

**Admissions by Tribes.**

			Clinic.	Direct.	Total.
KIKUYU	...	...	774	519	1293
JALUO	...	...	214	80	294
OTHER TRIBES	...	...	203	95	298

**Ante Natal Clinic.**

Number held	...	...	...	...	200
New Cases Resident	...	...	...	...	1117
Non-Resident	...	...	...	...	1438
(of which 719 had husbands resident in Nairobi.)					

**Repeats.**

Resident	...	...	...	956	
Non-Resident	...	...	...	873	4384

**Post-Natal Clinics.**

Number held.	...	...	...	...	49
Resident Cases	...	...	...	110	
Non-Resident Cases	...	...	...	73	183

**Maternal Deaths**

			Clinic.	Direct.	Total.
Embolism	...	...	1	—	1
Relapsing Fever	...	...	—	1	1
Retained Placenta (B.B.A. at home)	...	...	—	1	1
Obstetric Shock	...	...	—	2	2
Placenta Praevia (cum Syphilis)	...	...	1	—	1
Septicaemia	...	...	1	1	2
Acute Syphilis (cum Septicaemia)	...	...	1	—	1
Gas Gangrene	...	...	—	1	1
Sulphathiazole Poisoning	...	...	1	1	1
			5	6	11

**Causes of Infant Deaths**

			Clinic.	Direct.	Total.
Prematurity	...	...	23	19	42
Congenital Syphilis	...	...	19	10	29
Haemorrhagic Disease	...	...	1	—	1
Pneumonia	...	...	3	1	4
Malnutrition	...	...	4	4	8
Diarrhoea	...	...	2	1	3
Cerebral Haemorrhage	...	...	1	2	3
Toxaemia	...	...	3	2	5
Birth Injuries	...	...	2	2	4
Erythroblastosis	...	...	—	1	1



Obstructed Labour ... ..	1	...	—	...	1
Asphyxia ... ..	1	...	—	...	1
Congenital Heart Disease ...	1	...	—	...	1
	61	...	42	...	103

### Causes of Still Births

	Clinic.	Direct.	Total.
Prematurity ... ..	4	5	9
Obstructed Labour ... ..	3	3	6
Congenital Syphilis ... ..	10	4	14
Eclampsia ... ..	—	1	1
Macerated Foetus ... ..	5	2	7
Prolapsed Cord ... ..	8	5	13
Accidental Haemorrhage ...	—	1	1
Birth Injuries ... ..	10	18	28
Delayed Labour ... ..	—	1	1
Anencephalus ... ..	2	3	5
B.B.A. (Born before admission) ...	—	1	1
Malpresentation ... ..	—	1	1
Gonorrhea ... ..	—	1	1
Ante Partum Haemorrhage ...	—	1	1
Hydrocephalus ... ..	—	1	1
Placenta Praevia ... ..	2	3	5
Asphyxia ... ..	3	4	7
Decapitation ... ..	—	1	1
Toxaemia ... ..	—	1	1
Ectopi Vesicae ... ..	—	1	1
	47	58	105

### Operations

	Clinic.	Direct.	Total.
Forceps ... ..	27	18	45
Caesarean Section ... ..	59	15	74
Craniotomy ... ..	3	8	11
Decapitation ... ..	—	3	3
Eviceration ... ..	—	1	1
Suture of Ruptured Uterus ...	—	1	1
Repair of Cervix ... ..	2	—	2
Manual removal of placenta ...	3	6	9
Repair of Perineum ... ..	5	3	8
Version (Internal) ... ..	8	4	12
Placenta Praevia ... ..	1	1	2
Extended Breech ... ..	1	—	1
Replacement of Cord ... ..	1	—	1
Hysterectomy ... ..	—	1	1
Induction of Labour ... ..	1	1	2
Dilation ... ..	1	—	1
Face Presentation ... ..	—	1	1
Examination under Anaesthetic ...	1	2	3
Curretage ... ..	2	5	7
Laparotomy ... ..	—	1	1
Circumcision ... ..	1	—	1
Gilliam's Removal of Fibroma ...	1	—	1
	117	72	189



Births	...	...	...	967	...	505	...	1472
Still Births	...	...	...	48	...	57	...	105
B.B.A. (Born before admission)	...	...	...	11	...	24	...	35
Abnormal presentations	...	...	...	54	...	39	...	93
Twins	...	...	...	17	...	13	...	30

## Maternal and Child Welfare

### AFRICAN

#### STAFF

The work of the department has been considerably handicapped this year through lack of staff. Dr. Edith Hartley resigned on January 1st, and a replacement was not obtained until July 8th, when Dr. Mary Grahame-Johnstone was appointed Medical Officer-in-Charge African Child Welfare. During these five months without a Medical Officer, the progress of the Welfare Centres was maintained by the loyalty and diligence of the Health Visitors and the excellent work of Mrs. Dugmore, Supervisor of Health Visitors, who carried out the general administration of the department through the Medical Officer of Health. During this period Dr. Aileen Williams kindly undertook to examine all unsatisfactory ante-natal cases at the African Maternity Hospital, and the sick children were referred to the Government Dispensaries.

Miss Janet Smith retired from the department in November, after many years' pioneer service. There are now three permanent appointments among the Health Visitors—Mrs. Gibb, Mrs. C. M. Davis, and Mrs. Brooks. The frequent changes amongst the temporary Health Visitors are detrimental to progress as the confidence of an African mother is only obtained slowly with time and patience.

The general standard of education and efficiency amongst the African Assistants is on the upgrade, and two well-educated African girls holding the Government Midwifery Certificate have been given permanent appointments as Senior Clinic Assistants and are proving invaluable in getting over to the mothers, the teaching and propaganda which is the essence of Child Welfare work.

#### REVIEW OF ACTIVITIES

**Antenatal Clinics.**—These have been held in all the Welfare Centres since the arrival of a Medical Officer and a Routine V.D. investigation of every mother has been carried out. 546 Kahn tests were made of which 65 were positive. Some difficulty is encountered in persuading mothers to attend the clinics early on in their pregnancy, but by posters and propaganda and frequent home visiting, this is being remedied.

**Postnatal Examinations.**—These are not popular with the African mother and the break down of this prejudice will result in the avoidance of many cases of chronic ill-health due to untreated birth injuries and complications.

**Child Welfare Clinics.**—The attendance at these clinics is very satisfactory and the state of health and cleanliness of the children who attend regularly is in marked contrast to the pitiful state of many of the children who come for the first time from the Reserves.



**Milk.**—Milk has been given free to undernourished children and the mothers have been encouraged to make "Soya Uji" at home.

**Baby Show.**—Preparations were made during December for a two-day Baby Show, as a medium of Clinic propaganda. Sets of baby clothes were made by the Health Visitors and African sewing teachers as prizes and a silver cup was presented by Mr. Coleman to be awarded to the location gaining most prizes.

**Instruction.**—The Health Visitors have arranged weekly talks and demonstrations of babycraft. The subjects range through bathing and feeding of children, the value of sleep and fresh air, clothing, simple cookery lessons, and sewing and knitting classes.

The sewing classes have been hampered by lack of suitable cheap material and wool for the mothers to buy, but they are well-attended and the mothers have made some excellent garments for their children.

**Advice on Diet.**—This is one of the major tasks of the Health Visitors. The excessive prolongation of breast-feeding is very prevalent, and a serious factor in the production of malnutrition amongst the toddler group. The uneducated mothers are very reluctant to wean a child and put it on a full balanced diet, and it is common to find children of two years of age getting no other food than a much diminished supply of breast milk.

**Home Visiting.**—This is regarded as the most important feature of the work of the Health Visitors. The African women are much more responsive to tuition and advice given individually and in the familiar surroundings of their own homes, and once the Health Visitor has established an atmosphere of mutual friendliness, her influence is increased a thousandfold.

**Nursery School Teachers.**—A course of lectures and demonstrations was given in December to the Nursery School Teachers. The theme was the teaching of hygiene to young children and the detection of the sick child in school.

## MEDICAL ASPECTS

An epidemic of measles swept through the locations towards the end of the year but there were few complicated cases. There have been mild sporadic outbursts of chicken pox, whooping cough, diarrhoea and malaria.

**Vaccinations.**—Vaccinations have been carried out on all children reporting to the clinics. The figures are as follows:—

Pumwani	...	...	...	1,192
Kariakor	...	...	...	502
Railway Landhies	...	...	...	1,366
Kaloleni	...	...	...	149
Makongeni	...	...	...	873

This makes a total of 4,082 as compared with last year's total of 1,251.

**T.A.B. Inoculations.**—These were started in July for the mothers and children and 988 inoculations have been given.

The Health Visitors have also assisted with the Yellow Fever inoculations at the Town Hall on Tuesday afternoons.



## WELFARE CENTRES

The Welfare work at Pumwani is still carried on in a converted native house. In June the police post next door was taken over and the extra space has improved matters considerably, but a proper Welfare Centre is urgently required in this location. The overcrowding and deplorable state of the houses in Pumwani makes Welfare work in this area an uphill task. The new Clinic at Kaloleni is not yet completed, and the small native house at present in use is restricting all activities. The number of dispensary cases treated in all Clinics is excessive, but the mothers complain of the distance to carry ailing children to Nairobi or Shauri Moyo and with the overcrowding at the hospital, prefer to nurse their children at home. The treatment of sick children has proved an encouragement to the mothers to attend the normal activities of the Clinics.

## FUTURE DEVELOPMENT

The mothers and children residing within the location boundaries of Pumwani, Kariakor, Kaloleni, Makongeni and Railway Landhies are adequately served by the present Welfare Centres and all home visiting is done on foot. Now that a car has been made available it is proposed to include the many mothers and children resident outside these areas.

The problem of the women and children who are living in the so-called "Bachelor Quarters" is acute. It is a constantly changing population and the inevitable overcrowding and attendant evil makes them a menace to the children brought to live there. Either a rigid control should be exercised in keeping women out of these quarters, or the fact that they are there should be accepted and adequate provision made for them.

The condition of the children returning from the Reserves is lamentable. This applies even to the fine healthy babies who have attended the Clinics regularly and have then been taken to the Reserves for a few months. 365 children from the Kariakor and Landhies location were examined by the Medical Officer on return from the Reserves and showed the following:—

Grossly Enlarged Spleens ... ..	179
Positive Malaria ... ..	129
Scabies ... ..	160
Ringworm ... ..	112

All showed signs of undernourishment and faulty feeding. These figures are put forward to demonstrate the need of a more comprehensive Welfare Service throughout the Colony. A school is required where well-educated African girls holding the midwifery certificates can be trained as Health Visitors and then put in complete charge of small Bush Welfare Centres in the Reserves. This would diminish the ever increasing numbers who flock to the Town Welfare Centres for advice, from the rural areas. The African mothers themselves are asking for someone to advise and help them in the Reserves. A scheme has been submitted and approved, to attach an African District Midwife to each Clinic to deliver the women who have their babies at home. This will meet an urgent need as the several hundred women who are confined at home are at the mercy of any unskilled woman who cares to assist them.

The Africans are a people devoted to their children and with forceful propaganda and teaching, Child Welfare is a field in which to reap a rich harvest. At the present the African home is dominated so



completely by the husband that a mother must get his consent to put into practice any of the things advised by the Clinics. This makes the work of Health Visitors doubly arduous, but suggests that propaganda aimed directly at the fathers would benefit tremendously the mothers and children. In the coming year it is hoped to arrange classes and demonstrations for fathers to endeavour to stimulate a masculine interest in Child Welfare.

### Attendances at African Clinics

	Pum- wani.	Karia- kor.	Kalo- leni.	Makon- geni.	Rly. Landhies.	1946.	1945.	1944
<b>ANTE-NATAL</b>								
Total Attendances ...	674	264	375	1340	1011	3644	2567	3312
New Cases ...	102	100	74	272	223	771	536	470
Confined at home ...	27	11	14	139	91	282	337	282

### CHILD WELFARE

Total Attendance								
0-5 yrs. ...	9999	7952	2777	7260	5961	33,949	39,518	40,820
Infants New 0-1 yr.	376	385	146	250	195	1,352	1,226	748
Toddlers New 1-5 yrs.	243	230	96	232	219	1,018	1,353	934

### HOME VISITS

By Home Visitors	2004	4242	2004	932	1202	10,384	6,612	9,212
By Asst. Staff ...	1807	2788	2036	1650	2773	11,054	10,140	10,218
						21,438	16,752	19,430

### DISPENSARY

Total Attendances	3272	2507	1932	1027	4112	12,850	7,002	23,336
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All figures are for African Clinics only.

The fall in total Child Welfare attendances is offset by the large increase in Home visits, when the Health Visitor inspects the children.

## Maternal and Child Welfare

### ASIAN

#### STAFF

Dr. Sushilla Soule, M.B., B.S., Medical Officer-in-Charge Asian Maternity and Child Welfare Centres, assumed her duties on the 13th July, 1946. There were three Health Visitors on the Staff, Miss Priscilla Benjamin at Ngara Welfare Centre, until 3rd December, 1946, when she proceeded on overseas leave, Mrs. Savitri Bhaskare at Sandeford Welfare Centre, and Mrs. Savitri Chaddah at Pangani Welfare Centre.

#### WELFARE CENTRES

The Municipal Council maintained three Welfare Centres for Asian mothers and children at the following locations:—

Ngara Road, in the grounds of the Indian Maternity Home.  
Sandeford Road, near Railway Landhies.  
Juja Road, near Pangani Area, since July 18th, 1946.



**Asian Welfare Centre, Ngara.**—This has two small rooms, and a most inadequate waiting room. This building is without a storeroom and a urine examination room, and belongs to the Indian Materinty Hospital. It is hoped that new buildings for this Clinic will be built in 1947.

**Asian Welfare Centre near Pangani Area, Juja Road.**—This started functioning from July 16th, 1946, and is cramped in a very small temporary building, with no waiting room, or urine examination room. In November, 1946, a perimeter fence was provided here to enclose an area for recreation. A proper road to the Clinic building was made in November, 1946. The Medical Officer of Health, on inspecting this building, considered it behind the others, and has suggested improvements which have yet to be carried out.

**Asian Welfare Centre, Sandeford Road.**—This has been built to the standard of a Welfare Centre, with the exception that there is no urine examination room.

After duty hours the Welfare Centres are left unprotected against thefts etc. The provision of houses for the Clinic Boys by the Council adjacent to the Welfare Centres or in their vicinity, as in India, may solve this problem.

It is proposed to build a new Asian Welfare Centre near the Fire Station, a project which will be very much appreciated and taken full advantage of by the Asian Community residing in large numbers near that place.

None of the Asian Welfare Centres is situated in the most heavily populated part of the town. There is a real need for one Centre at Eastleigh, and another at Parklands. There is no Asian Centre within easy reach of the Asian houses situated in these two areas, which are fast growing.

## REVIEW OF ACTIVITIES

The organisation of the Asian Health work began with the study of the problems affecting the health of the mothers and children, especially of the poorer class, the situation of their houses in respect to the nearest clinic, their housing and sanitary conditions, and the type of midwifery services rendered to the patients in Nairobi. Therefore the Medical Officer spent a lot of her time touring with her Health Visitors those areas where Asian houses are situated, in order to have full knowledge of these conditions. During the inspection it was found that housing conditions among most of the Asians were bad. There is overcrowding and lack of sanitation due to shortage of houses. The health work is mostly popular amongst well to do women, and there are still a great number of poor and ignorant women who do not understand and appreciate the advantages which may accrue to them through ante-natal care.

An analysis of all the cards at the Centres was then undertaken to bring to light certain gaps in this service which indicated the social, economic, environmental and other factors which are adverse to health and happiness of Asian women and children. The monthly meetings with the staff were arranged to discuss all such problems, because it is actually the Health Visitors and Health Assistants who carry the message of Health into the homes of the patients.

## Home Visiting

Home visiting by Health visitors and their assistants is assuming every day increasing importance in the field of Health work. Each Health



visitor has been given the charge of a particular district closest to her centre. Municipal transport was provided for the Asian Health Visitors as from 23rd September 1946, which has helped them to approach mothers more conveniently and frequently. The importance in home visiting has been laid on re-visiting the mothers, in order to remain in close contact with them and to gain their full confidence. More emphasis has been given to visiting the poorer class of women amongst whom this work is not yet popular.

### Ante-Natal Work

The main objects of the antenatal care at the centres are to make the period of pregnancy natural and healthy for the mother, to keep her under observation for the detection of abnormalities which is perhaps the most important part of ante-natal care, but which by no means ends there. It is desired to secure perfect health and ideal conditions for both mother and babe. It is just as important to secure that the time of delivery shall be free from danger and as natural as possible. With such objects in view, special attention has been given to any women with unsatisfactory obstetric history or in whom there has been any indication of toxæmia, disproportion, venereal disease, disease of heart, lungs, or kidneys. All such cases were referred either to the Indian Maternity Hospital or to the Private Practitioner concerned. External versions have been done on the cases of breech presentations, especially valuable in primigravidae as by doing so the prospects of obtaining a living baby are very much increased, keeping in view the relation of the head to the pelvic brim. Rectifications of oblique lie have been done on several occasions.

During ante-natal care, other factors which have an influence on puerperal mortality such as social environment, economic conditions, housing and overcrowding, diet and nutrition, were also kept in mind.

ANAEMIA, WHICH IS MAINLY NUTRITIONAL, WAS FOUND TO BE THE COMMONEST OF ALL TROUBLES DETECTED DURING ANTE-NATAL EXAMINATIONS. The victims of this trouble were both vegetarians and non-vegetarians, (greater incidence was among vegetarians), in whom there has been a lack of understanding about proper diet, fresh air and exercise, and in multiparae in whose bodies so much calcium and iron has been used up owing to repeated pregnancies. All efforts have been made to teach mothers about "well balanced diet," and the necessity of fresh air and exercise, taking in view the religious and social aspects of different communities, as these play a very important part in the planning and diet of many Asian mothers.

Anaemia among Ante-Natal Cases: (1946)

		Vegetarians	Non-Vegetarians
Primiparae	...	93	67
Multiparae	...	209	146
		<hr/> 302	<hr/> 213

The absence of Sphygmomanometer, Speculum, Volsellum, and Urinometer have made the Ante-natal examinations incomplete. All these instruments have long been ordered and it is hoped they will soon arrive.

### Post-Natal Care

Instruction and education of the mothers has been given on the importance of their submitting themselves for medical examinations after confinements since a considerable proportion of the gynaecological



conditions from which women suffer are attributable to the effects of child bearing. Women are learning to appreciate the post-natal clinics gradually. There is yet need for the fuller development of post-natal services.

### Child Welfare

The aim of this work has been to reduce the infant death rate and to attempt to raise up a generation of children strong and healthy who would be able to take a worthy part in the life of the nation. The work is also aimed at preserving the health of the healthy infants and this involves education of the mothers in all that pertains to health, and in the methods to be used to prevent unnecessary illness.

Normal progress of the children is best ascertained by keeping their accurate weight curve from week to week. Unfortunately in the case of toddlers, this important work is omitted in two Asian Welfare Centres, Pangani and Sandeford, where weighing scales for toddlers have yet to be provided. Weighing of children is a great attraction at the Centre, to mothers, who frequently go away disappointed when their toddlers have not been weighed, although they have received medical attention.

A child's feeds are properly planned according to its age and weight, and according to food values. Every mother is encouraged to breast feed her baby, and is taught how and when to wean the child. Test feeds were done on several mothers, and in the majority, breast feeding was re-established. During the year 92 test feeds were done.

### MEDICAL ASPECTS

There have been some cases of Pneumonia, Whooping Cough, Malaria, Diarrhoea and Tonsilitis among the children. Serious cases were referred to their family doctors.

**Vaccinations.** These were carried out at the Asian Welfare Centres on all children, as a rule when they first attended the Clinics. Mothers have also been vaccinated at the Centres.

Ngara Centre	...	...	...	1408
Pangani Centre	...	...	...	93
Sandeford Centre	...	...	...	310
TOTAL				1811

**Inoculations.** (T.A.B.) After July 1946, inoculations were done at all the Centres.

Ngara Centre	...	...	...	272
Pangani Centre	...	...	...	288
Sandeford Centre	...	...	...	260
TOTAL				820

**Venereal Disease.** Fortunately the venereal diseases were very little on the Asian side. The few cases that did occur were at once referred to the doctors concerned.

### MILK DISTRIBUTION

Milk was given to some of the poor expectant and nursing mothers whose diet was deficient in quantity or quality and to the toddlers of



poor patients who were not receiving the assimilable proteins they need. The giving of milk has also been an immediate attraction to poor patients.

### **SCHOOL FOR HEALTH VISITORS**

Maternity and Child Welfare can only hope to succeed with a properly trained staff. Health Assistants remain as trainees for any length of time. If an institution for training Health Visitors could be started in Nairobi and the successful candidates awarded a diploma, duly recognised by the Kenya Government, there would not be any necessity for recruiting Health Visitors from India and there would be enough Health Visitors for other parts of Kenya Colony.

### **ASIAN MIDWIVES**

The Midwife is the foundation of all Maternity activities, hence work with, or among midwives, is an activity which no Asian Welfare Centre can afford to be without. There is no Bye-law at present that would give the Health Department the right to supervise the work of Asian Midwives and Dais, and unless this work is under the control of the Asian Health Department, most of the good work done during the ante-natal period will be of no avail. It is therefore of the utmost importance that all the unregistered midwives and indigenous dais should be prohibited from conducting labour cases under some Bye-law. The illiterate, indigenous Dai, even after training, is not an ideal worker. A survey was undertaken to find out how many women require to be trained to provide skilled attendance for every childbirth, and whether a sufficient number of literate women are coming forward for training with a view to replacing the indigenous Dai.

The legal notification of pregnancy by the practising midwives to the Asian Welfare Centres would be a logical and necessary step. This would secure the care of the unborn infant in the way in which notification of births to the Health Department secures the care of the newly born infant.

### **NOTIFICATION OF BIRTHS**

The notification of births is delayed as they are made mostly by the Health Visitors who discover births by the method of house to house visits. Infant mortality is the worst in the first week of life. Therefore early notification of births is of special importance to Health Visitors. This would also help them to supervise the work of the midwives, to start the education of the mother in the care and upbringing of her baby from the very start, and to encourage the mother to attend the Post-Natal Clinics.

**Necessity for Penalty.**—The majority of the midwives and indigenous Dais do not feel themselves responsible for notifying the births, either to the Health Visitor, or to the Medical Officer of Health, and unless some legal penalty is imposed, notification of births is liable to remain incorrect.

### **TEACHING AT THE CENTRES**

This is really the most important of the work to be done, and if it is not done, the Centre is failing in its real purpose. The fundamental lessons of mothercraft were taught at all centres. Health Visitors also held definite classes for mothers, in sewing, knitting, cooking, home nursing, first aid and simple hygiene. Such classes have been easy to hold among middle-class women. The very poor and ignorant mothers who can scarcely follow class teaching, were given individual attention. Such classes were difficult to hold when the Centre work is in progress, and hence the two Asian Centres, Pangani and Sandeford, are trying to hold them in con-



nection with the Women's Associations. It is aimed to include in these Associations grown up girls of today who will be the mothers of tomorrow, so that a great deal taught will be of value of them in married life.

The objects of these Associations are the social, hygienic, and economic uplift of Asian women, with a view to securing more happiness and better health in their homes. Outdoor and indoor games, lectures and debates on health and social matters, domestic science classes and baby shows will be organised by these associations for the benefit of those Asian ladies in a particularly backward condition.

Teaching by health cinema shows on 'Care of Teeth and Eyes' and 'How to Give Baths to Babies,' was given to mothers residing in the Sandeford area and it is hoped to show the same films at other centres. The Medical Officer of Health has sent an Order to India for the coloured posters and leaflets on Mothercraft which will be very useful for propaganda purposes among women at the Clinics.

There are definitely many hindrances at present to the development of Maternity and Child Welfare. All efforts were directed towards organising this work on correct lines with the principle of PREVENTION as its basis, and to make all feel this as a part of a campaign for Public Health.

There is a lot of ignorance, apathy and prejudice among the patients. Bad general hygiene, overcrowding, and bad housing, as well as many unhealthy social and religious customs among different communities undoubtedly make the work very difficult. Above all, the co-operation of Asian Health Visitors and friendly feeling towards each other are wanting. Under such circumstances there are few opportunities for free discussion of the work and of the difficulties encountered. All through the period since July there has been a great effort towards promoting mutual understanding among the Asian staff employed in each Welfare Centre.

Appended is a table of comparison of attendance and visits for the Asian Clinics during the last five years.

### Attendances at Asian Clinics and Home Visits

	Ngara	Sandeford	Pangani from July 16th '46	1946	1945	1944	1943	1942				
<b>ANTE-NATAL</b>												
Total Attendances	2661	...	226	...	673	...	3560	3249	2605	2652	2661	
New Cases	...	702	...	70	...	302	...	1074	839	669	—	—
Confined at home	209	...	83	...	107	...	399	276	223	—	—	
<b>CHILD WELFARE</b>												
Total Attendances												
0-5 years	...	4593	...	1360	...	1708	...	7661	6000	4131	4064	3486
Infants New												
0-1 years	...	499	...	65	...	274	...	838	586	376	—	—
Toddlers New												
1-5 years	...	161	...	75	...	343	...	579	402	144	—	—
<b>HOME VISITS</b>												
By Health Visitors	2136	...	1459	...	1978	...	5573	2755	2755	—	—	
By Health Assistants	1335	...	573	...	809	...	2717	1875	1204	—	—	
<b>TOTAL</b>												
	...		...		...		8290	4630	3979	4647	2941	
<b>DISPENSARY</b>												
Total Attendances	806	...	377	...	463	...	1646	892	833	565	1137	



## Venereal Diseases

As in previous years, the greatest difficulty which is always present in treating V.D. in Africans, is the fact that modern anti-syphilitic treatment, perhaps unfortunately, causes a very speedy retrogression of symptoms. This means that the patient assumes after a very short period, that the disease is cured, because the signs of it have disappeared. This, of course, is far from the case, and a relapse sooner or later is certain. The result is that there must be a steady build up of syphilis amongst the population, and the only way to stem this tide is to educate patients to realise that disappearance of symptoms does not mean cure, which can only be assured after prolonged treatment, and several blood tests. This process of education will take years.

### CLINIC RETURNS

#### ATTENDANCE

Number of Consultations	...	...	...	...	13,098
Number of Treatments	...	...	...	...	9,794
Number at Gynaecological Clinic	...	...	...	...	535
Total Attendance					<u>23,427</u>

#### CONSULTATIONS

Number of Consultations	...	...	...	...	13,098
Number by V.D. Patients	...	...	...	9,635	
Number by Other Patients	...	...	...	3,463	
					<u>13,098</u>

#### Consultations by V.D. Patients

By Patients with Syphilis	...	...	...	6,380	
By Patients with Gonorrhoea	...	...	...	2,547	
By Patients with Yaws	...	...	...	258	
					<u>9,635</u>

#### CASES

Number of New Cases (1946)	...	...	...	...	2,513
Number of Old Cases—					
1945	...	...	...	...	227
1944	...	...	...	...	28
1943	...	...	...	...	10
					<u>265</u>

Total Number of Cases, New and Old ... 2,578

#### Number of Cases of V.D.—

New	...	...	...	...	998
Old	...	...	...	...	218
					<u>1,216</u>

#### Number of Other Cases—

New	...	...	...	...	1,315
Old	...	...	...	...	47
					<u>1,362</u>
					<u>2,578</u>



**INJECTIONS GIVEN**

Intravenous (N.A.B.)	...	...	...	...	3,637
Intra Muscular—					
Bismuth and Acetylarsan	...	...	...	...	3,639
Penicillin	...	...	...	...	448
					—
			Total	...	7,724

**TYPE OF DISEASE**

Disease.	New Cases.	Old Cases.	Total.
Primary Syphilis	1	—	1
Secondary Syphilis	93	28	121
Latent Syphilis	361	109	470
Tertiary Syphilis	5	1	6
Congenital Syphilis	88	29	117
			—
Total Syphilis	548	167	715
Gonorrhoea	397	46	443
Yaws	53	5	58
			—
Total V.D.	998	218	1,216
Other Cases	1,315	47	1,362
			—
Total Cases	2,313	265	2,578

**Specimens Taken for Laboratory Test**

Specimens for Kahn Reaction	Positive	Reaction	Doubtful	Negative
3,383	1,111		184	2088
Specimens for Ide Reaction				
189	45		14	130

**Smears for Gonococcal Examination**

Total Number taken	5,352	Number Positive	175
Taken from Urethra	2644	"	44
" " Cervix	2602	"	120
" " Vagina	19	"	4
" " Bartholin	6	"	1
" " Eyes	81	"	6
	—		—
	5,352		175

**HOME VISITS**

Number of home visits paid	...	...	...	1503
Patients contacted	...	...	...	820 times
Visits to V.D. Patients	...	...	...	1939
Number of contacts made	...	...	...	737 times

Of the 1,339 visits made to V.D. patients, the patient was contacted on 737 occasions. After being contacted, the patient returned to the Clinic on 310 occasions, making a percentage of returns of 42%.

**EXAMINATION OF WOMEN PRISONERS FROM GAOL**

Only 25 women prisoners were referred to the V.D. Clinic for examination this year. Of these 25, 15 were found to be suffering from venereal diseases, a percentage of 60%.



## EXAMINATION OF AYAHs REFERRED BY EMPLOYERS

Twenty-three ayahs were referred to the Clinic by employers this year for examination. Of this number, 10 were found to be suffering from venereal diseases, a percentage of 44%.

## EXAMINATION OF PREGNANT WOMEN

This year a large number of pregnant women have attended the Clinic for examination. The actual numbers were, 879 pregnant women attended, 693 having been referred to the Clinic for routine examination by the Pumwani Maternity Hospital AnteNatal Clinic. Of the 879 women examined, 432 had venereal disease, as follows:—

Syphilis	...	...	...	205 women
Gonorrhoea	...	...	...	208 women
Syphilis and Gonorrhoea	...	...	...	19 women

The percentage of infected women was 49%.

## Staff

### Medical Officer of Health:

A. T. G. Thomas, M.D., B.S. (Durham), D.P.H. (London).

### Deputy Medical Officer of Health:

C. W. Howe, M.B.Ch.B.

### Medical Officer-in-Charge, African Child Welfare:

Mary Graham-Johnstone, M.B.Ch.B. (Edin.).

### Medical Officer-in-Charge, Asian Child Welfare:

Soushilla Soule, M.B., B.S. (Punjab).

### Medical Officer-in-Charge Venereal Disease Clinic:

Louise O. Hunter, M.R.C.S. (Eng.), L.R.C.P. (London).

M. G. Robson, M.B.Ch.B. (Glasgow) (Locum for Dr. Hunter).

### Senior Sanitary Inspector:

Mr. R. S. Forster, Cert. R.S.I. & Meat.

### Sanitary Inspectors:

Mr. D. Mackintosh, Cert. S.A.S.

Mr. S. White, Cert. R.S.I.

Mr. P. Cairns, Cert. R.S.I.

Mr. A. Ramshaw, Cert. R.S.I. & Meat.

Mr. A. Thompson, Cert. R.S.I. & Meat, A.M.I.S.E. (Appointed Establishment Officer, November.)

Mr. R. D. Belsare, Cert. R.S.I. (India).

Five African Health Assistants.

### Inspector of Foods:

Mr. A. A. Watts, Cert. R.S.I. & Meat.

### Clerical Staff:

Stenographer: Mrs. D. Critchley. (From February to December).

Senior Clerk: Miss Harris. (Until April).

Clerks: : Mrs. J. Shepherd. (Until April).

Mrs. D. I. Butcher. (July to December).

Mrs. C. C. Pape. (August to December).



**Infectious Diseases Control Department:**

Municipal Entomological Officer:

Mr. G. R. C. van Someren, F.R.E.S.

Mosquito Inspectors:—

Mr. D. C. Klynsmith.

Mr. J. Morrill. (From June to December).

Mr. H. G. Clarke. (From August to December).

Mr. H. G. Bilcliffe. (From June to December).

Mr. A. Gocs. (From February to December).

Mr. C. C. Cridland (From Feb. to Dec.) and

Mr. Abdul Karmali.

African Vermin Overseer: Mr. H. Nelson Obeiro.

Clerk-Typist and Part-Time Dispenser: Mrs. Sullivan, S.R.N.

**Maternity and Child Welfare Clinics:**

Supervisor of Health Visitors:

Mrs. E. T. Dugmore.

Health Visitors:

Miss J. Smith. (Retired at the end of the year).

Mrs. A. Gibb.

Mrs. J. C. Brooks.

Mrs. C. M. Davis.

Mrs. J. Rowe.

Mrs. A. Davies.

Miss P. Benjamin.

Mrs. S. D. Bhaskare (Formerly Miss Ghodke).

Mrs. Chadda.

Clinic Assistants:

Miss Jena Sidi Mohammed.

Miss S. K. Sherif.

Miss O. Fernandes. (Arrived in December).

**Lady Grigg Maternity Hospital:**

Medical Officer-in-Charge: Aileen Williams, M.R.C.S., L.R.C.P.

Matron: Miss Foord. (September to December).

Nursing Sisters:

Miss M. Francis.

Miss J. Lorimer.

Miss Weigert. (October to December).

Welfare Worker:

Miss W. Foy.

V.D. Clinic, Nursing Sisters:

Mrs. Humphreys and

Mrs. Jarvis.

**Conservancy:**

Superintendent: Mr. R. A. Macdonell.

Assistant Superintendent: Mr. T. E. Davies.

Refuse Removal Overseer: Mr. G. Barrow (resigned in September).

Street Cleansing Overseer: Mr. D. D. Luies (transferred to Roads Department in September).

Assistant Cleansing Overseers: J. H. D. Luies and J. E. Botha (on Military Service).

Conservancy Overseer: T. H. Pienaar.

Sweeper Service Overseer: W. J. Viljoen (resigned in December).

Clerical Staff: Miss D. Ewing.



## Expenditure

	£	s.	cts.	£	s.	cts.
<b>Administration:</b>						
Salaries:						
M.O.H. (Portion of Salary) ... ..	777	15	53			
Deputy M.O.H. ... ..	1,086	4	60			
Sanitary Inspectors ... ..	4,678	14	97			
				6,542	15	10
Cost of Living Allowances ... ..	534	7	42			
Provident Fund ... ..	438	1	35			
Clerks' Salaries ... ..	1,030	15	21			
Rent of Offices ... ..	500	0	00			
African Sanitary Inspectors' Salaries ...	419	1	03			
Printing, Stationery and Telephones ...	624	7	26			
Native Messengers ... ..	169	2	32			
Locomotion and Transport ... ..	556	9	60			
Passages Expenses — New Appointments	184	12	66			
Local Leave Expenses ... ..	77	0	00			
Uniforms and Miscellaneous ... ..	122	17	03			
Food and Drugs Inspection ... ..	166	15	18			
Leave Pay — Dr. Tilling ... ..	1,089	3	28			
				5,911	12	35
<b>Infectious Diseases (Control) Dept:</b>						
Mosquito Control:						
Salaries:						
Senior Mosquito Officer ... ..	560	0	00			
Overseers ... ..	1,834	15	13			
Clerk ... ..	51	15	66			
Cost of Living Allowances ... ..	321	14	63			
Provident Fund ... ..	95	10	00			
Native Wages ... ..	3,752	6	91			
Oil and General Stores ... ..	1,104	12	54			
Transport ... ..	1,183	16	12			
Printing, Stationery and Telephones ...	41	4	17			
Vaccination and Inoculation Expenses ...	130	16	20			
Miscellaneous Expenses ... ..	187	3	06			
Passages — New Appointments ... ..	258	2	50			
Laboratory Equipment ... ..	129	9	94			
				9,651	6	86
Vermin Control:						
Salary: Overseer ... ..	236	13	30			
Cost of Living Allowance ... ..	51	10	58			
Provident Fund ... ..	289	13	21			
Native Wages ... ..	529	1	39			
Stores and Equipment ... ..	289	13	21			
Transport ... ..	167	17	67			
				1,287	6	15



**Auxiliary Health Services:**

## Salaries:

Lady Medical Officers	...	...	1,782	9	64	
Health Visitors	...	...	4,038	16	03	
Cost of Living Allowances	...	...	494	13	05	
Provident Fund	...	...	281	1	93	
Locomotion Allowances	...	...	261	13	04	
Wages of Native Ayahs and Dressers	...	...	736	12	56	
Maintenance of Clinics	...	...	336	10	48	
Medical Stores and Infant Foods	...	...	1,861	8	81	
Uniforms and Equipment	...	...	175	13	11	
Telephones, Printing and Stationery	...	...	106	2	77	
Rent of Clinic	...	...	68	16	00	
Leave Expenses	...	...	79	12	49	
Miscellaneous Expenses	...	...	52	13	25	
Temporary Clinic, Eastleigh	...	...	171	16	35	
						10,447 19 51

**Lady Grigg Maternity Hospital:**

## Salaries:

Lady Superintendent	...	...	780	0	00	
Matron and Housekeeper	...	...	276	10	05	
Nursing Sisters	...	...	1,680	13	08	
African Nursing Staff	...	...	692	13	12	
Cost of Living Allowances	...	...	252	17	60	
Provident Fund	...	...	12	10	00	
Locomotion and Transport	...	...	128	1	16	
Passages — New Appointments	...	...	173	7	80	
Native Wages — Household Staff	...	...	312	18	07	
Medical Stores and Equipment	...	...	818	5	47	
Linen and Uniforms	...	...	341	4	65	
Maintenance of Buildings and Furniture	...	...	183	11	96	
Medical Fees	...	...	214	10	00	
Telephone and Stationery	...	...	127	12	58	
Rent of Annexe	...	...	24	0	00	
Light, Fuel and Water	...	...	310	2	68	
Provisions	...	...	357	4	09	
Renewals Reserve	...	...	200	0	00	
Improvements:						
Hot Water System	...	...	50	0	00	
Fencing and Huts	...	...	123	1	21	
Lecture Room, etc.	...	...	140	18	79	
						7,302 17 06

**Infectious Diseases:**

Hospital Fees	...	...	1,065	11	00	
Notification Fees	...	...	65	10	00	
						1,131 1 00

Total	...	£42,274 18 03
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Auxiliary Health Services

Salaries	
Lady Medical Officer	1,782 0 04
Health Visitors	4,032 12 00
Cost of Living Allowance	4,441 12 00
Provision Fund	381 7 00
Locomotion Allowances	381 12 04
Wages of Native Amins and Drivers	736 12 58
Maintenance of Clinics	336 12 45
Medical Stores and Infant Tools	1,504 8 84
Uniforms and Equipment	1,702 12 11
Telephones, Printing and Stationery	100 2 73
Rent of Clinic	48 10 00
Leave Expenses	70 12 10
Miscellaneous Expenses	52 12 25
Temporary Clinic, Kampala	141 10 31
<b>Total</b>	<b>10,441 09 31</b>

Lady Order Maternity Hospital

Salaries	
Lady Superintendent	2,700 0 00
Matron and Stenographer	375 10 00
Nursing Sisters	1,500 12 00
Almoner (Nursing Staff)	500 12 12
Cost of Living Allowance	382 17 50
Provision Fund	22 10 00
Locomotion and Transport	128 1 18
Leave - New Appointment	100 7 10
Native Wages - House-boys, etc.	612 12 00
Medical Stores and Equipment	122 5 43
Linens and Uniforms	241 4 00
Maintenance of Buildings and Furniture	122 11 04
Medical Fees	214 10 00
Telephones and Stationery	121 12 10
Rent of Annex	28 0 00
Light, Fuel and Water	310 7 00
Provisions	407 4 00
Household Expenses	300 0 00
Improvements:	
Hot Water System	50 0 00
Fencing and Huts	122 1 21
Lecture Room, etc.	240 12 70
<b>Total</b>	<b>7,302 17 00</b>

Hospital Charges

Hospital Fees	1,005 11 00
Notification Fees	100 10 00
<b>Total</b>	<b>1,105 1 00</b>
<b>Total</b>	<b>18,848 12 03</b>







