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

NAIROBI MUNICIPALITY

Kenya

NINETEENTH

ANNUAL REPORT

of the

Medical Officer of Health

1948

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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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Town Hall,
NAIROBI,
May 1st, 1948.

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 the state of the public health of the Municipality of Nairobi for the Year 1948, as required by the "Local Government (Municipalities) Ordinance, 1928 and 1948," "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.

CONTENTS

General Remarks

Another year in the active and busy post-war life of Nairobi has passed by. During it, the continuing battle against dirt, disease, ignorance and overcrowding has been waged. The increasing population and material prosperity of the town may be seen reflected in the fine buildings arising in its streets and the variety of goods in its shops, but there is much work waiting behind its imposing facade.

Another year has passed without a major epidemic of serious disease. It is true to state that recently we have made much progress in preventing the importation of disease from outside, and in this we have had considerable help from Government Medical Headquarters. This applies particularly to disease imported by ship via Mombasa. Nevertheless it would be idle to suppose that conditions in the town are such that an epidemic of Plague, Malaria, or Typhoid might not spread seriously before it could be brought under control, and, although extended and publicised epidemics have not occurred, the death and attack rates of Pulmonary Tuberculosis show a significant increase. In the case of Africans the 1948 attack-rate is 41% against 18% for the preceding 5 years. That is about 130% increase, and the death rate, amongst Africans, shows a 21% increase. Furthermore the infant mortality rate which is regarded as the most significant index of the health of a town, shows for Europeans a 63% increase over the previous 5 year mean and in the case of Africans a 12% increase. These are figures which must give serious food for thought. While the European statistics are based upon a rather small population, it must be noted that the figure has remained steadily at about 40 per thousand for a number of years and therefore its increase must be noted. A possible cause is the widespread degree of employment amongst married women. With regard to the African Tuberculosis and Infant Mortality figures, ready explanations which suggest themselves are the fantastic degree of over-crowding which exists and the widespread existence of a state of sub-nutrition.

The writer has had some opportunity during the past three years to study the effect of the various measures which can be used to protect and improve the Public Health of the town and has formed the impression that the conventional methods so well established in England must be modified if they are to be locally effective. In a community where education and a sense of personal responsibility is already spread amongst the majority of its members, a great deal can be done by further education and appeals for co-operation. For various reasons this is not the case here. While it is essential to continue attempts at Health Education by steady propaganda there appears to be no other effective method for protecting the Public Health than by unceasing and vigorous warning and prosecutions. It will not be until every individual who is guilty of jeopardizing the health and comfort of his neighbours by stupidity, apathy or carelessness can be certain of retribution, that proper discipline will be maintained. This is a formidable task, and will not be accomplished in a

year or two years, it will only be by unremitting labour over a long period. To carry out this project two things are necessary. One of them is a comprehensive code of clear and unequivocal By-laws tried and accepted by the Local Courts, the other a Staff willing and able to maintain a steady flow of Notices and Prosecutions. Both these weapons are being polished and, though the development of both of them is a relatively slow process, progress is being made. During the year a step forward was made by eliminating as far as legally possible the cumbersome and elaborate system of warning Notices, a step justified by the almost universal disregard with which these were treated. The next essential step in the progress of this town towards order, cleanliness and health is the demolition and re-building of the crowded warrens which lie behind its facade. Just as essential is the discipline of the population. Persuasion has failed, penalties may succeed.

I should like to take this opportunity of expressing my thanks to H.W. the Mayor and the Councillors for the courtesy and help I have received during my work in 1948 and to acknowledge the ever ready co-operation of my colleagues and the unstinted assistance of the staff who work with me. I have every confidence of their continued support in the tasks which lie ahead.

Table 1.
Climatic Data

	0830	1430	Humidity		Rainfall 1948		Average for Thirty Years	
1948	Dry Bulb °F	Dry Bulb °F	0830 %	1430 %	Total ins.	No. of days	1919 — 1948 Rainfall ins.	Days
Jan.	65.4	81.2	70	34	0.03	1	1.58	4
Feb.	64.9	82.4	72	29	0.76	2	2.03	4
March	64.4	79.9	77	38	4.44	7	5.23	9
April	63.9	77.7	86	47	5.46	12	7.79	14
May	63.2	75.4	86	54	1.98	12	5.10	13
June	59.5	71.1	86	57	2.46	8	1.61	6
July	58.2	70.4	83	55	0.36	3	0.59	4
Aug.	58.8	71.8	81	50	0.67	2	0.96	4
Sept.	60.6	77.8	80	39	1.39	6	0.95	4
Oct.	63.7	80.0	77	36	1.40	9	2.02	7
Nov.	62.4	75.0	85	50	4.11	16	3.96	14
Dec.	62.6	73.8	84	55	7.55	16	2.46	9
Year	62.3	76.4	81	45	30.61	94	34.28	92

Short Dry Season (Jan. to Feb.)	0.79″
Long rains (March to May)	11.88″
Long Dry Season (June to Sept.)	4.88″
Short Rains (Oct. to Dec.)	13.06″

VITAL STATISTICS

For the first time for several years it is possible to say with some degree of certainty how many people there really are in Nairobi. A Census of the population was taken in March, 1948 and the results have now become available. The population figures given in table 3 are the results of the Census and show an increase of 7% over 1946.

As it is unlikely that the population of this or any other town would increase to the figure given last year and then decrease again, the population figures for last year (1947) have been restated in table 2 at the figure which was probably the accurate one for that year, and therefore differs somewhat from that one given in the annual report for 1947. A possible source of inaccuracy in last year's figures may have been the fact that they were based on a ration book census and that a good many people may have left Nairobi itself for other parts of the country, without having handed in their ration books for cancellation.

It must always be borne in mind however that the very dense population in the native locations cannot be properly estimated and the population may in fact be several thousand greater than supposed.

In the last report a comparative figure of net reproduction rates for European and Asian Races was given as .81 for Europeans and 2.71 for Asians. This should now be amended to 1.0 for Europeans and 2.63 for Asians. In spite of the fact that there is little significant difference between the infant mortality rates for the two races, it seems probable, in view of the census figures now available, that the relative survival rates for Europeans and Asians in Nairobi are in the ratio of .83 to .74. Although the net reproduction rates given in the 1947 report were purely comparative, that is to say the same basis of calculation had been used for both races, this information available as a result of the census makes it possible to get a rather more accurate figure. Assuming the survival rates, as mentioned above and the amended populations as given in the second paragraph of this section, and in Table 4 below, net reproduction rates, for 1947, would be European 1.02 Asians 2.33, and, for 1948, European 1.19 and Asians 2.87.

The significance of these figures becomes more apparent in the light of the remarks by Ghosh in his survey of the Indian population* where he points out the marked differential mortality between the populations of India and of Britain, stating that his country has a higher birth and general fertility rate than the latter in spite of India's adverse mortality, and remarks "If Western Nations are today threatened with race suicide it is because among them the will to bring new life into existence has suffered atrophy. If Eastern populations do not grow as fast as they can, it is because they are still very much at the mercy of death". In Nairobi at any rate, as the figures in tables, 2, 8, 12 and 14 show, the influence of this differential mortality has been largely removed, and, with it, the check to population growth. It is gratifying to

* "Pressure of Population and Economic Efficiency in India" by D. Ghosh. Oxford University Press. 1946.

note, however, that here even the European population is just about maintaining itself.

The format of the tables for birth rate, infant mortality rate and death rate has been somewhat altered this year as, in order to get rid of minor variations in figures, the present rates for these items have been compared with the mean rate for the preceding 5 years.

On this basis it will be seen that the birth rate for all races has risen considerably, 18% for Europeans 36% for Asians and 30% for Africans.

The upward trend in the European Infant Mortality rate noted last year, has been maintained, the rate having increased this year by 63% over the mean of the preceding 5 years. The rate, 75, exceeds by 57% the average rate for the Ten County Boroughs*. In the last report mention was made of the significance to any town of a marked rise in infant mortality rate and some of its principal causes. There is no doubt that in the case of Europeans these causes are operating in an increasing degree and sooner or later the problem will have to be tackled; that is to say, some way will have to be found out of the vicious spiral constituted by domestic overcrowding, employment at low wages and the proportion of women who have to go out to work.

A marked increase in the death rate over the mean rate for the preceding 5 years will be noted in all races, particularly among the Europeans. While this is indicative of a steady upward trend, it must be pointed out in fairness, that the present death rates for Europeans and Asians in Nairobi are well below the average death rate for the Ten County Boroughs, 12.5 per thousand of population. They are of course, in addition, crude death rates which is a slight source of inaccuracy; if they could be standardised they would probably emerge at a slightly higher figure, owing to the probability that Nairobi's population is somewhat youth-weighted.

Table 2.

Summary of Vital Statistics

	Population. (Census 1948)	Deaths	Death Rate per 1,000	Live Births.	Birth Rate per 1,000 of pop:	Number of Infant Deaths.	Infant Mortality Rate per 1,000 Live Births.
Europeans	10,830	108	10.4	226	24.6	20	75.2
Asians	41,810	340	8.6	2250	53.9	151	67.0
Africans and Others	65,939	807	13.1	1554	23.6	291	187.3
	118,579	1,255	11.3	4,070	34.3	462	113.5

* The Cities of Norwich and Oxford, and the County Boroughs of Birkenhead, Blackburn, Gateshead, Huddersfield, Oldham, Preston, Reading and Walsall whose populations lie between 100,000 and 120,000 and with whose statistics those of Nairobi can conveniently be compared.

Table 3.

Population Figures for Nairobi as at 31st January, 1948.

(*From the Population Census* 1948)

	Males	Females	Total
Europeans ...	5,421	5,409	10,830
Asians ...	24,939	16,871	41,810
Africans and others	52,067	13,872	65,939
	82,427	31,152	118,579

Table 4.

Population Figures for the Preceding 5 years

Race	1943	1944	1945	1946	1947 (Corrected)
European ...	9,421	10,431	10,257	10,377	10,500
Asian ...	30,829	31,877	36,517	37,191	39,000
African & others	59,022	66,592	66,040	63,183	64,000
	99,272	108,900	112,814	110,751	113,500

Table 5.

Number of Births Notified — 1948

Race	Resident			Non-Resident			Total		
	S.Births.	L.Births.	Total.	S.Births.	L.Births.	Total.	S.Births.	L.Births.	Total.
Europeans	**10**	**226**	**274**	2	163	165	10	429	439
Asians	**52**	**2,250**	**2,296**	—	32	32	46	2,282	2,328
Africans and Others	**77**	**1,554**	**1,630**	44	786	830	120	2,340	2,460
	136	**4,070**	**4,200**	46	981	1,027	176	5,051	5,227

Table 6.

Live Births for Preceding Five Years.

Race	1943	1944	1945	1946	1947	Total
European	196	249	211	168	236	1,060
Asians	938	1,252	1,515	1,566	1,668	6,939
Africans and Others	797	1,009	1,276	1,351	1,346	7,013
	1,931	2,510	3,002	3,085	3,250	15,012

Table 7.

Birth Rates

(Live Births per Thousand of the Population)
(Corrected for outward transfer)

Race	Comparative rates for preceding 5 years 1943	1944	1945	1946	1947	5 year mean	Birth Rates 1948	Variation of 1948 from mean of preceeding 5 years
European	20.4	23.6	20.5	15.9	17.5	20.8	24.6	18% increase.
Asians	30.4	39.3	41.5	41.3	43.9	39.6	53.9	36% increase.
Africans	13.5	15.2	19.3	20.4	17.5	18.1	23.6	30% increase.

Table 8.

INFANT MORTALITY RATE

(Deaths of Infants under one year per 1,000 Live Births)
(Corrected for outward Transfer)

Race	Comparative rates for preceding 5 years. 1943	1944	1945	1946	1947	5 year mean	I/M Rates 1948	Variation of 1948 from mean of preceding 5 yrs.
European	36	49	33	48	64	46	75	63% increase.
Asian	95	62	56	60	98	73	67	8% decrease.
African	207	154	131	148	224	167	187	12% increase.

Table 9.

Still Births

Race	Residents Male	Female	Total	Non-Residents Male	Female	Total
Europeans	7	3	10	—	—	—
Asians	30	22	52	—	—	—
Africans & Others	50	27	77	28	18	36
			139			36

Table 10.

Causes of Infant Deaths (Under One Month)

International List Number	Cause	Europeans	Asians	Africans & Others	Totals.
30.	Congenital Syphilis ...	—	1	16	17
72.	Haemophilia ...	1	—	—	1
83.	Intracranial Haemorrhage ...	—	2	7	9
106.	Bronchitis ...	—	1	—	1
107.	Pneumonia. Broncho- ...	—	2	7	9
108.	Pneumonia. Lobar- ...	—	—	1	1
118.	Haematemesis ...	—	—	1	1
119.	Enteritis ...	—	1	—	1
119.	Gastro Enteritis ...	1	2	3	6
119.	Diarrhoea ...	—	3	—	3
122.	Intussusception. ...	—	—	1	1
157.	Congenital Atelectasis ...	—	1	1	2
157.	Congenital Deformity ...	—	1	—	1
157.	Congenital Heart Disease ...	1	2	1	4
157.	Hydrocephalus ...	—	—	2	2
157.	Patent Foramen Ovale ...	—	—	1	1
157.	Pyloric Stenosis ...	—	1	1	2
158.	Congenital Debility ...	—	4	—	4
158.	Malnutrition ...	—	2	2	4
158.	Marasmus ...	—	4	—	4
159.	Prematurity ...	6	42	43	91
160.	Birth Injuries ...	—	1	4	5
161.	Asphyxia Neonatorum ...	1	4	2	7
161.	Icterus Neonatorum ...	—	2	4	6
200.	Cachexia ...	—	—	1	1
200.	Heart Failure ...	—	3	—	3
200.	Toxaemia ...	—	—	2	2
	Totals	10	79	100	189

Table 11.
Causes of Infant Deaths
(From one month to one year)

International List Number	Cause	Europeans	Asians	Africans & Others	Totals.
1.	Typhoid ...	—	—	2	2
6.	Cerebro-Spinal Meningitis (Meningo-coccal) ...	—	—	5	5
9.	Whooping Cough ...	—	—	6	6
10.	Diphtheria ...	—	1	1	2
13.	Tuberculosis Lungs ...	—	—	5	5
24.	Septicaemia ...	—	1	1	2
27.	Dysentery ...	—	1	1	2
28.	Malaria ...	—	—	2	2
30.	Congenital Syphilis ...	—	—	7	7
35.	Measles ...	—	—	1	1
57.	Tumour ...	1	—	—	1
80.	Encephalitis ...	—	1	—	1
81.	Meningitis. Pneumococcal ...	—	—	5	5
83.	Intra-cranial Haemorrhage ...	4	1	—	5
86.	Convulsions ...	—	4	—	4
106.	Bronchitis ...	—	1	—	1
107.	Pneumonia. Broncho- ...	—	11	65	76
108.	Pneumonia. Lobar- ...	—	12	18	30
119.	Diarrhoea ...	—	8	10	18
119.	Enteritis ...	—	3	8	11
119.	Gastritis ...	—	1	—	1
119.	Gastro-Enteritis ...	3	10	30	43
122.	Intestinal Obstruction ...	—	—	2	2
129.	Peritonitis ...	—	1	—	1
157.	Spina Bifida ...	—	—	1	1
157.	Monster (Premature) ...	—	1	—	1
158.	Congenital Debility ...	—	4	—	4
158.	Malnutrition ...	—	—	2	2
158.	Marasmus ...	1	3	1	5
161.	Icterus Neonatorum ...	—	3	—	3
181.	Burns ...	—	—	1	1
200.	Toxaemia ...	—	—	2	2
200.	Undefined ...	1	5	15	21
	Totals.	10	72	191	273

Table 12

Maternal Mortality

Race	Live and Still Births	Maternal Deaths	Rate per 1,000 Live Births.
European	276	1	3.6
Asians	2,296	3	1.3
Africans and Others	1,630	8	4.9

Table 13.

Deaths

	Resident			Non-Resident		
	Male	Female	Total	Male	Female	Total
European	70	38	108	10	7	17
Asian	202	138	340	7	1	8
Africans and Others	493	314	807	571	349	920
	765	490	1,255	588	357	945

Table 14.

Death Rates

(Corrected for Outward Transfer)

	Comparative rates for the preceding five years					5 year mean	Death Rates 1948	Variation of 1948 from mean of preceeding 5 years
Race	1943	1944	1945	1946	1947			
European	6.05	5.9	7.5	7.5	7.0	7.3	10.0	37% increase.
Asians	7.2	7.4	5.9	6.3	9.0	7.0	8.2	17% increase.
Africans and Others	9.6	10.4	9.6	10.9	11.8	11.2	12.2	9% increase.

Table 15.

Summary of the Causes of Death

	Europeans.	Asians.	Africans and Others.	Totals	Percentage of all Deaths 1948.	Percentage of all Deaths 1947.	Death Rate 1948.	Death Rate 1947.
1. Infectious and Parasitic Diseases. ...	3	29	202	234	17.5	16.4	1.89	1.71
2. Cancer and Other Tumours ...	14	6	11	31	2.3	2.0	0.26	0.21
3. Rheumatism and Diseases of Nutrition etc. ...	2	11	2	15	1.1	1.5	0.13	0.16
4. Diseases of the Blood etc. ...	3	9	10	22	1.6	1.3	0.18	0.13
5. Poisoning. ...	—	1	1	8	0.6	0.7	0.07	0.03
6. Diseases of the Nervous System. ...	11	15	26	52	3.8	6.2	0.44	0.65
7. Diseases of the Circulatory System. ...	20	21	6	47	3.5	9.9	0.40	1.04
8. Diseases of the Respiratory System. ...	2	50	273	325	24.2	25.6	2.74	2.68
9. Diseases of the Digestive System ...	5	43	101	149	11.1	7.9	1.25	0.84
10. Non-Venereal Diseases of the Genito-Urinary System. ...	7	3	5	15	1.1	2.0	0.13	0.21
11. Diseases of Pregnancy Childbirth and Puerperal State. ...	1	3	8	12	0.9	0.8	0.10	0.86
12. Diseases of the Skin ...	—	—	1	1	—	0.2	—	0.02
13. Diseases of the Bones and Joints ...	—	1	—	1	—	—	—	—
14. Congenital Malformations. ...	1	6	7	14	1.0	0.9	0.12	0.09
15. Diseases Peculiar to the First Year of Life.	8	69	58	135	10.1	18.2	1.14	1.90
16. Old Age. ...	3	1	—	4	0.3	0.4	0.03	0.04
17. Deaths from Violence. ...	15	30	35	80	6.0	5.1	0.68	0.54
18. Ill defined Diseases. ...	13	42	55	110	8.2	0.4	0.98	0.05
Total all diseases ...	108	340	807	1,255				

Table 16.
CAUSES OF DEATH

(Corrected for Outward Transfer only).

International List 1938.

GROUP 1.—Infectious and Parasitic Diseases.

	Europeans	Asians	Africans and Others	Totals
1. Typhoid ...	—	1	13	14
2. Paratyphoid ...	—	—	1	1
6. Cerebro Spinal Meningitis. ...	—	1	22	23
7. Anthrax. ...	—	—	2	2
9. Whooping-cough. ...	1	5	10	16
10. Diphtheria. ...	—	3	5	8
12. Tetanus. ...	—	2	2	4
13. Tuberculosis, Lungs. ...	1	5	63	69
14. „ Meningitis. ...	—	2	13	15
15. „ Miliary. ...	—	2	4	6
16. „ Spine. ...	—	—	1	1
17. „ Groin. ...	—	—	1	1
22. „ Generalised. ...	—	1	7	8
23. Leprosy. ...	—	1	—	1
24. Gas-gangrene. ...	—	—	1	1
24. Septicaemia. ...	—	1	3	4
24. Staphylococcal Septicaemia ...	1	—	—	1
27. Dysentery, undefined ...	—	1	5	5
27. Dysentery Bacillary. ...	—	—	5	5
28. Malaria. ...	—	—	8	8
28. Cerebral Malaria. ...	—	2	5	7
28. S.T. Malaria. ...	—	—	1	1
30. Aneurism of Aorta. ...	—	1	—	1
30. Syphilis. ...	—	—	4	4
30. Congenital Syphilis. ...	—	1	23	24
35. Measles. ...	—	—	2	2
38. Toxic Hepatitis. ...	—	—	2	2
Totals. ...	3	29	202	234

GROUP 2.—Cancer and other Tumours.

		Europeans	Asians	Africans and Others	Totals
45.	Abdominal Malignant Growth. ...	—	—	1	1
46.	Carcinoma of Liver. ...	—	—	2	2
46.	„ „ Oesophagus. ...	1	—	—	1
46.	„ „ Pancreas. ...	—	1	—	1
46.	„ „ Rectum. ...	2	—	—	2
46.	„ „ Sigmoid Colon. ...	—	1	—	1
46.	„ „ Stomach. ...	2	—	1	3
47.	„ „ Larynx. ...	—	1	—	1
48.	„ „ Cervix. ...	1	—	1	2
48.	„ „ Uterus. ...	—	1	3	4
49.	„ „ Ovary. ...	1	—	—	1
50.	„ „ Breast. ...	2	—	1	3
52.	Hypernephroma ...	1	—	—	1
53.	Melanotic Carcinoma (of the Skin)...	1	—	—	1
55.	„ of the Middle-ear. ...	1	—	—	1
55.	„ of the Neck & Glands ...	—	1	—	1
55.	Carcinoma Undefined. ...	—	1	—	1
55.	Lymphosarcoma. ...	1	—	1	2
57.	Neoplasm of the Pancreas. ...	—	—	1	1
57.	Tumour, indefined. ...	1	—	—	1
	Totals. ...	14	6	11	31

GROUP 3.—Rheumatism, Diseases of Nutrition, etc.

		Europeans	Asians	Africans and Others	Totals
58.	Rheumatic Carditis. ...	—	1	—	1
61.	Diabetes. ...	—	6	—	6
63.	Thyrotoxicosis. ...	1	—	—	1
66.	Toxaemia. ...	—	1	—	1
66.	Cystinuria. ...	1	—	—	1
69.	Pellagra. ...	—	1	2	3
70.	Rickets. ...	—	2	—	2
	Totals. ...	2	11	2	15

GROUP 4.—Disease of the Blood, etc.

	Europeans	Asians	Africans and Others	Totals
72. Haemophilia. ...	1	—	—	1
72. Purpura. ...	—	1	—	1
73. Anaemia ...	—	5	10	15
73. Pernicious Anaemia. ...	—	1	—	1
74. Leukaemia. ...	1	—	—	1
74. Myeloid Leukaemia. ...	—	1	—	1
75. Banti's Disease. ...	—	1	—	1
76. Agranulocytosis. ...	1	—	—	1
Totals. ...	3	9	10	22

GROUP 5.—Poisoning.

	Europeans	Asians	Africans and Others	Totals
77. Acute Alcoholism ...	—	—	2	2
77. Wood Alcohol. ...	—	—	1	1
79. Carbon Monoxide Poisoning. ...	—	—	1	1
79. Irritant Poisoning. ...	—	—	2	2
79. Narcotic Poisoning. ...	—	1	—	1
79. Santonin Poisoning. ...	—	—	1	1
Totals. ...	—	1	7	8

GROUP 6.—Diseases of the Nervous System.

	Europeans	Asians	Africans and Others	Totals
80. Cerebral Abscess. ...	1	—	—	1
80. Encephalitis. ...	—	1	—	1
81. Pneumococcal Meningitis. ...	—	—	14	14
82. Transverse Myelitis. ...	—	—	1	1
83. Cerebral Embolism. ...	—	1	—	1
83. Cerebral Thrombosis. ...	—	—	1	1
83. Progressive Muscular Atrophy. ...	1	—	—	1
83. Subarachnoid Haemorrhage. ...	—	—	1	1
83. Intra-cranial Haemorrhage. ...	8	8	9	25
85. Epilepsy. ...	1	—	—	1
86. Convulsions. ...	—	4	—	4
87. Parkinsonian Syndrome. ...	—	1	—	1
Totals. ...	11	15	26	52

GROUP 7.—Diseases of the Circulatory System.

		Europeans	Asians	Africans and Others	Totals
90. Pericarditis.	...	—	—	4	4
91. Endocarditis, Acute.	...	1	—	1	2
91. Endocarditis, Subacute, Bacterial.	...	—	1	—	1
91. Malignant Endocarditis.	...	1	1	—	2
92. Mitral Disease.	...	—	1	—	1
92. Valvular Disease of the Heart.	...	1	—	—	1
93. Myocarditis.	...	2	—	—	2
93. Acute Myocardial failure.	...	1	—	—	1
93. Chronic Myocarditis.	...	—	1	—	1
93. Myocardial Degeneration.	...	2	5	—	7
93. Myocardial Infarction.	...	1	—	—	1
93. Toxic Myocarditis.	...	1	—	—	1
93. Heart Block.	...	2	—	—	2
94. Angina Pectoris.	...	1	1	—	2
94. Coronary Occlusion.	...	1	1	—	2
94. Coronary Thrombosis.	...	3	7	—	10
94. Coronary Heart Disease.	...	3	1	—	4
95. Cardiac Disease.	...	—	1	—	1
99. Thrombosis.	...	—	1	—	1
99. Tubercular Cervical Adenitis.	...	—	—	1	1
Totals.	...	20	21	6	47

GROUP 8.—Diseases of the Respiratory System.

		Europeans	Asians	Africans and Others	Totals
105. Laryngitis.	...	1	—	—	1
106. Bronchiectasis.	...	—	2	—	2
106. Bronchitis, Acute.	...	—	—	2	2
106. Bronchitis, Chronic.	...	—	—	2	2
106. Bronchial Dilation.	...	—	1	—	1
107. Broncho-Pneumonia.	...	—	15	161	176
108. Bilateral Pneumonia.	...	—	1	—	1
108. Double Pneumonia.	...	—	2	2	4
108. Lobar Pneumonia.	...	—	13	33	46
109. Undefined Pneumonia.	...	—	10	69	79
110. Left Haemothorax.	...	—	—	1	1
110. Empyema.	...	—	1	—	1
112. Asthma.	...	—	2	1	3
111. Pulmonary Embolism.	...	1	2	1	4
114. Haemoptysis.	...	—	—	1	1
114. Lung Abscess.	...	—	1	—	1
Totals.	...	2	50	273	325

GROUP 9.—Diseases of the Digestive System.

		Europeans	Asians	Africans and Others	Totals
117. Acute Abdominal Obstruction.	...	—	—	1	1
118. Haematemesis	...	1	—	—	1
119. Enteritis.	...	—	4	12	16
119. Gastro Enteritis.	...	4	18	56	78
119. Diarrhoea.	...	—	14	15	29
119. Gastritis.	...	—	1	—	1
121. Appendix Abscess.	...	—	—	2	2
122. Intestinal Obstruction.	...	—	1	1	2
122. Intussusception.	...	—	—	2	2
122. Volvulus.	...	—	—	2	2
123. Gangrene of Appendix.	...	—	1	—	1
123. Gangrene of Large Bowel.	...	—	—	1	1
124. Cirrhosis of Liver.	...	—	2	4	6
125. Toxic Jaundice.	...	—	—	1	1
127. Catarrhal Jaundice.	...	—	1	—	1
129. Peritonitis.	...	—	1	4	5
Totals.	...	5	43	101	149

GROUP 10.—Non-Venereal Diseases of Genito-Urinary System.

		Europeans	Asians	Africans and Others	Totals
130. Bright's Disease.	...	1	—	—	1
130. Nephritis.	...	—	3	4	7
131. Uraemia.	...	3	—	1	4
133. Pyelonephritis.	...	2	—	—	2
135. Cholecystitis.	...	1	—	—	1
Totals.	...	7	3	5	15

GROUP 11.—Diseases of Pregnancy, Child Birth and Puerperal State.

		Europeans	Asians	Africans and Others	Totals
139. Breast Abscess (Septicaemia)	...	—	—	1	1
144. Eclampsia.	...	—	—	1	1
144. Hyperemesis Gravidarum	...	—	1	—	1
146. Post partum Haemorrhage.	...	—	—	2	2
147. Pelvic Cellulitis.	...	—	1	—	1
147. Post-Natal Complications.	—	—	—	1	1
147. Puerperal Sepsis.	...	—	—	2	2
148. Toxaemia Pregnancy.	...	1	—	—	1
149. Obstetric Shock.	...	—	1	1	2
Totals.	...	1	3	8	12

GROUP 12.—Diseases of the Skin.

		Europeans	Asians	Africans and Others	Totals
153. Pemphigus.	...	—	—	1	1
Totals.	...	—	—	1	1

GROUP 13.—Diseases of the Bones and Joints.

		Europeans	Asians	Africans and Others	Totals
155. Ununited Fracture.	...	—	1	—	1
Totals.	...	—	1	—	1

GROUP 14.—Congenital Malformations.

		Europeans	Asians	Africans and Others	Totals
157. Congenital Atelectasis.	...	—	1	1	2
157. Congenital Deformity (Unspecified)		—	1	—	1
157. Congenital Heart Disease	...	1	2	1	4
157. Hydrocephalus.	...	—	—	2	2
157. Monster (premature).	...	—	1	—	1
157. Spina Bifida.	...	—	—	1	1
157. Patent Foramen Ovale.	...	—	—	1	1
157. Pyloric Stenosis.	...	—	1	1	2
Totals.	...	1	6	7	14

GROUP 15.—Diseases Peculiar to the First Year of Life.

		Europeans	Asians	Africans and Others	Totals
158. Congenital Debility.	...	—	8	—	8
158. Malnutrition.	...	—	2	4	6
158. Marasmus.	...	1	7	1	9
159. Prematurity.	...	6	42	43	91
160. Birth Injuries.	...	—	1	4	5
161. Asphyxia Neonatorum.	...	1	4	2	7
161. Icterus Neonatorum.	...	—	5	4	9
Totals.	...	8	69	58	135

GROUP 16.—Old Age.

		Europeans	Asians	Africans and Others	Totals
162. Senility.	...	3	1	—	4
Totals.	...	3	1	—	4

GROUP 17.—Deaths from Violence.

		Europeans	Asians	Africans and Others	Totals
163. Burns (Suicide).	...	—	2	—	2
164. Gun shot Wound (Suicide)	...	3	—	—	3
164. Hanging (Suicide)	...	1	1	—	2
164. Suicide (undefined).	...	—	1	—	1
168. Homicide	...	—	1	6	7
170. Motor Accidents.	...	4	1	2	7
171. Traffic Accidents.	...	—	2	1	3
175. Accidents (Undefined)	...	1	5	6	12
175. Broken Neck.	...	1	—	—	1
175. Crushed Head.	...	—	3	—	3
175. Fractured Spine.	...	—	3	—	3
175. Fractured Skull.	...	3	6	7	16
181. Burns (accidental)	...	2	2	10	14
181. Drowning	...	—	3	1	4
193. Electric Shock.	...	—	—	1	1
198. Legal Execution	...	—	—	1	1
Totals.	...	15	30	35	80

GROUP 18.—Ill-defined Diseases.

		Europeans	Asians	Africans and Others	Totals
200. Cachexia.	...	—	1	—	1
200. Cardiac Failure.	...	5	13	3	21
200. Congestive Heart Failure.	...	1	1	2	4
200. Heart Failure.	...	2	19	3	24
200. Malnutrition.	...	—	—	17	17
200. Post-Operative Shock.	...	—	1	—	1
200. Toxaemia.	...	—	—	4	4
200. Unknown.	...	5	7	26	38
Totals.	...	13	42	55	110

INFECTIOUS DISEASES

The number of infectious diseases notified during the year was 784, compared with 978 last year.

Of these Malaria accounted for 195, Tuberculosis for 281, an increase of 36% on last year. The Dysenteries accounted for 1947 a decrease of 42% on last year and Enteric for 106 an increase of 74% on last year.

Excluding Malaria, the total remaining diseases 589 are somewhat less than those notified during 1947.

The increase of tuberculosis noted last year was maintained, there being 36% more notifications and 20% more deaths this year than last.

There were no serious outbreaks of disease during the year. In August and September, however, one or two cases of Diphtheria occurred and the circumstances in which the illness appeared to have been contracted suggested the possibility of a sudden serious spread in Nairobi. It was accordingly decided to immunise as much of the child population as possible and anatoxin was ordered from London with this end in view.

In consultation with the Director of Medical Services and the Head-masters of private schools, it was arranged to immunise all children attending private schools in Nairobi, whilst the Government Medical Department would immunise the children in the Government schools. Action in private schools started in October and by January some 7,000 Asian children and 500 European Children had received their two injections.

International travel restrictions on the grounds of Infectious Disease continue to cause considerable inconvenience to travellers. At the Inoculation Centre at the Town Hall, during the year there were over 46,000 injections or vaccinations given, a little more than half of which were given to intending travellers, a small percentage of whom were Nairobi Ratepayers. The remaining large majority were either Kenya residents from up-country or else people travelling around Africa on business or pleasure. It is a common practice to finish a tour of Africa in Nairobi and then fly back to Britain by the overnight plane. It is also a fact that it is possible to enter Africa, and certainly East Africa, without either Smallpox or Yellow Fever Certificates, whereas both these are required, made out on the International Form with meticulous accuracy, for passengers going through Egypt or the Sudan. It therefore arises that countless travellers who get into difficulties with their certificates are held up in Nairobi, the last port of call before entering the above two territories, and repair to the Town Hall for re-inoculation or vaccination.

Notifiable Infectious Diseases, by Races.

(*excluding Malaria, for which see page* 45)

	Europeans	Asians	Africans and Others	Totals
Anthrax ...	—	—	12	12
Cerebro Spinal Meningitis. ...	—	—	26	26
Chicken-pox. ...	3	3	10	16
Diphtheria. ...	14	12	7	33
Dysentery (Amoebic) ...	9	7	3	19
Dysentery (Bacillary) ...	8	17	3	28
G.C. Conjunctivitis. ...	—	1	5	6
Leprosy ...	—	2	4	6
Malta Fever. ...	—	—	4	4
Poliomyelitis. ...	5	2	4	11
Pueperal Sepsis ...	—	4	1	5
Relapsing Fever. ...	—	—	3	3
Scarlet Fever. ...	4	—	—	4
Typhus, Tick. ...	5	—	24	29
Tuberculosis. ...	1	10	270	281
Typhoid Fever. ...	1	26	79	106
Totals. ...	50	84	445	589

Monthly Table of Notifiable Infectious Diseases

(*excluding Malaria, for which see page* 45)

	January	February	March	April	May	June	July	August	September	October	November	December	
Anthrax ...	1	—	—	—	1	1	4	2	2	1	—	—	12
Cerebro Spinal Meningitis ...	2	3	3	2	1	1	3	2	4	2	2	1	26
Chicken-pox. ...	—	—	2	1	—	1	4	2	2	1	1	2	16
Diphtheria. ...	1	1	—	3	6	8	4	2	2	3	2	1	33
Dysentery (Amoebic) ...	—	2	—	—	—	—	3	4	7	3	—	—	19
Dysentery (Bacillary) ...	—	2	9	—	1	4	3	1	3	1	2	2	28
G.C. Conjunctivitis. ...	1	—	2	—	—	1	2	—	—	—	—	—	6
Leprosy. ...	—	—	1	—	—	1	—	1	—	3	—	—	6
Malta Fever. ...	1	—	—	—	2	—	—	—	—	—	1	—	4
Poliomyelitis. ...	1	2	—	2	—	1	2	—	1	—	1	1	11
Puerperal Sepsis. ...	—	1	1	—	—	—	—	1	—	2	—	—	5
Relapsing Fever. ...	—	—	1	—	—	2	—	—	—	—	—	—	3
Scarlet Fever. ...	—	—	1	—	—	1	1	—	—	—	1	—	4
Typhus (Tick) ...	3	3	1	—	2	4	4	4	1	3	4	—	29
Tuberculosis. ...	32	33	28	30	11	32	17	24	20	21	20	13	281
Typhoid. ...	5	8	5	12	17	13	9	22	5	8	7	5	106
													589

Preventive Inoculations

	Europeans	Asians	Africans	Total.
Yellow Fever ...	2,196	6,475	1,697	10,368
T.A.B. ...	783	1,064	13,667	15,514
Diphtheria ...	568	7,253	3	7,824
Smallpox ...	1,854	6,859	3,929	12,642
Cholera ...	166	41	—	207
Plague ...	30	—	—	30
Tetanus ...	7	—	—	7
Typhus (Louse) ...	15	—	—	15
Totals. ...	5,619	21,692	19,296	46,607

T.B. Attack Rate (Per 10,000 of Population)

	Mean attack rate of preceding five years.	1948 rate	Variation of 1948 rate from mean of 5 years.
Europeans ...	.4	1.0	—
Asians ...	3.4	2.4	30% decrease.
Africans and Others	17.6	40.9	132.4% increase.

T.B. Death Rate (Per 1,000 of population)

	Mean Death Rate for preceding 5 years	1948 Rate	Variation of 1948 Rate from 5-year mean
European ...	.14	.10	—
Asian ...	.18	.24	33% increase.
African ...	1.12	1.35	21% increase.

Capetown 1946	Europeans	.84
	Non-Europeans	5.71
Average Rate for the Ten County Boroughs 1947		.70

SANITARY ADMINISTRATION

Any ideas we possessed a year ago that the peak of building construction had been reached and that the Department could concentrate on securing an improved food distributing and supply service and the elimination of bad conditions were not long in being disproved, as we got settled into the work in 1948. Building continued apace with its concomitant scramble and competition for labour and materials. Nevertheless, goods of all kinds have been coming forward in large quantities for some time and there would appear to be quite definite signs too that prices are becoming more competitive. This is all to the good if only by reason of the fact that it is probably the only obvious method by which costs can be brought down at the present time. However, we are faced with increasing demands for materials so that if exports from U.K. are not maintained in large quantities, the competition between the private builders and even Government Departments and the Military Authorities, may tend to maintain high costs.

The previous year (1947) had been one of exceptional difficulty but the resources of the department were stretched still more with a further increase in building construction. The number of completion certificates issued was 750, this being 104 more than that of the previous twelve months which was itself a record year for building construction. It was unfortunate that such demands were made on the staff at a time when steps had been planned to deal with premises concerned in the preparation of food — restaurants — mineral water factories — ice cream makers and those places which are controlled by the provisions of the Public Health (Manufacture, Packing and Re-Packing of Food) Rules 1944. It was not until the end of the year that the necessary re-organisation could be undertaken ready for the change to take place as from the beginning of 1949.

Food premises although subjected to constant supervision have not yet reached the standards desired, and the personnel are in most cases untutored in the hygienic requirements demanded in food producing and preparing trades. The slackness in personal hygiene is not confined to one section of employees but is to be found in varying degrees among the operatives in almost all premises in which food is handled.

Programmes have been set out and an organisation built up to deal with the medical inspection of workers and to inoculate where necessary but the routine vaccinations and inoculations of residents and travellers occupies so much of the time of the officers at the treatment centre that the examination of food touchers is somewhat forced into the background.

Vaccinations and inoculations alone totalled approximately 47,000. If the diseased or dirty workers are to be removed from places where they are a menace to the public it appears necessary to consider an increase in the medical staff. Guesswork and the supposition of lay

workers is not good enough where men's livelihoods are concerned and only those with medical knowledge may judge the health and fitness of those concerned, to engage in these trades.

Much can and will be done in the direction of making those who handle food, hygiene conscious, although we in this country feel that much faith as to the cleanliness of our food will be required for a long time to come before we reach the stage where, as in the U.S.A. and at least one Scottish bakery, free manicures are given to make the girls clean-hand conscious.

Attempts to instil into the employees of food establishments a sense of hygiene and its practical application have met with only a comparatively minor and very fleeting success but hopes are not altogether dead that, in due course, the standards of personal conduct and appearance will be raised.

Carelessness probably accounts for quite a large proportion of those cases, the more obvious cases, which come to the notice of the public, those instances which cannot be set down to uncontrolled habits, such as the remains of a mouse or a millepede being found in bottles of mineral water or a cockroach in the crust of bread and other extraneous matter in our food which could and should be seen by ordinary observations. Constant efforts are being made to reduce the risk of dirt consumption but it would require the services of an army of inspectors to ensure a guaranteed clean food supply.

Meat inspection and forgery detection would appear at first sight to be subjects as far removed from each other as public health duties could possibly be, but much time has been spent stamping out the fraudulent dealing in uninspected meat. This latest instance concerned the sale of poultry which had not been killed and inspected at the Municipal abattoir. Each carcase on being passed as fit for human consumption is branded with a scorching iron and the unscrupulous dealers have taken to forging this design and passing the poultry to shopkeepers as having been approved by the inspectors.

Not for the first time has greed led to the discovery, apprehension and conviction of the culprits for in this case it was not considered sufficient to sell every bird killed, but the weight must be increased as well. This was arranged by re-inserting the offal and leaving the neck at its full length, and these long necks became the beginning of the trail which led to the apprehension of the organisers. Other means of branding have now been arranged.

Housing.

In the last report a strong suggestion was put forward that the dearth of housing for Africans was so serious as to warrant a departure from established practice. It was recommended, inter alia, that controlled villages should be established near the borders of the town where land was available and the use of local materials be utilized to the full in the construction of the houses.

It was not thought that some Africans would of their own volition embark on such a scheme, albeit uncontrolled. Yet it has happened. Scores of wattle and daub shacks have been erected — shops established — other houses not requiring trade licences were opened, indeed all the dirt squalor and depravity of uncontrolled settlements have appeared and grown on the edge of the Municipality.

The magnet of the town continues to draw numbers of urban minded individuals and as saturation point has already been reached and passed there is but little choice for the householder but to pitch his shack where there is little likelihood of official action. Alas, the appropriate departments decided on a policy of disturbance and in one or two instances "the re-establishment of Nairobi's erstwhile black spot, the late Pangani village" have received determined attention by Government Officers, attention which must have come as a profound shock to the various squatters.

Continued activity within the Municipality tends to keep would-be squatters on the move — a course of action to which there is no alternative, and which is endless, unsatisfactory and no doubt, to the minds of these enforced nomads, unjust. The state of affairs may be further illustrated by a reference to the Municipal housing for Africans. At one time during the year it was estimated that the locations were 80% overcrowded, and there was a waiting list of 2,000. The amenities and conveniences of the old world are being thrust upon what is still a comparatively new country — on a people who for the most part are incapable of absorbing the ideas and performing the necessary social duties which are inseparable from the higher standards which we hope they may one day attain.

The danger to health arises not only from the stuffy overcrowded conditions of the quarters, but also from the results of gross misuse and overworking of the various conveniences by people whose only idea of sanitation is an accommodating bush or the banks of a watercourse.

A visit to some of the sanitary conveniences is at times enough to make one despair of this section of our community. That human beings should be allowed to grow up with such filthy habits as are practised, at once screams for some action by the application of propaganda and by enforced discipline in matters of individual and family welfare and domestic and public hygiene.

It seems to be purposely disregarded by impatient idealists that the towns, for the most part, belong to the modern world, while the African population still wallows in an archaic system of very low standards. The absorption of such people into town life even if their capacity to learn and to profit by their learning were of a high order, would be a matter of some difficulty, but backwardness is an ever present cause of exasperation to their mentors and is apparently a matter of little concern to the people themselves. So long as they can live, undisturbed, under most primitive conditions and without control, so will they be content merely to exist. Some few do possess the initiative to build their own huts, but, alas, their efforts are misdirected, they carry out the construction on

land over which they hold no title and with little sense of order or of Municipal By-Laws and Regulations. Often water supplies are only available at a distance — ordinary sanitary conveniences are absent and the disposal of waste matter left to nature's scavengers.

Primitive practices in our present stage of development are best countered by determined and what may appear rugged action — action that is certainly easily understood.

Demolition of huts continues, a total of 114 were caused to be demolished during the year by the Sanitary Inspectors, while many more were dealt with by the Building Staff.

More Municipal housing is planned and further schemes are contemplated, to be put in hand during 1949. The Gorofani location adjoining an existing well established "Village" will provide accommodation for some hundreds of Africans and in an attempt to bring rents down the rules governing African housing were modified against some opposition, to allow of a reduced floor area per occupant. On the face of it this appears to be a retrograde step but if the facts are faced and consideration given to practical as against mere theoretical ideas the reduction of floor area from 50 feet super to 40 feet gives each tenant as much and probably more floor area than he "enjoys" in the present grossly overcrowded quarters. It must be admitted however, that even these quarters may be occupied by tenants and their friends resulting in continued overcrowding, but efficient supervision and enforced discipline should eliminate or reduce to a very small number, the cases of illegal occupation.

If and when we approach something like a satisfactory balance a return to more ideal conditions of floor area will be strongly advocated.

This particular settlement was to have cost £81,000 but the modified scheme reduces this figure to £66,000 a saving of £15,000. The lower figure brings the cost to slightly over £80 per tenant and the economic rent chargeable on the total outlay should be within the reach of hundreds of African employees, or their employers.

Areas of building land continue to be set aside by Government for Africans and other races, some for Government and others for private housing. Every encouragement is given by making the purchase of the plots as easy as financial considerations permit. For as little as £100 down a good building site of one acre may be obtained, the balance payable at 5% per annum, as annual rent. There are plots smaller than an acre in extent which will be made available at proportionately lower payments. This is indeed a good concession especially in a town where somewhat similar plots have changed hands at as much as £1,000 an acre. It has therefore been made quite possible for a person with but a tiny capital to build his own house with money which it is possible to borrow at a fairly low rate of interest. Housing costs however, remain high, but by putting utility before elaborateness and by keeping to essentials the prevailing high costs can be cut considerably.

Asian plots varying from quarter of an acre to half an acre, are to be made available so that for as little as £37.10.0d., stand premium, and £7.10.0d. per annum rent, the required parcel of land may be obtained.

Regarding the Asian community as a whole the position for all practical purposes remains unchanged from the previous year. The way some of these people are compelled to herd together is pitiful and although efforts — small efforts — are being made to meet the situation they do no more than provide for a tiny percentage and possibly arouse a little excitement among many hundreds of other applicants destined to suffer disappointment as the allocations become known.

The Municipal Council in furtherance of its policy of providing accommodation at reasonable rentals has decided on the early construction of seventy houses and twenty-four small flats for Europeans. The need for such accommodation is proved by the waiting lists which contain the names of 559 European applicants alone.

While considering the provision of housing it might not be out of place to raise the question of Government or Municipal loans to individuals for the financing the building of their own houses. It has been initiated in another part of the continent and if such a method of encouraging African ownership of property is likely to be appreciated by the more thoughtful Citizen, then it is worthy of some consideration. Every house built by private enterprise means accommodation released for other occupants and the example if made, would probably have a more telling and lasting effect on the African's mind than mere preaching. It is one direction in which practical moral education may be given at a reasonable cost.

During the year under review it became more than ever apparent that the time had arrived when changes in housing designs should be enforced. Hackneyed plans of popular but ill designed dwellings continued to be submitted for approval, but repeated suggestion is at last having a beneficial effect, and there are now signs of a change. The old ideas are very slowly giving way to new. The most common design of Asian dwelling is a three sided building two thirds of which are of the "single back" type, or "back-to-back" when these abut on the buildings of adjoining plots.

Such dwellings have been prohibited in other countries for many years and only a deep and possibly misplaced or mistaken respect for the customs of others have permitted the continuance of this somewhat archaic type of building which sanitarians consider to be inimical to the health and well being of the occupants. Truly, customs die hard and as a result many people die long before the expected natural span has been lived.

When customs result in sickness, lowered vitality and premature death, it is time a little education on the advantages of modern design and conveniences were given. It is only right that administrators

should be slow to disturb age-old customs until it is possible to say what is right and what is wrong. Yet sanitary science does point to evils which call for removal. Whenever possible we must, of course, try to blend the proved scientific knowledge of the present day into the conservative inhibitions of a hygienically inert people, and there will always be those who object to change even when it can be shown without doubt or question that such a change is to their personal and communal benefit.

Mistaken ideas of the value of ease and tranquility often subdue any urge that there might be to improve one's lot through change of habits. Some of these customs are protected and are of too private a character to court discussion by people possessing other ideas and convictions, yet by reasoned education in matters of health it is possible that even the most obstinate might be prevailed upon, in time, to adopt living standards and conditions which can only result in healthier and longer lives.

By-laws and regulations have their place in all communities and it is a pity that recourse must be had to them. Yet by a system of gradual application coupled by community education the pill might not be nearly so bitter as is feared.

The shortage of water continued for most of the year, with numerous complaints of conditions resulting from lack of water. The only efficient remedy which could be recommended was the provision of storage tanks of a capacity calculated to serve the respective premises during the hours of low pressure and supplied by a rising main of a size which would permit of the tanks being filled when the pressure rises i.e. during the night.

There can be no doubt that dangerous conditions have arisen, particularly in offices and other trade premises where large staffs are employed. And in the numerous squalid tenements, where cleanliness is never found as a matter of course, the foul conditions become overpowering.

Works to increase the water supply, immediate and projected, are reported on page 48, these additions and extensions will, progressively, cause a diminution of these bad conditions, but in the meantime checks on waste require to be made although there is more than a suspicion that large quantities of tap water are used to feed some of those patches of colour which are to be seen in some of our gardens. It is illegal to use such water for the purpose but difficult to prove, as required by the by-laws, that the water had not already been used for some other legitimate purpose. Increased supplies and increased supplies alone, will remedy the situation.

SANITATION
SUMMARY OF WORKS PERFORMED

Nuisances :

Inspections made to :—

Dwelling houses	3470
Laundries	83
Offensive Trades	26
Stables and Cattle Sheds	14
Trade Premises and Offices	2293
Public Buildings	110
Open spaces, streets, etc.	1275
Camps	64
Complaints investigated	456
House to House inspections	187
Miscellaneous Inspections	468
	8446
Interviews	1580

Defects Remedied :

Premises dirty or verminous	300
Dwellings unfit for habitation (including native huts)	154
Yards paved	10
Premises rat infested	16
Latrine accommodation defective or inadequate	227
Drains choked or defective	131
Septic tanks or pits choked or defective	70
Waste water disposal defective or inadequate	166
Accumulations of refuse	232
Food unprotected against rats	31
Sleeping in kitchens or foodstores	22
Mosquito breeding	140
Plots overgrown	88
Miscellaneous	238
	1825

Defects Remedied Following :

Verbal intimation	1123
Written intimation	103
Statutory Notices	599

Licences :

Trade premises inspected and re-inspected	2453
Taxi cab inspections	90
Food Carts : Milk-Meat-Bread-Sweetmeats	36

Erection and Alteration of Buildings:

Plans scrutinised	1783
Inspections made	3293
Completion certificates issued	750
No. of premises connected to sewers	60
No. of new water closets discharging into sewers	200
No. of septic tanks installed	260
No. of new water closets discharging into septic tanks ...	272

Notices served:

Intimation	59
Public Health Ordinance (Nüisance)	353
Public Health Ordinance (Others)	4
Drainage By-laws	158
Mosquito Control By-laws	64
By-law 93	3
By-law 262	55
By-law 266	4
By-law 269	5
By-law 274	31
By-law 410	4
By-law 616	6
Miscellaneous	5
	751

Prosecutions, all sections

	Cases	Convictions	Withdrawn	Discharged
Public Health Ordinance ...	26	20	2	4
Milk and Dairies Regs: ...	31	24	6	1
Rats and Mice Destruction Rules	13	12	—	1
By-laws (Food) ...	11	11	—	—
By-laws (Malaria) ...	31	30	—	1
By-laws (Others) ...	9	7	—	2
Totals ...	121	104	8	9

Fines and Costs Shs. 10,169/50.

Inspections of premises subject to Special Control :

Premises	No. of Inspections.
Aerated water factories	82
Bakeries	125
Butchers	1082
Dairies and Milk shops	336
Eating Houses	759
Fishmongers	77
Food Factories	193
Hotels and Bars	281
Markets	90
Restaurants and Tea Rooms	88
Vegetable sellers	200
	3954

MUNICIPAL POUND

Items	Impounded	Sold	Destroyed	Died in pound
Dogs	288	249	39	
Cattle	176	170		6
Fowls	84	83		1
Sheep and Goats	69	69		
Donkeys	21	21		
Mules	2	2		
Potatoes	1 bag			
Mats	1			
Carved Ornaments	2 lots			
Handcarts	6			
Charcoal	12 bags			
Kikapus (baskets)	16			
Miscellaneous	6			
(Metal drum 1)				
(Vases) 2)				
(Covers 3)				

NATIVE BURIALS

Total number of bodies removed for burial in various cemeteries — 1007

FOOD INSPECTION

Although there are few general signs of marked improvement in the handling of foodstuffs since the last report, the year's work may well prove to be among the most important yet carried out in this town in connection with food hygiene. For, although there is little to show at the moment, the year has been one of preparation for a coming full scale attack. It has been largely a year of reconnaisance and the building up of forces and equipment. The task is so vast that it is impossible with existing staff, to deal with all aspects of food preparation at the same time, at least with the determination which one would like, so while all food production has received attention it is with milk and dairy produce generally that attention has been mainly concentrated and a vigorous campaign prepared.

It has for years been realised that the quality of the milk supply in Nairobi has been unsatisfactory. Nairobi is in fact not unique in this experience; but with the possibility of contamination by so many pathogenic organisms which are endemic in this part of the world, measures to prevent contamination assume a greater significance. As a result of this work it is now possible to form a reasonable opinion of the problem to be dealt with. The results of the examination of 1056 samples of milk by the Resazurin test are given in tabulated form below, from which it will be seen that 60% were satisfactory. This is better than some earlier opinions had suggested, but there is another less satisfactory aspect. Out of 65 producers supplying milk to the municipality only 26 — or 40% — have an average Resazurin disc reading qualifying their milk for Category "A". Eleven producers — or 17% — had an average Resazurin Reaction of "C" category and it is for dealing with such producers as these, who apparently take no steps to improve their supplies in spite of repeated unsatisfactory reports, that the proposed new By-laws are being initiated.

The practice of adulterating milk by the addition of water, while still all too common, is showing some sign of decreasing. The culprit, almost invariably, is the African native purveyor but it is the African too who is the chief victim. Adulteration takes place mainly either on the farm or in the course of delivery from the Nairobi retailer to the consumer. The milk sold by the African producer to his fellow African in the Locations is nearly always adulterated and the fines which these purveyors pay as a result of legal action taken against them are looked upon by them as one of the overhead expenses of their business — in fact in most cases they are the only expenses. However, here again it is confidently expected that the powers given under the proposed legislation will enable much to be done towards stamping out this most undesirable form of unscrupulous trading.

The supply of milk to schools has received special attention and after it had been found that certain supplies were far from suitable the Tender Board was advised to contract for the supply of pasteurised milk only. This was done, but in one instance it was found that raw milk was

being supplied to a school as pasteurised milk. The offending contractor was prosecuted. This was the first case of its kind taken in the Colony and was only made possible by the introduction of the phosphate test.

As a result of the work carried out during the year under review the Food Section of the Public Health Department is now equipped to act, at least in regard to milk production and distribution, as soon as the new legislation comes into operation, and it is hoped that the results now anticipated will have been achieved before the next Annual Report is written.

The preparation of other articles of food and drink continue to give cause for some anxiety. Hotel and restaurant kitchens are all too often not kept in the condition which one expects in a civilised community. Provision shops are frequently turned into general stores with the result that foodstuffs are exposed to unnecessary contamination, and the shortage of space in the commercial area leads to gross overcrowding and consequently to lack of cleanliness in most food stores. Some of the conditions found are such as cannot be dealt with by statutory action and it is in such cases that the general public can help by refusing to patronise those shops which do not exercise reasonable care in the handling of foodstuffs, in the cleanlinees and appearance of their assistants and the maintenance of order and tidiness in their premises.

In spite of legal action taken on two occasions against one firm there is some justification for saying that some improvement is taking place in the manufacture of mineral waters. There does appear to be a growing consciousness of the need of cleanliness and at least some appreciation of how it can be achieved. The completion of a modern hygienically-equipped factory (ready to go into production at the time of writing) will undoubtedly have its effect on those manufacturers who have, up to the present been, content with old methods which have never been satisfactory.

The introduction of two new plants for breadmaking will also be welcomed by members of the public who, over a long period, have made many justifiable complaints to this Department.

The production of ice cream has received attention and it is hoped that the heat treatment of all ice cream will soon be compulsory and that a certain standard of cleanliness will be adopted.

The following tables give details of some of the work carried out by this section of the Department.

(A) Samples Examined by Food Inspector.

(i) Resazurin Reduction Tests.

Month	Total	A	B	C
		Disc Reading		
		4-6	1-3½	0-½
January	29	28	1	—
February	23	19	1	3
March	16	12	3	1
April	45	34	7	4
May	46	28	5	13
June	50	38	6	6
July	61	45	7	9
August	31	20	5	6
September	86	59	11	16
October	211	110	51	50
November	249	123	46	80
December	209	121	36	52
Total	1056	637	179	240

(ii) Phosphatase Tests

Total	Efficiently Pasteurised	Inefficiently Pasteurised	Not Pasteurised
102	82	3	17

(iii) Methylene Blue Reduction Test

	Total	Category A.	B.	C.
Milk	6	—	1	5
Cream	1	1	—	—
Ice Cream	3	2	1	—
	10	3	2	5

(iv) Estimate of Fat and Total Solids

	Total	Satisfactory	Unsatisfactory
Milk	49	17	32
Cream	1	1	—
	50	18	32

(B) **Samples Examined by Government Chemist**

Article	Total	Satisfactory	Unsatisfactory
Milk	61	13	48
Pasteurised milk	7	2	5
Fruit Cordial	3	2	1
Mineral waters	3	3	
Vinegar	1	1	
Ghee	1	1	
Tea	1	1	
Butter	1	1	
	—	—	—
	78	24	54
	—	—	—

(C) **Samples Examined by Government Bacteriologist**

Article	Total	Satisfactory	Unsatisfactory
Mineral water	13	9	4
Milk	8	2	6
Borehole water	1	—	1
	—	—	—
	22	11	11
	—	—	—

(D) **Legal Proceedings in Connexion With Food Offences**

Nature of offence	Prosecutions	Convictions	Penalties
Selling unwholesome food	4	4	Shs. 770/-
Selling, or conveying for sale,	24	23	Shs. 2440/-
adulterated milk		1	10 weeks hard labour
Selling milk without licence	9	9	Shs. 105/-
Using unregistered premises as dairies	2	8	Shs. 300/-
Selling food which is not of nature or quality demanded	1	1	Bound over for six months

(E) Unsound Food Condemned

Apples	8746 lb.
Beer	5823 gallons
Biscuits	100 lb.
Dried fruit	3290 lb.
Eggs	9 lb.
Fish	456 lb.
Fruit	10828 lb.
Glacé Cherries	54 lb.
Ice Cream Powder	2184 lb.
Kippers	320 lb.
Lime Juice	36 gallons
Macaroni	700 lb.
Milk	64 gallons
Mineral Water and Cordials ...	36 gallons
Patend medicine	22 lb.
Pickles	144 lb.
Provisions	23528 lb.
Poultry	45 lb.
Sweets	665 lb.
Tomatoes	900 lb.
Tinned Fish	4269 lb.
Tinned fruit	1080 lb.
Tinned haggis	66 lb.
Tinned meat	1450 lb.
Tinned olives	7 lb.
Other tinned foods	14290 lb.
Total	73,153 lb, and 5959 gallons.

MEAT INSPECTION

The inspection of meat was carried out at the Municipal Abattoir throughout the year by one European Inspector assisted by an African Sanitary Inspector.

Meat and Poultry is inspected regularly in Butchers shops and in the stalls at the Municipal Market.

During the year revised By-Laws strengthened the control over the sale of meat and poultry and thirteen butchers and poultry dealers were successfully prosecuted and fined a total of Shs. 355/- for being in possession of meat and poultry which had not been slaughtered and inspected at the Municipal Abattoir.

There has been a progressive increase in the number of animals slaughtered for the civilian population and on many occasions the accommodation has been taxed beyond capacity so that it has been necessary to hang the carcases in close contact. The drying out of carcases is thereby delayed and the work of inspection is handicapped under such conditions.

The time is over-due for additional accommodation to meet the requirements of the Services and to make proper provision for handling the large number of poultry now being slaughtered for export. Since this scheme commenced in April 1948, 39,637 fowls have been slaughtered for export and there is every indication that this trade will increase in volume.

No improvement has been made in the lighting of the halls but it is hoped that fluorescent lighting will be installed this year.

The position of the Abattoir in such close proximity to the Town Refuse Destructor is a mixed blessing, for, whilst cheap steam is generated for the by-products plant, nearly every truck-load of refuse arriving at the destructor brings hordes of flies, which are attracted to the meat and offal and on occasion clouds of dust find their way into the pig and poultry hall when refuse is being handled on the furnace ramps.

The recent alteration to the Abattoir approach over a non-bitumenised road, has given us some much-needed additional space, but it has brought the disadvantage that every vehicle entering the Abattoir raises a cloud of dust which is carried by the prevailing wind on to the exposed carcases.

The numerous Tick Birds which have migrated to the Abattoir have become a serious nuisance, these birds feed on the carcases and there is considerable pollution from their droppings. The most satisfactory means of control seems to be the one adopted namely shooting them with air-guns.

Details of inspection at the Abattoir are summarised in the following tables :—

1. Carcases Inspected.

Animal	1946 Number of carcases	1946 Weight of meat passed lbs.	1947 Number of carcases	1947 Weight of meat passed lbs.	1948 Number of carcases	1948 Weight of meat passed lbs.
Grade Oxen ...	4,409	3,059,916	8,963	5,217,918	7,665	4,437,035
Native Oxen ...	16,707	3,122,165	7,347	1,469,724	10,011	2,212,431
Calves ...	807	54,233	391	24,494	1,231	101,455
Grade Sheep ...	12,924	411,857	10,756	486,308	9,313	402,067
Native Sheep ...	9,248	199,625	16,006	370,150	26,186	576,092
Goats ...	12,924	319,625	20,723	517,975	24,701	543,422
Pigs ...	11,613	1,085,457	9,025	823,173	6,969	576,569
Poultry ...	79,265	198,162	60,323	150,707	107,635	269,087
Total ...	147,897	8,451,040	133,534	9,060,449	193,711	9,118,248

2. Carcases Condemned.

Animal	1946 Number	1946 Rate per cent	1947 Number	1947 Rate per cent	1948 Number	1948 Rate per cent.
Grade Oxen ...	238	5.8	321	3.5	168	2.2
Native Oxen ...	2,896	17.2	1,122	15.2	1,162	11.6
Calves ...	115	14.2	119	30.4	190	15.4
Grade Sheep ...	99	0.7	265	2.4	114	1.2
Native Sheep ...	428	4.6	528	3.2	223	0.8
Goats ...	1,037	9.0	2,669	12.8	772	3.1
Pigs ...	83	0.7	66	0.7	20	0.2
Poultry ...	911	1.1	709	1.1	792	0.7
Total ...	5,807		5,799		3,441	

3. Conditions Necessitating Condemnation

	Grade Oxen	Native Oxen	Calves	Grade Sheep	Native Sheep	Goats	Pigs	Poultry
Bruising ...	10	12	—	—	1	—	4	138
Cancer ...	—	1	—	—	—	1	—	7
C. Bovis ...	77	862	140	—	—	—	—	—
C. Cellulosæ ...	—	—	—	—	—	—	8	—
Dropsy ...	—	9	—	18	6	10	—	13
Dropsy & Emaciation	8	125	17	50	126	430	1	43
Fevered Condition ...	33	87	2	29	35	153	—	107
Heartwater ...	—	—	—	—	1	9	—	—
Immaturity ...	—	—	9	—	—	—	—	159
Jaundice ...	1	6	4	3	26	10	1	103
Moribund ...	—	—	—	—	—	5	—	—
Pleuro-pneumonia ...	38	54	16	14	6	15	—	—
Pyaemia ...	—	—	—	—	—	—	—	—
Septic-Condition ...	—	6	1	7	15	92	5	215
Sarcocystis Miescheriana	—	—	—	—	—	—	1	—
Tuberculosis ...	1	8	—	—	1	1	—	7

4. "Measle" Rate

	Number of Carcases Condemned for Measles	Rate per cent	Number of Measly Carcases Passed	Rate per cent.
Grade Oxen ...	77	1.0	380	4.9
Native Oxen ...	862	8.6	1389	13.8
Calves ...	140	11.3	42	3.4
Total ...	1079	5.7	1811	9.9

5. Organs Condemned

Hearts	2,810
Heads	395
Tongues	435
Kidneys	4,067
Livers	29,453
Lungs	11,143
Spleens	2,070
Stomachs and Intestines	74
Others	1,856
Total	52,303

6. Total Weight of Meat Condemned (lbs.)

Grade Oxen	125,782
Native Oxen	321,377
Calves	14,092
Grade Sheep	10,720
Native Sheep	5,124
Goats	9,976
Pigs	6,002
Poultry	2,323
Total	495,396

7. Disposal of Condemned Carcases

	Number	Total Weight Lbs.
Measly Carcases cooked for Human consumption ...	1,073	267,880
Other Diseased Carcases Processed	2,368	227,516
Total : all animals ...	3,441	495,396

WATER SUPPLY

1. General.

The supply of water throughout the year has been very critical as no new sources of supply were available and there was a considerable increase in the number of service connections. The shortage was felt most during the dry weather, due not to any decrease in supply but rather to an increased demand. By a continued policy of encouraging those without storage tanks to install tanks of a size sufficient for their daily needs, a reasonably fair distribution was maintained even during the worst periods.

2. Sources of Supply.

(b) *Kikuyu Springs.* The supply from the Kikuyu Springs and reservoir maintained an average of just over one million gallons a day throughout the year. The re-alignment of the Nairobi-Nakuru railway line has necessitated one spring being enclosed in a chamber within the embankment. A small re-alignment of the pipes is also necessary near the reservoir.

(c) *Ruiru Dam.* The task of completing the construction of the 60ft. dam on the Ruiru River was handed over to Messrs W & C French, Civil Engineering Contractors, in the middle of the year. Work is proceeding satisfactorily. In an endeavour to increase the flow of water in the 12″ supply main a 45 H.P. booster pump was installed. This gave an increase of some 60,000 gallons a day.

(d) *Nairobi Dam.* Following the examination of tenders received for the supply of Filtration and Pumping plant for the Nairobi Dam, negotiations were opened with view to obtaining the plant from Army sources within the country. Approval was forthcoming in November and construction works were commenced in December.

(e) *Sasumua Dam.* The geological investigation of the site was completed early in the year and the consultants are proceeding with the design of the dam wall. The draw-off and scour are to take the form of a tunnel and preliminary work on this has continued in order that the river may be diverted through it when the work of construction begins. The survey has been completed for a proposed aqueduct and tunnel to direct the flood waters of the Chania river into the impounding reservoir. An application for a Water Right on the Chania and Sasumua Rivers at this point has been submitted to the Water Board.

3. Mains.

(a) *General.* Investigation failed to reveal any further stoppage in the 12″ Ruiru Dam Main, and a certain amount of self clearance has resulted from the use of the booster on the line. Plans have been prepared for the laying of two trunk mains in the town, one to augment the old 12″ and 9″ lines to the Hill Tank and one to feed the Muthaiga district. Tenders have been received for the necessary piping and specials.

(b) *Mains from Sasumua Dam.* In order to augment Nairobi's supply, it was decided to lay that part of the Sasumua-Kabete main which will coincide with the existing Ruiru mains and to lay a temporary connection from it to Ruiru Dam. Piping ordered early in the year commenced to arrive in November and the contract for laying the pipe has been let to Messrs. W & C French. It is hoped that the work will be completed by the end of 1949 and this will then give Nairobi another million gallons a day.

4. Filter Plant — Kabete.

The equipment for the extension of the filters has been arriving during the year. The work of preparing contract documents was in hand, but due to staff shortage has been shelved in favour of the work at Nairobi Dam.

5. Distribution of Water.

(a) *Mains.* The Capital Works expenditure on mains during the year included the completion of the mains in Upper Parklands Estate, the first stage development of the New Industrial Area, Kileleshwa Estate and the new Girls High School. In all, some 6.4 miles of mains 3″ and 6″ diameter were laid. Minor extensions and replacements of old mains amounted to some 3.7 miles of piping in sizes up to 3″ diameter.

(b) *Private Services.* The demand for new connections was maintained and 602 new installations were made during the year, which is 20% more than the previous year. The total number of such installations is 6,206.

(c) *Meters.* Water Meters although not in free supply were forthcoming in sufficient numbers to allow of all the 602 new installations being metered. The number of consumers on the Flat Rate however, remains unchanged. A quantity of spares arrived which made possible the repairing of some 1,500 defective meters during the year.

6. Rainfall.

The rainfall during the year was somewhat below the average, although it was more evenly distributed throughout the year than usual. No unusually high river flows were recorded and the run-off on the catchment area of the Nairobi Dam was insufficient to cause any material rise in the water level, which remained about 28 feet.

The following are comparative figures for Lari Forest Station, Uplands, which is on the catchment of Ruiru Dam, and for Nairobi.

	1947 inches	1948 inches	2 year Average inches
91.36/22 Uplands, Luri Forest Station	68.19	53.08	55.36
91.36/10 Nairobi, Railway Station.	40.57	30.61	34.08

7. Purity of Water.

57 samples of water for Bacteriological examination were taken during the year the results of which were as follows :—

Highly satisfactory	44
Satisfactory	4
Suspicious	3
Unsatisfactory	1
Spoilt or contaminated samples	1
	53

The unsatisfactory and suspicious results were samples taken towards the end of the year and were traced to a dead end of piping which has now been sterilized and isolated.

8. Statistics.

The attached Table gives the monthly supply figures for the year.

The following figures show a comparison between 1948 and the previous year :—

	1948	1947
Total quantity of water delivered to Nairobi during the year. Million gallons	1,062	959
Average Daily delivery gallons. ...	2,903,250	2,627,930
Average daily delivery per head of population gallons	22.6	23.5

WATER SUPPLY

Daily Deliveries to Nairobi During 1948. (all figures in thousands of gallons)

Source	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Kikuyu	1185	1070	1094	1155	1122	1227	1221	1212	1175	1115	1134	1167
Ruiru Dam	1571	1739	1714	1705	1699	1710	1751	1774	1831	1825	1809	1827
Bore-holes	8	8	8	8	8	8	8	8	21	18	19	18
Total daily delivery	2764	2817	2816	2868	2829	2945	2980	2994	3027	2958	2962	2962
Loss from filter washing	2	2	2	12	16	3	3	32	3	2.5	2.5	5
Nett daily delivery	2762	2815	2814	2856	2813	2942	2977	2962	3024	2956	2960	2957
Average daily delivery per head	21.5	21.9	21.9	22.2	21.9	22.9	23.1	23.1	23.6	23	23	23
Nett : monthly delivery	85622	81635	87234	85680	87203	88258	92342	91818	90720	91631	88765	91646

	(a) 1947	(b) 1948	variation (b)/(a)
Average nett daily delivery :	2636	2864	+ 9%
Average deliveries (gals.) per head :	20.5	22.6	+10%

CLEANSING DEPARTMENT

The year shewed considerable expansion in all services as the appended tables indicate in detail. In particular the exhausters increased their clearances by 34%.

Both the exhauster and refuse removal sections suffered heavily from the lack of all-weather roads in the Eastleigh area during both the long rains, and in the short rains which were unusually heavy this year. When it rains, most Eastleigh plots become unapproachable. On several occasions the damage to vehicles through being bogged at Eastleigh resulted in the survivors being too few to cope with the refuse removal over the town as a whole.

Two new Scammell vehicles came into use during the year, one a refuse remover and the other an exhauster and three more are expected early in 1949.

From February onwards dustbins were put out on hire, the total at present being about 700. Two thousand bins are on order for delivery in 1949.

The sweeper service has proved very popular and will be seen to have expanded by 55%.

The night soil bucket service increased by 19% and at the present rate of building in Nairobi may be expected to increase heavily in 1949 as well.

From the attached plan showing the extent to which sewerage has already been completed in Nairobi, it will be seen that the areas where it is possible for a householder to connect to a sewer are mainly confined to the centre of the town and a few limited areas on the Hill and at Eastleigh.

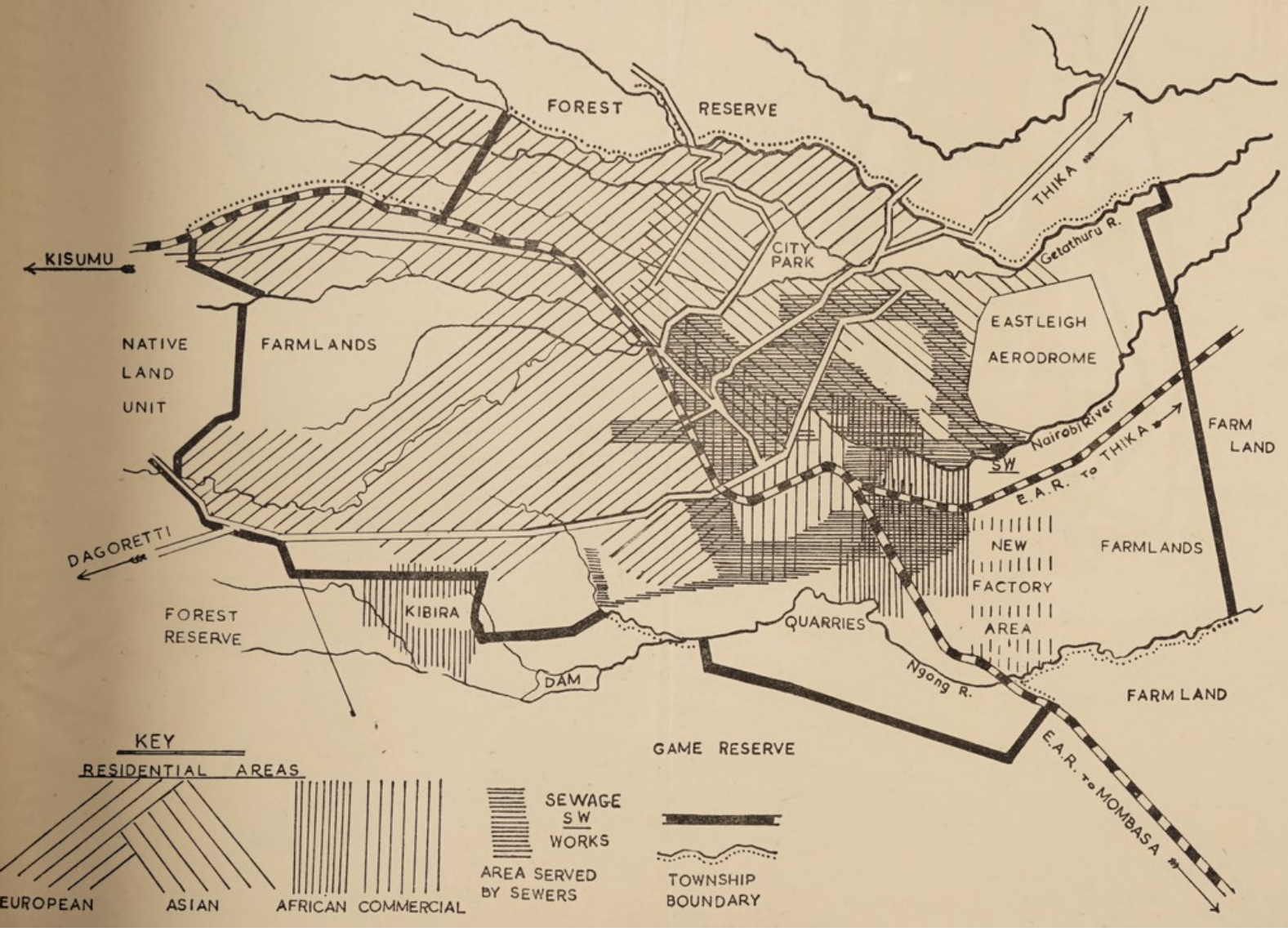
There is a programme of sewer works in operation, covering the next four years, but even on its completion the greater area of the town will still have to be served by some other form of sanitation.

The reason is not, of course, inertia or apathy on the part of the authorities — indeed many of the public health problems of Nairobi would evaporate if every plot could be sewered — but simply one of economics. In large areas of Nairobi the houses are dispersed below the density at which it becomes economical to instal a sewer, but above the concentration at which it becomes unsatisfactory to employ a septic tank with radial-arm soakage. Again, where the housing density is too high to permit of local soakage, as in Eastleigh, and where it would be an economical proposition, in due course, to lay further sewers, conservancy tanks, emptied regularly by the exhausters, have to be employed meanwhile.

There remain, however, fairly large tracts of land with black cotton soil in which, even though housing density is low, local soakage is unsatisfactory and unless the very undesirable bucket system is to be retained, conservancy tanks have to be used. This is the more expensive form of conservancy because owing to the low building density on black cotton a big mileage is required of each exhauster for every score of houses served.

NAIROBI MUNICIPALITY

AREAS SERVED BY SEWERS POPULATION DISTRIBUTION



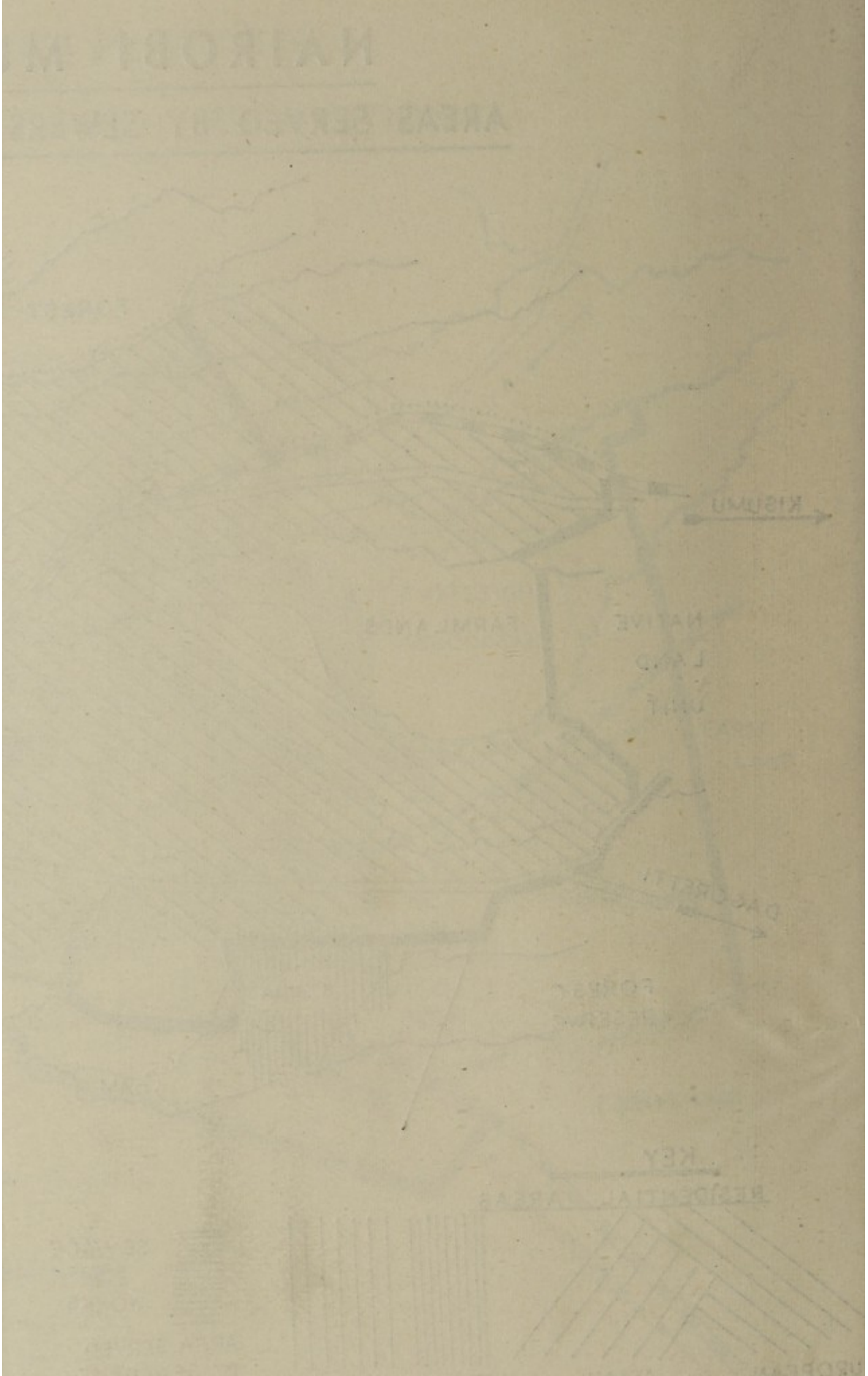


TABLE 1.
LIST OF VEHICLES

a. **Conservancy Vehicles.**

5 Tankers on standard chassis.
1 Scammell Trailer.

b. **Exhausters.**

3 Standard chassis with tank and pump fitted.
1 Scammell trailer for cesspit emptying.
1 Scammell trailer for gulley emptying.

c. **Refuse Removal.**

2 x 10 cub. yd. Bedford chassis, side loading, and tipping.
7 8 cub. yd. Assorted chassis, side loading and end tipping.
1 x 12 cub. yd. Scammell trailer, rear barrier loading, end tipping.
1 x 15 cub. yd. Scammell trailer, rear barrier loading and end tipping.
1 x 18 cub. yd. Scammell trailer, end loading, moving floor.

d. **Street Washer.**

1 Scammell trailer.

e. **Traction.**

7 Scammell Horses.

NOTE :—All the Scammell Horses and Trailers are interchangeable.

TABLE 2.
PERFORMANCE FIGURES.

Conservancy.	1947	1948	variation on 1947
Estimated total tonnage of night soil removed and disposed of	12,772	13,477	+ 5%
Total number of buckets serviced daily.	6,841	8,152	+19%
Exhauster Clearances :			
Waste-water pits.	8,286	10,811	+30%
Conserving tanks.	1,332	2,253	+69%
Septic Tanks.	579	609	+ 5%
	10,197	13,673	+34%
Refuse Removal.			
Estimated total tonnage —			
(a) destroyed at the incinerator	8,488	15,053	+77%
(b) disposed of at the tips ...	25,943	22,641	−13%
Total — both methods. ...	34,431	37,694	+ 9%
Sweeper Service.			
Total number of premises receiving the service. ...	445	690	+55%

INFECTIOUS DISEASES (CONTROL) DEPARTMENT

Throughout the year the Department was short-staffed, only one new appointment being made, Mr. M. I. Shah. No Rodent Officer was appointed and Mr. J. Morrill continued to carry out the duties of this post.

On return from overseas leave Mr. G. R. Cunningham van Someren was seconded for special duties in connection with the Population Census and the Department Staff also contributed a considerable proportion of their time to this work. The expenditure for the year was £15,715 an excess of £1,225 over the estimate. It was not possible to carry out many of the schemes envisaged owing to the increased cost of transport, anti-malariol, insecticides and African wages.

During January the Department, at short notice, put on an exhibition of Rodent and Mosquito Control Methods at the Agricultural Show in Nairobi.

On the whole the year has been a disappointing one in many ways, but the incidence of Malaria was greatly reduced despite a reduction in the area under constant control, and the Rodent control was stepped up considerably. Towards the end of the year more work was undertaken in connection with general Infectious Diseases Control.

The Infectious Diseases Sub-committee who were investigating the activities of the department met a number of times and finally decided that the normal malaria control measures were to be re-introduced and the experimental system which the department had been trying was to be abandoned. It was considered that full control on the dangerous eastern half of the town was better than trying to spread the control over the whole township area and keep within the limit of funds permitted.

As will be seen from the Malaria section of this report the control was reasonably efficient despite the extensive *A.gambiae* breeding which was known to be taking place in the uncontrolled western section of the town. *A.gambiae* was unable to obtain a footing within the control area.

Malaria. Malaria was made notifiable by By-law in 1930. This year the town had the lowest incidence of locally acquired malaria among residents since 1930. This it is feared may be partly due to a growing tendency among medical practitioners not to submit Malaria returns very fully.

Death Rate and Incidence. Total deaths recorded amongst residents from Malaria were European nil, Asians 2, Africans 14. The population according to the Census Report were Europeans 10,830, Asians 43,749 and Africans 64,000, a total of 118,579 giving a Malaria death rate of .13 per thousand. The population figure given for 1947 was 128,500 which is now felt to have been on the high side so that the corrected death rate for 1947 would be .22 per thousand, which compares with .13 for 1948. Case mortality was 8.29 compared with 7.65 for 1947 and 3.02 for 1946 and the incidence 1.6 per thousand whilst the corrected 1947 figure would

be 2.9 per thousand. The case mortality is again high, there being 2 Asian and 5 African deaths from Cerebral Malaria, and 2 African cases under 1 year old. The year shows the lowest recorded number of notified cases, 195 Nairobi residents acquiring infection in the town compared with 353 for 1947. Comparative figures for the past 10 years are given below.

1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
632	545	6342	1684	1363	1487	706	310	463	353	195

TABLE 1.

Malaria Cases by Months

(RESIDENTS CONTRACTING IN NAIROBI)

	Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Tot.
Europeans	—	—	—	—	3	4	11	—	5	2	1	—	26
Asians	14	3	6	7	12	20	7	8	4	5	2	3	91
Africans	23	5	5	2	4	4	6	4	2	10	7	6	78
	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals	37	8	11	9	19	28	24	12	11	17	10	9	195

The figures show a considerable increase in the European cases 26 compared with 15 in 1947 and 13 in 1946. Of interest is the fact that 80% of the cases were contracted in the uncontrolled area. Asian cases occurred mostly in the overcrowded area in the centre of the town but it is not certain that they were actually contracted there. African cases, many being relapses, occurred in the African location areas as was to be expected.

The peak period for cases was June-July, as is normal following the *A.gambiae* adult peak, and the rainfall peak of May and April respectively. The slight rise in January followed the rise in adults and rainfall of the period October/December of 1947. The sudden extraordinarily heavy rains of December will undoubtedly lead to a sharp adult rise in January of 1949 to be followed by a rise in Malaria incidence (See graph.)

Further analysis of the cases shows that of the European cases 12 were S.T., 1 Quartan and 13 Clinical with 22 primary infections. The cases reported as clinical cases were reported masked by drugs taken prior to reporting to a medical practitioner.

Cases by Districts.

The crowded areas of the town produced the greatest number of cases, 64 occuring in the African locations, followed by 49 Asians in the River Road and Canal Road areas, 16 cases from Ngara Road District and 9 from Eastleigh. The European cases were scattered, 80% being in the uncontrolled western half of the town.

Of the 91 Asian notifications 3 contained insufficient data for analysis. 73 were S.T., 4 B.T., 8 Q, and 3 Clinical. The increase in B.T. and Quartan is of interest as accounting for nearly 16% of all cases. There appears to be a very definite increase in these forms as S.T. used to represent up to 95% of all cases. In 1947 there were 8 Q, 3 B.T., and 2 P.Ovale. 83 of the cases were recorded as primary infections, 23 were amongst children under 10, the majority being in adults. Of the African cases 41 were of children under 5 with 11 under 1 year, 2 between 5-10 years and 24 adults : 48 were recorded as primary infections. 71 were S.T., 8 of these with gametocytes. 4 Qt. 1 of them with gametocytes and 2 B.Ts with gametocytes. The majority of cases were Lake-tribe Africans employed by the Railway. It is possible that the majority of children did not contract this malaria in Nairobi and that some of the primary cases were in fact relapses. (See non-residents).

Residents Contracting Malaria Outside Nairobi.

These numbered 111 of which 36 were Europeans, 27 Asians and 48 Africans. The majority being S.T. infections with 5 African B.T., 2 Asian Quartans, 1 Asian P. Ovale and 18 mixed clinically diagnosed cases. The majority of Europeans contracted the disease in Mombasa after their holidays in June, Asians at the coast or in Uganda, and the Africans mostly in Nyanza Area.

Non-Residents Contracting Outside Nairobi.

Amongst the 643 non-residents notified who contracted malaria outside the town 547 were Africans, 89 Europeans and 8 Asians. Of particular interest and importance to the town is the high African figure which represents 491 Sub.T., 42 B.T., 3 Qt., 3 Clinical and 8 double infections. Gametocytes were found in 99 S.T. and 19 B.T. cases which represents 20.1% and 45.2% respectively or 21.5% of the total. Of further interest is the considerable increase in the B.T. infections. Some 90% of these Africans were from the Kisumu-Lake area and the majority are employed by the Railway. Further analysis of the cases showed that only 36 were adults, the majority females, while 20 were of children between 5 and 10 years, 366 from 1 to 5 years and 125 under 1 year old ! The movement of these children to and fro between Nyanza Area and Nairobi is a danger to the town particularly when they harbour gametocytes, the peak periods for which appear to be April-June, and September-December.

MOSQUITO DATA

ADULT COLLECTIONS — VECTOR SPECIES.

There is little of interest in the figures of adult *A.gambiae* catches during the year which never reached the high figures of 1947, the adult peak being in May-June following the April rain peak. From the table it will be seen that the onset of unusual rains in November with heavy rainfall in December quickly brought up the adult figures whereas in 1947 the last three months of the year yielded only 3 adults.

TABLE 2.
Numbers of A.Gambiae Caught in the 52 Collecting Stations Per Week of Each Month

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1st week	1	2	2	12	3	21	10	11	—	—	1	1
2 „	—	1	1	6	10	26	12	4	2	—	2	3
3 „	1	1	7	3	37	18	13	3	1	—	1	15
4 „	—	2	6	12	13	18	5	3	—	—	5	23
5 „			9		22			1			1	
Total for Month	2	6	25	33	85	83	40	22	3	—	10	42
1947 totals:	14	5	9	21	179	613	415	44	19	—	—	3

Once again the eastern and southern stations show the importance of control in these areas. Table 5 shows these catches while table 4 demonstrates the catches recorded from the outer ring of stations around the town boundary. This shows their influence on the malaria problem and mosquito penetration into the town. The inner circle and central stations show only small catches, a fact which demonstrates the efficiency of larvae control by oiling. It is pleasing to note that so few adults managed to reach the centre of the town.

Non-Vector Anophelines. 741 non-vectors were taken in routine catches, the majority being *A.demeilloni*. Three stations are of note as they produced as follows :—

No. 17 Station	...	...	250
No. 18 Station	...	...	188
No. 34 Station	...	...	226

in all 89% of the total. These stations are in the N.W. corner of the town, outside the control area and they consist of African quarters by cattle sheds, the animals obviously having a strong attractive influence. Stations 18 and 34 both produced *A.gambiae*. As will be seen from table 3 no *A.funestus* are recorded.

Larvae Control. Oiling was continued throughout the year but only in the eastern section of the town. Lack of efficient oiling machines caused considerable wastage, both of oil and of labour. The pumps have seen many years of service and cost of repairs has become a big item of expenditure. 33358 gallons of oil were used. As will be noted from the rainfall figures, rain fell in every month of the year which necessitated continuous oiling on larger foci, which were continually being supplemented by each fall of rain. New oiling machines will be required for 1949 unless the new H.S. oils can be obtained containing D.D.T. The price of oil continued to rise along with other commodities so that oiling now costs 84/- per acre. During the dry periods when extensive oiling was not necessary, the oiling gang was employed on filling borrow pits

TABLE 3.
Non-Vector Anopheline Catches

Species	Stations
A.demeilloni ...	3, 5. 6. 7. 15. 17. 18. 19. 34. 38.
A.christyi ...	15. 17. 18. 34.
A.cinereus ...	7. 11. 15. 17. 18. 19. 34. 46.
A.rufipes ...	3. 5. 15. 18. 34.
A.coustani ...	7.
A.squamosus ...	34.
A.natalensis ...	5.
A.pretoriensis ...	7.
A.marshalli ...	3. 34.

TABLE 4.
Vector Anopheline Catches

	Outer Circle Stations										Inner Circle Stations.		Central Stations.	
Station	0	0	0	0	0	0	0	0	0	0	I	I	C	
Station Numbers	1	3	5	6	7	11	15	17	18	19	34	38	46	Totals
January	—	—	1	—	2	—	10	3	13	—	1	—	—	30
February	—	—	—	—	2	—	3	3	6	—	—	—	—	14
March	—	—	—	1	1	—	2	11	11	—	—	—	—	26
April	—	—	1	—	1	—	2	34	13	—	14	—	—	65
May	—	1	—	—	—	—	8	67	10	—	22	—	—	108
June	1	—	1	—	—	—	4	23	6	—	37	—	—	72
July	—	1	1	—	1	—	7	23	32	—	42	—	—	107
August	—	1	—	—	3	—	7	33	28	—	48	—	1	121
September	—	—	—	—	—	1	1	23	27	—	23	—	—	75
October	—	—	—	—	—	—	3	5	16	—	21	—	—	45
November	—	—	—	—	—	—	—	5	19	1	14	—	—	39
December	—	5	—	—	1	—	—	20	7	1	4	1	—	39
	1	8	4	1	11	1	47	250	188	2	226	1	1	741

Total Outer Circle 513 Total Inner Circle 227 Total Central 1

TABLE 5.
VECTOR ANOPHELINE CATCHES

(total number of both sexes caught)

Station Numbers	EASTERN STATIONS																WESTERN STATIONS												SOUTHERN STATIONS									NORTHERN STATIONS								
	1	2	3	4	5	6	7	8	28	50	51	52	27	26	25	23	22	13	14	15	16	17	18	19	35	34	33	32	12	11	10	9	8	7	6	29	30	31	16	17	18	19	20	21	22	23	24
January	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—
February	—	—	—	—	1	—	3	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	3	—	—	—	—	—	—	—	—	—	—	—	—
March	3	2	1	—	6	4	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	4	—	—	—	—	—	—	—	—	—	—	—	—
April	4	1	1	—	18	—	7	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	7	—	1	—	—	—	—	—	—	—	—	—	—	—
May	9	—	7	39	8	2	6	—	—	—	—	—	1	3	1	—	—	1	—	1	—	—	1	1	—	1	—	—	—	2	2	—	—	6	2	—	—	—	—	—	1	1	—	—	—	—	—
June	2	—	9	29	17	3	5	1	—	—	—	—	4	—	1	—	—	—	—	3	—	—	—	—	—	1	—	1	—	6	1	—	1	5	3	—	—	—	—	—	—	—	—	—	—	—	—
July	2	—	8	9	1	2	7	—	—	—	1	—	—	1	2	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	3	2	—	7	2	—	—	—	—	—	—	—	—	—	—	—	—
August	1	1	4	5	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	4	—	—	—	1	2	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
September	—	—	—	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—
October	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
November	—	—	2	3	2	—	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—
December	2	—	9	16	3	—	3	—	—	—	—	—	3	1	1	1	1	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	2	—	—	1	1	—
	23	4	41	101	57	12	45	3	—	—	2	—	8	5	6	1	1	2	—	4	—	—	1	3	—	8	—	1	—	9	8	3	3	45	12	1	—	—	—	—	1	3	—	—	1	1	—

Total Eastern Stations : 309 — Total Western Stations : 19. — Total Southern Stations : 81 — Total Northern Stations : 6

TABLE 6.
NON-VECTOR ANOPHELINE CATCHES

Station Numbers	EASTERN STATIONS																WESTERN STATIONS												SOUTHERN STATIONS									NORTHERN STATIONS								
	1	2	3	4	5	6	7	8	28	50	51	52	27	26	25	23	22	13	14	15	16	17	18	19	35	34	33	32	12	11	10	9	8	7	6	29	30	31	16	17	18	19	20	21	22	23	24
January	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	10	—	3	13	—	—	1	—	—	—	—	—	—	—	2	—	—	—	—	—	3	13	—	—	—	—	—	—
February	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	3	—	3	6	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	6	—	—	—	—	—	—
March	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	2	—	11	11	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	11	—	—	—	—	—	—
April	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2	—	34	13	—	—	14	—	—	—	—	—	—	—	1	—	—	—	—	—	34	13	—	—	—	—	—
May	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	67	10	—	—	22	—	—	—	—	—	—	—	—	—	—	—	—	—	67	10	—	—	—	—	—
June	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	23	6	—	—	37	—	—	—	—	—	—	—	—	—	—	—	—	—	23	6	—	—	—	—	—
July	—	—	1	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	7	—	23	32	—	—	42	—	—	—	—	—	—	—	1	—	—	—	—	—	23	32	—	—	—	—	—
August	—	—	1	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	7	—	33	28	—	—	48	—	—	—	—	—	—	—	3	—	—	—	—	—	33	28	—	—	—	—	—
September	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	23	27	—	—	23	—	—	—	1	—	—	—	—	—	—	—	—	—	23	27	—	—	—	—	—
October	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	5	16	—	—	21	—	—	—	—	—	—	—	—	—	—	—	—	—	5	16	—	—	—	—	—
November	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	19	1	—	14	—	—	—	—	—	—	—	—	—	—	—	—	—	5	19	1	—	—	—	—
December	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20	7	1	—	4	—	—	—	—	—	—	—	1	—	—	—	—	—	20	7	1	—	—	—	—
	1	—	8	—	4	1	11	—	—	—	—	—	—	—	—	—	—	—	—	47	—	250	188	2	—	226	—	—	—	1	—	—	—	11	1	—	—	—	—	250	188	2	—	—	—	—

Total Eastern Stations : 25. — Total Western Stations : 713. — Total Southern Stations : 13 — Total Northern Stations : 440

TABLE 7.
A.GAMBIAE LARVAE
Collections per Section per month by weeks
Section Numbers

MONTH	Number of Week.	6.	7.	8.	16.	19.	27.	28.	29.	31.	49.	50.	51.	52.	53.	54.	55.	C.A.	RNAS.	Total Collections	
April	13								×1											1)	
	14	×1		×1									×1			×1				4)	
	15		×1																	1)	
	16		×1																	1)	7
May	18						×1											×1		2)	
	19		×1	×2							×1									4)	
	21												×1			×1				2)	8
June	22																	×1		1)	
	24														×1					1)	
	26							×												1)	3
July	27			×1																1)	
	30										×1									1)	2
November	47						×1													1)	1
December	51				×3	×3	×2	×3		×2				×2		×1	×2	×2	×1	21)	
	52		×1									×1		×1	×2		×1			6)	27
																			Totals		48

×1 = 1 focus
×2 = 2 foci
×3 = 3 foci

TABLE 8.
NON-VECTOR ANOPHELINE LARVAE
MONTHS AND SECTIONS

1st and 2nd Stage.	SECTIONS.
April.	7. 8. 25. 49. 50. 51. 53. 55. C.A., F.R., Eastleigh.
May	6. 8. 16. 21. 27. 29. 49. 51. 53. 54. 55. 56. C.A., R.N.A.S.
June	18. 27. 29. 31. 51. F.R., C.A.
July	21. 22. 27. 31. 51. 54.
August	6.
September	6. 31. 55. 56. F.R.
October	21. F.R.
November	53. F.R.
December	6. 21. 22. 30. 31. 50. 52. 53. 54. 55. 56. C.A., F.R.
A.christyi	
April	55. R.N.A.S.
May	27. 54.
July	54.
August	F.R.
December	7. 19. 54. 56. F.R., R.N.A.S.
A.coustani	
May	54.
June	54.
July	21. 51. 56.
September	51.
October	51.
November	29.
December	6. 19. 49. 53. 55. 56. Eastleigh.
A.natalensis	
August	F.R.
September	F.R.
October	F.R. 21.
November	F.R.
December	F.R.
A.pharoensis	
May	R.N.A.S.
A.demeilloni	
April	8. 21. F.R.
May	9. 21. F.R., R.N.A.S.
June	56.
July	21.
August	21.
September	21. F.R.
October	21.
November	21.
December	52.
A.cinereus	
May	6. 8. R.N.A.S.
August	F.R.
December	7. F.R.

F.R.=Forest Reserve.
R.N.A.S.=The old Naval Aerodrome area.
C.A.=Commercial Area.
Eastleigh=The Eastleigh Aerodrome area.

and similar foci, cleaning streams and drains and collecting tins and rubbish.

Vector Larvae. In the control area, from April to the end of the year when full control was carried out, only 27 collections of *A.gambiae* larvae were found, the majority being prior to the 4th stage. Table 7 shows the distribution on the control sections and the months.

December's larvae figures showed a sudden rise. This was due to the failure of supplies from the Oil Company, just after extraordinarily heavy rain had fallen and control was essential. This heavy breeding was rapidly reduced by the use of 5% D.D.T. in diesoline oil used as an emergency substitute. Towards the end of the year the oil supplied was found to be relatively ineffective against anophelines and definitely useless with culicines. This matter is now the subject of an investigation.

It is of interest to record the results of a week's check by two spotters in the uncontrolled area of the town. 47 Collections of anophelines were made of which 20 were of *A.gambiae*.

Table 8 on page 51 is of Non-vector anopheline larvae found with 1st or 2nd stage unidentifiable larvae. It will be seen that few larvae were able to reach an identifiable stage, demonstrating the effectiveness of the oiling control.

AEDES

Yellow Fever — Aedes (Domestic) Mosquito Control

From mid-November 1947 to end of May, week 21, 1948, no routine domestic control was carried out, in conformity with Council's instructions which virtually meant the cessation of Yellow Fever control, since work was limited to small areas of the town while the greater portion was neglected. However, routine work on a reduced scale was introduced in June the 22nd week. The areas controlled being on the eastern side of the town only, more or less the African and Asian Areas with Muthaiga (Block J.) European. Thus all Aedes recorded are for 30 weeks only.

One new inspector was appointed, Mr. Iqbal Shah.

The repercussion of the decision to reduce the control was a marked increase of complaints from the residential western portion of the town, particularly the European areas.

No scavenging gangs or Treehole (natural foci) gang were possible this year, though several thousand tins, scraps of metal etc., were picked up and properly disposed of.

The resuscitation of these very useful gangs would be of great benefit to the town.

Prosecutions have been increased and towards the end of the year were stepped up very considerably, one warning only being given in cases where breeding was found followed automatically by prosecution for subsequent breeding. This system has long been advocated but never put into operation. To-day it appears that we should not even give the first warning if we wish to reduce breeding to the minimum and make the public fully mosquito-conscious. New arrangements for the hearing of cases should make work far easier in 1949.

The Aedes index for 1948 on the work done and the area under control is 0.095% to houses and 0.099% to foci. This compares favourably with previous years but the European areas to the west were not included in the control and these areas always maintain a high index.

1940	1941	1942	1943	1944	1945	1946	1947	1948
6.3	1.47	0.41	0.09	0.08	0.08	0.07	0.17	0.095

The total premises searched numbered 149,231 an average of 4,814 houses per week compared with 249,862 and 5,567 for the whole town in 1947. Buildings have increased greatly but not so much in the area controlled, the total premises in Nairobi number some 7,600.

Foci found numbered 996,083 giving an average of 6.54 per premise. This figure is again low compared with 193 for 1947 with full control when foci examined numbered 1,096,207.

Aëdes aegypti were found breeding 148 times compared with 434 in 1948. Of these 121 were in temporary foci such as small receptacles. The figure is low again on account of the excision of the western area of the town where permanent foci such as rainwater storage tanks are numerous and form the main foci for A.aegypti.

Permanent and Temporary Foci

As will be seen from table 10, temporary foci far outnumber the permanent foci and it is interesting to compare the figures with those of 1947. The reduction from 584,838 permanent foci to 286,669 is accounted for by the reduction of the area under control, but the temporary foci have increased despite the smaller area of control from 511,369 to 709,414; this is almost entirely due to the vast collection of military scrap being brought into the town and into the Asian commercial area particularly. Most of this material is not kept under cover but lies in untidy heaps within bamboo enclosures where it simply collects water, breeds mosquitoes and harbours rats. It has been found necessary to add water meters to the permanent foci since these are becoming a serious nuisance to the control. The majority lie below ground level and thus collect storm or seepage water and many of them leak so that, as the table shows, they give the highest figure for any such type of focus found with larvae. Soakage pits are a fruitful source of breeding, the majority of these being in the Eastleigh area. These pits are in black soil on almost impervious rock and are of such a depth that the Council's exhausters are unable completely

to remove the liquid and frequently the vehicles are unable to approach at all, due to lack of hard roads, particularly during the rains. The owners or tenants of plots do not take steps to maintain the tanks in a mosquito-proof state or trouble to apply a larvicide. Part of the figure for temporary foci is made up from the vast pools of water resulting from overflow of water from these tanks. The sooner roads, followed by sewers, are made available in this district the better it will be from the antimalarial standpoint, especially in view of the close proximity of the Eastleigh Aerodrome. Fortunately the mosquitoes found are seldom vector species. Earth drain breeding also arises from the overflow from these soakage pits.

The two tables 11 and 12 illustrate the districts with their principal foci and "Table B" a list of foci examined and the breeding found.

Staff was not available for even a small check on the condition of the uncontrolled area but breeding was undoubtedly heavy. Indicies of over 10% were found in the area when inspection was re-instituted. There can be no let up in the domestic control. Species sanitation cannot be allowed to become the rule as the public demands mosquito control in its widest sense and we cannot afford to allow any areas to go uncontrolled for even short periods.

Numbering of houses is most desirable but this has not been started despite repeated requests over a number of years.

Notices and Prosecutions

Towards the end of the year the service of warning notices was stepped up and a number of prosecutions resulted as shown in table 9 below.

Table 9.
NOTICES SERVED

	Instructions and other notices	1st Notice	2nd Notice	3rd Notice	4th and subsequent Notices	Total
June ...	—	183	35	3	—	221
July ...	—	122	44	13	11	190
August ...	—	55	25	16	14	110
September ...	54	75	16	11	5	161
October ...	42	46	20	7	8	123
November ...	—	118	39	13	6	176
December ...	5	182	—	—	—	187
Total ...	101	781	179	63	44	1168

Prosecutions :

Prosecutions Registered during the year ...	33
Cases Convicted	32
Cases Withdrawn	1

Convictions :

Total fines imposed	Shs. 1,642/-
Total Cost paid	Shs. 378/-

One signed a bond for six months for Shs. 100/-.

Table 10.
Foci Breeding Per Block

Permanent foci	Larval Species found (times)					Larval Species found per cent.			
	No. examined	Aedes Aegypti	Anopheles	Culex	All species	Aedes Aegypti	Anopheles	Culex	Total All species
Rain water tanks ...	10272	20	—	20	49	0.19	—	0.28	0.47
Septic tanks	10438	—	—	44	44	—	—	0.42	0.42
Soakage pits	15082	—	—	177	177	—	—	1.17	1.17
Sunken Drums and Bath pits	4641	3	—	41	44	0.07	—	0.88	0.95
Gully traps	86883	1	—	22	23	.001	—	0.02	0.02
Earth Drains ...	17430	—	—	121	121	—	—	0.69	0.69
Concrete Drains ...	136739	—	—	43	43	—	—	0.03	0.03
Water Meters ...	5184	3	—	175	178	0.05	—	3.37	3.43
TOTAL	286669	27	—	652	679	0.009	—	0.02	0.03
Temporary foci ...	709414	121	8	615	744	0.017	0.001	0.08	0.105
GRAND TOTAL	996083	148	8	1267	1423	0.001	0.0008	0.12	0.14

Table 11.
Indices

Block	No. of Houses 1947.	No. of Houses 1948.	Increase. Houses Built 1947.	Aedes Aegypti		Anopheles		Culex		Total all species	
				1947	1948	1947	1948	1947	1948	1947	1948
A Burnbrae E	—	—	—	—	—	—	—	—	—	—	—
B Kilimani E	48	—	—	29	—	—	—	23	—	52	—
C Hill Area E	243	—	—	19	—	3	—	190	—	212	—
D Hill Area E	223	—	—	16	—	3	—	85	—	104	—
E Groganville E	—	—	—	—	—	—	—	—	—	—	—
F Upper Parklands EA	165	—	—	84	—	1	—	73	—	158	—
G Parklands A	278	—	—	80	—	1	—	192	—	273	—
H City Park A	391	436	45	36	50	—	—	108	108	144	158
J Muthaiga Mixed	189	227	38	102	72	—	1	148	112	250	185
K Commercial Mixed	208	240	32	5	—	—	—	59	27	64	27
L „ A	208	232	24	—	—	—	—	23	9	23	9
M „ A	295	310	15	4	1	—	—	82	32	86	33
N Ngara A	485	612	127	14	1	—	—	148	69	162	70
O Pumwani N	523	544	21	13	4	—	—	102	48	115	52
P Pumwani N	423	412	89	—	—	—	—	9	1	9	1
Q Race Course A	532	555	23	1	1	—	—	50	28	51	29
R Fairview A	336	355	19	18	7	—	—	202	184	220	191
S Eastleigh A	344	479	135	6	10	—	—	335	411	341	421
T Farms EA	5	6	1	2	—	—	—	7	5	9	—
U P.W.D. and Kaloleni Mixed	732	776	34	3	2	—	7	192	221	195	230
V Eastleigh AN	23	26	3	1	—	—	—	6	12	7	—
X Kabete E	—	—	—	—	—	—	—	—	—	—	—
Y Govt. House Mixed	22	—	—	1	—	—	—	2	—	3	—
	5672	5210	538	434	148	8	8	2036	1267	2478	1423

Note:—
E = European Area.
A = Asian Area.
N = Native Area.

Table 12.

District and Principal Foci. A.Aegypti and other Culicines.

Aedes Aegypti Culex.

Districts

Principal foci	H		J		K		L		M		N		O		P		Q		R		S		T		U		V	
Septic tanks ...	0	1	0	36	—	—	—	—	—	—	—	—	0	3	—	—	0	3	—	—	0	1	—	—	—	—	—	—
Water tanks ...	0	5	16	2	—	—	—	—	0	1	1	3	—	—	—	—	1	0	2	5	0	3	—	—	0	7	0	3
Bathwater pits ...	0	2	3	28	—	—	0	1	—	—	0	1	—	—	—	—	—	—	0	7	—	—	—	—	0	1	0	1
Gully traps ...	0	3	1	6	—	—	—	—	—	—	—	—	0	5	—	—	0	3	0	2	0	2	—	—	0	1	—	—
Earth Drains ...	0	5	0	4	0	1	—	—	—	—	0	2	0	2	—	—	0	1	0	5	0	33	0	2	0	66	—	—
Concrete Drains ...	0	7	0	6	0	1	—	—	—	—	0	1	—	—	—	—	—	—	0	8	0	4	—	—	0	16	—	—
Drums ...	13	24	4	2	0	3	0	1	0	14	0	15	0	2	—	—	0	1	0	29	0	23	0	1	1	27	0	4
Tins ...	9	8	17	3	—	—	—	—	0	1	0	4	1	6	—	—	—	—	1	9	1	13	—	—	0	1	—	—
Tyres ...	7	6	1	3	0	8	0	1	0	64	0	20	0	7	—	—	0	2	1	42	6	53	—	—	0	13	0	4
Motor parts ...	10	2	2	0	—	—	—	—	—	—	0	5	1	10	—	—	—	—	1	16	0	2	0	1	1	8	—	—
Hollows ...	—	4	0	3	0	2	0	2	0	1	0	1	—	—	—	—	0	1	0	3	0	3	—	—	0	4	—	—
Tree Holes ...	4	1	4	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Batteries ...	—	—	1	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	0	—	—	—	—	—	—
Bird Baths ...	—	—	0	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Barrels ...	—	—	9	0	0	2	—	—	—	—	—	—	0	1	—	—	—	—	—	—	—	—	—	—	0	1	—	—
Buckets ...	3	4	—	—	0	1	—	—	1	1	0	1	—	—	—	—	—	—	—	—	—	—	—	—	0	4	—	—
Cement tanks ...	0	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	1	—	—	—	—	0	5	—	—
Ornamental Ponds	—	—	0	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hot Water tanks ...	1	0	1	0	—	—	—	—	0	1	0	2	—	—	—	—	—	—	0	1	0	1	—	—	—	—	—	—
Hand grips ...	—	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Holes ...	1	0	1	0	—	—	—	—	0	1	—	—	—	—	—	—	—	—	—	—	—	—	0	1	—	—	—	—
Pots ...	—	—	4	1	—	—	—	—	—	—	—	—	1	0	—	—	—	—	0	1	—	—	—	—	—	—	—	—
Soakage pits ...	0	17	0	2	—	—	—	—	—	—	0	1	—	—	—	—	0	9	0	25	0	123	—	—	—	—	—	—
Small Drums ...	—	—	0	2	—	—	—	—	—	—	0	1	—	—	—	—	—	—	0	2	0	2	—	—	0	1	—	—
Troughs ...	1	—	0	1	—	—	—	—	—	—	—	—	0	4	—	—	—	—	0	1	0	1	—	—	—	—	—	—
Water Meters ...	0	7	3	0	0	6	0	1	0	2	0	4	0	2	—	—	0	8	0	18	0	121	—	—	0	6	—	—
Wells ...	0	3	—	—	—	—	—	—	—	—	0	4	—	—	—	—	—	—	0	2	0	10	—	—	—	—	—	—
Other not specified	1	8	3	2	0	3	—	—	0	6	0	4	1	6	0	1	—	—	2	7	2	16	0	5	0	60	—	—

Table 13.
Potential Foci Searched and Larvae Found

Foci	Searched	Larvae Found			
		Culex	Aedes	Anopheles	All Species
Septic Tanks ...	10,438	44	—	—	44
Water Tanks ...	10,272	29	20	—	49
Bath Pits ...	4,641	41	3	—	44
Gully Traps ...	86,883	22	1	—	23
Earth Drains ...	17,430	121	—	—	121
Concrete Drains ...	136,739	43	—	—	43
Guttering ...	9,207	—	—	—	—
Drums (large) ...	163,504	146	18	—	164
Tins ...	288,837	45	29	—	74
Bottles and Jars ...	16,049	—	4	—	4
Motor Tyres ...	65,468	163	15	—	178
Motor Parts ...	34,714	44	15	—	59
Hollows ...	1,201	24	—	—	24
Coconut Shells ...	18,153	—	—	—	—
Tree Holes ...	931	1	8	—	9
Bamboos ...	1,733	—	—	—	—
Bananas Cultivated ...	30,887	—	—	—	—
Bananas Wild ...	100	—	—	—	—
Cacti ...	150	—	—	—	—
Plants not Specified ...	2,846	—	—	—	—
Palms ...	2,206	—	—	—	—
Pineapples ...	77	—	—	—	—
Sisal ...	5,132	—	—	—	—
Air Raid Shelters ...	47	—	—	—	—
Baths ...	442	2	—	—	2
Bird Baths ...	2,155	4	—	—	4
Basins ...	1,192	—	—	—	—
Barrels ...	2,943	4	9	—	13
Batteries ...	309	—	2	—	2
Buckets ...	31,841	11	4	—	15
Cement Tanks ...	1,058	7	—	7	14
Cooling Tanks ...	160	1	—	—	1
C.I. Sheets ...	101	—	—	—	—
Egg Shells ...	143	—	—	—	—
Ornamental Ponds ...	404	6	—	—	6
Hot Water Tanks ...	2,071	5	2	—	7
Hand Grips ...	90	1	2	—	3
Holes ...	10,571	1	—	—	1
Others not Specified ...	3,866	109	5	—	114
Pots ...	4,855	2	5	—	7
Rubbish Pits ...	14	2	—	—	2
Soakage Pits ...	15,082	177	—	—	177
Small Drums ...	352	8	—	—	8
Sumps ...	773	—	—	—	—
Troughs ...	3,227	7	1	—	8
Tar Boilers ...	3	—	—	—	—
Underground Tanks ...	13	1	—	—	1
Water Meters ...	5,184	175	3	—	178
Wells ...	902	19	—	—	19
Wheel Barrows ...	573	—	—	—	—
	996,083	1,267	148	8	1,423

RODENT AND VERMIN CONTROL

Mr. J. Morrill continued to take charge of this work and the African staff remained at the same strength as in 1947. As will be seen from the map only the same small area in the heart of the town was under routine control there being no possibility of making any further extension. There was little improvement in the general conditions prevailing in the town but the new legislation should help considerably in 1949, as the new by-laws make it very much easier to deal with the general squalid, overcrowded conditions existing in certain parts of the town. The innumerable unauthorised structures such as dwellings, shops and workshops with heaps of salvaged junk which sprang up upon the cessation of hostilities made the work of rodent control all the more difficult while rats found ideal harbourage to multiply exceedingly.

As will be noted from the figures given, the total rats killed exceeded those of 1947 by 49%. There was a welcome increase of 41% in the kills of Black rats. The more even distribution of rain was favourable to the field rats, particularly the Arvicanthis since more food and cover was provided and this resulted in an increase of population with a consequent 90% increase in kills. Mouse kills increased by 167%, particularly in the houses in the African locations.

Plague : No plague was reported in the town but strict watch was kept and all rats found dead were subject to examination. The endemic Kiambu area, 12 miles to the north of the town and the contiguous areas of the Kikuyu Reserve experienced sporadic cases of human and rodent plague.

Rodent Control : Trapping was used as a check on infestation of premises, which were then dealt with by poison-baiting, gassing and hand-catching. Notices to rat proof were served upon all premises which handle any kind of foodstuffs. It is quite impossible as yet with the staff available to serve rat-proofing notices on general merchants but as time goes on and the food premises are proofed, it will become possible.

Some confusion exists in the scientific nomeclature of the rodent species. *Rattus r. kijabius* must now be known as *Rattus r. alexandrinus* and *R. r. kandensis* also exists with *R. r. frugivorus.* For the purpose of this report the subspecies have all been lumped under the heading *R. r. alexandrinus* since there is doubt as to the identification of specimens, many of which have naturally been recorded daily by the Africans only. There is also some difficulty over the mice as more than one species exists.

Table 14.
TRAPPING IN THE LOCATIONS

	Rooms Trapped	Houses Trapped	Rooms/Houses Infested	Percentage Infested	Trapping Days*	Rattus r. alexandrinus	M. coucha panya	Mice (all species	Arvicanthis	Other species	
Kariakor Ziwani ...	1,434		272	18.9	42	247	1	248	—	—	Brick and stone structures, tiled roofs. Harbourage amongst rafters and in junk kept by occupants.
Pumwani ...		454	297	65.4	57	449	3	373	—	—	African built location, mud walls earth floored, many roomed, no foundations, much rubbish.
Shauri Moyo ...	1,082		720	66.5	78	105	9	1,361	1	7	Stone buildings lodging house type Tarmac floors, burrows in floor, harbourage of food in junk kept by occupants.
Kaloleni ...	612		197	32.0	51	60	6	347	—	—	Modern stone buildings, tiled roofs. Harbourage in junk kept by occupants.
Marulani ...	600		288	48.0	21	300	4	385	—	—	Temporary structures bituminised papyrus reed matting, earth floor. Much junk kept.
Totals ...	3,728	454	1,774	47.9	249	1,161	23	2,714	1	7	
								3,906			

* Trapping days do not include prebaiting days.

Commercial Area

Trapping in connection with the infestation survey produced the following figures. These are compared with those of 1947 which were inadvertently omitted from the 1947 report.

TABLE 15.

	1947	1948
Premises trapped	1,037	1,043
Premises infested	413	396
Percentage infested	40%	38%
Trapping days		156
Rattus rattus alexandrinus ...	1,451	1,122
Mastomys coucha panya	43	6
Mice, all species	378	342
TOTAL	1,872	1,470

Poisoning: In all 33,229 baits and bait points were laid in various parts of the town as a control measure. 155 poisoned bodies were found. No figure of rats poisoned can be given but it is estimated at a high figure observing the obvious reduction in the rat population in treated areas. The Railway Administration laid 3,337 baits in Railway property of which 1,922 were taken.

Gassing was also carried out in warrens along the banks of the Nairobi River, old irrigation canals, road banks, rubbish dumps and the Incinerator tip. A few buildings were also treated. 174 warren areas were treated in which the kills were obviously high judged by the results from a few warrens opened after treatment. The Railway Administration gassed 2,648 burrows on Railway property.

Hand-catching and digging: This method is much in favour and appeals to the African who readily becomes an expert whether catching in grasslands, bush or in buildings particularly in stores and godowns. The method is also profitable, judged by the kills obtained 17,303, or 74% of the total year's kill. Furthermore, it has one advantage in that large numbers of rats from one area can be collected for flea examinations, all rats being immediately placed in bags. It will be seen from the table that hand-catching produces a large proportion of field rats which are not so readily dealt with by trapping or poisoning.

TABLE 16.

	Kariakor	Pumwani	Shauri Moyo	Kaloleni	Marulani	Abattoir	Swamp Commercial	Ngara Pangani	Other areas	TOTAL
Rattus species	47	339	530	108	53	453	706	2	28	2,266
Mastomys coucha panya	153	235	1,123	49	654	38	2,049	51	25	4,377
Arvicanthis abyssinicus	119	1,109	2,206	1,749	1,525	149	1,688	759	558	9,862
Otomys angoniensis	—	1	11	—	3	2	243	12	17	289
Mice all species		8	63	40	1		158	2	19	291
Others		16	34	8	19		23	12	6	118
Totals	319	1,708	3,967	1,954	2,255	624	4,967	838	653	17,203

TABLE 17.

TOTAL RATS KILLED DURING THE YEAR

This figure includes rats killed by the Railway Administration in Railway property and an estimate is added for rats poisoned and gassed.

Rattus rattus	7,446
M. coucha panya	4,448
A. abyssinicus	9,883
O. angoniensis	290
Mice	3,445
Other species	129
Rats killed by Railway	5,764
Total	31,406
Poisoned/Gassed Estimate	17,206
	48,612

Inspection : In all, 63 foodstuff premises were closely inspected and 48 notices served to rat-proof the buildings. 13 prosecutions resulted for failure to comply, 12 convictions were secured, fines totalling Shs. 1,925/- being imposed. Foodstuffs premises are gradually being dealt with and the owners, who are becoming more rat-conscious, are now starting to take anti-rodent measures.

Private Work : 63 requests from the public from various parts of the town for anti-rodent work were dealt with, which resulted in 927 rats being killed, 622 of them being *Rattus rattus.* Charges made for this work totalled Shs. 730/-.

Ruiru Dam : 2 Africans carried out a trapping and poisoning campaign in the labour lines at the Dam and accounted for 70 rats on two visits made in April and October.

Rat Examinations. Plague :- 8,832 rats were examined and no evidence of *P.pestis* found, this figure includes a number of rats picked up dead from various parts of the town. A few *Rattus rattus* were found to be infected with *Spirillum minus* and one other *Spirillum. sp.* indeterminate.

Flea Examinations. The flea index for the year was very low being .15 per rat. Of 12,565 " live " rats examined, only 1,905 carried fleas.

Rat species examined and fleas found are given in the table below.

TABLE 18.

	Braziliensis	Cheopis	Lypusus	Cabirus	Others	Total
Rattus r. alexandrinus ...	81	254	133	27	8	503
M. coucha panya ...	13	52	110	5	—	180
A. abyssinicus ...	166	349	566	48	5	1,134
O. angoniensis ...	5	22	52	2	—	81
Mice (all species) ...	—	2	1	1	—	4
Others ...	1	—	2	—	—	3
Totals ...	266	679	864	83	13	1,905

Bait has always been a problem and in order to ascertain the best basis, a series of tests has been carried out which, however, at the time of this report are as yet incomplete. Some 15 local grains, whole or ground, have been tried out, together with other likely substances. The tests have been on a fairly large scale using wild rats of various species. There are definite indications so far that only a few substances are readily acceptable.

Vermin Control. The following additional duties were carried out:— Disinfestation — Bedbugs 163 rooms with charges totalling Shs. 605.00. Disinfection — 156 rooms. The Vermin Gang also carried out 602 vaccinations of smallpox contacts.

AFRICAN MATERNITY HOSPITAL

In 1948 the work continued to increase. The new temporary wards were opened bringing the available beds up to 46. This increased the average stay per normal patient to a possible 5 days, but the bad effect of the past need for rapid discharge of normal cases is still evident, most Africans, and especially Jaluo, being unwilling to stay until discharged.

Those in whom a difficult labour is anticipated are on the whole applying for admission early but there are still a large number who delay with consequent ill results either to the infant or mother, or to both.

There have been 5 cases of ruptured uterus this year due to delay in seeking admission, of these four have died.

The number of out patients also continues to increase to the serious embarrassment of the staff. A fair proportion is admitted to hospital. Of the 3,905 outpatients on the books, 2,456 have been admitted.

Trainees. African girls and women of good education continue to apply in large numbers for training and at the end of the year there are still 72 names on the waiting list. English is becoming increasingly the lingua franca, of the hospital, with resulting improvement in the standard of knowledge of the midwives.

Parents and schools are obviously appreciating the European Staff's efforts to supervise the girls carefully during both work and leisure. The Trainees themselves have benefitted markedly from the recreations organised for them.

Due to the Medical Superintendent's absence on overseas leave, lectures have been difficult to maintain, but the girls have studied well.

In June 1948, eleven Candidates sat the Government Examination and all passed. In December seven sat and passed. The top girl in the December examination was offered a course of training as Hospital Assistant at the Native Civil Hospital.

European Staff. The Medical Superintendent has charge of the hospital, assisted by Matron and 4 European Sisters, who give direct Clinical teaching in the Wards, and labour wards. This clinical teaching is having a marked effect on the practical ability and dependability of the trainees.

The senior nurses act as charge nurses under European Supervision in their last six months, thus training them in a sense of responsibility and in dependability.

Admissions : Resident	1,311)		
		total 2456	
Non-Resident	1,145)		
Patients' Days	13,620		
Av. length of stay in Hospital			5.0 days
Babies' Days	10,578		
Av. stay in Hospital after delivery			4.3 days
Motherless baby days	1,529		

African Midwives under Training

In January	34
In July	36

Clinics

Ante Natal	Number held	...	201		
New Cases :	Resident ...	...	1,547		
	Non-Resident	...		2,358	
Repeats	Resident	...	2,698		
	Non-Resident	...		4,274	
	Totals	...	4,245	6,632	10,877
Post Natal	Number held	...	48		
	Resident	...	375		
	Non-Resident	...		207	
	Total	...	423	207	582

Admissions by Tribes

	Thro' Clinic	Direct	Total
Kikuyu	1,086	418	1,504
Jaluo	372	63	435
Other Tribes	405	112	517
Total ...	1,863	593	2,456

Admissions by Districts

Nairobi	...	1,311	Mangu	...	18
Kabete	...	520	Kahawa	...	16
Uplands	...	20	Kisumu	...	3
Thika	...	56	Mbakasi	...	4
Nyeri	...	30	Ruaraka	...	30
Machakos	...	27	Naivasha	...	6
Fort Hall	...	95	Ngong	...	42
Limuru	...	58	Longonot	...	1
Kiambu	...	86	Elburgon	...	2
Ruiru	...	18	Magadi	...	1
Njoro	...	5	Karen	...	2
Dagoretti	...	28	Langata	...	5
Kikuyu	...	25	Embu	...	2
Makuyu	...	1	Kijabe	...	1
Kitui	...	1	Nakuru	...	2
Karura	...	6	Dandora	...	4
Kiu	...	1	Tigoni	...	1
Athi River	...	23	Makindu	...	1
Eldoret	...	1	Jinja	...	2
Arusha	...	1			
			Total	...	2,456

	Thro' Clinic	Direct	Total
Normal live births	1,618	452	2,071
Twin Births	25	16	41
Abnormal Presentations	87	47	134
Born before arrival	36	42	78
Still Births	87	51	138
Total Live Births	1,730	516	2,246
Infant deaths	88	54	142
Maternal deaths	6	8	14

Operations

	Thro' Clinic	Direct	Total
Caesarean Section	33	18	51
Forceps	18	8	26
Craniotomy	0	6	6
Curettage	1	0	1
Dilatation and Currettage ...	7	5	12
Manual Removal of Placenta ...	1	3	4
Perineal Repair (Major) ...	7	1	8
Replacement of Inverted Uterus ...	0	1	1
Suture of Ruptured Uterus ...	1	0	1
Version	4	4	8
Circumcision	1	0	1
Resuture of Wound	0	2	2
Evacuation of Uterus	2	0	2
Hysterectomy	0	1	1
Impacted breech	0	1	1
Decapitation	1	0	1
Vaginal Haematoma	0	1	1
Totals	76	51	136

Causes of Infant Deaths

	Thro' Clinic	Direct	Total
Prematurity	30	29	59
Cerebral Haemorrhage	13	1	14
Obstructed Labour	2	1	3
Congenital Syphilis	26	16	42
Anencephaly	1	1	2
Patent Foramen Ovale	1	0	1
Tuberculosis	0	1	1
Hydrocephaly	2	0	2
Unknown cause	0	1	1
Partial Atelectasis	1	0	1
Congenital Heart Disease ...	3	2	5
Prolapsed Cord	0	1	1
Asphyxia	1	0	1
Toxaemia	3	1	4
Icterus Neonatorum	1	0	1
Pneumonia	2	0	2
Totals.	86	54	140

Causes of Stillbirths

	Thro' Clinic	Direct	Total
Prolapsed Cord	12	3	15
Monstrosity	2	0	2
Delayed Labour	4	3	7
Asphyxia	11	6	17
Prematurity	6	5	11
Birth Injuries	4	3	7
Macerated Foetus	12	10	22
Hydrocephalus	3	1	4
Obstructed Labour	17	12	29
Placenta Praevia	2	2	4
Congenital Syphilis	6	4	10
Anencephaly	3	1	4
Ante-Partum Haemorrhage ...	1	0	1
Impacted Breech	2	0	2
Spina Bifida	0	1	1
Intrauterine death	1	0	1
Eclampsia	1	0	1
Total.	87	51	138

Causes of Maternal Deaths

	Thro' Clinic	Direct	Total
Gangrene of Bladder	0	1	1
Obstetric Shock	3	1	4
Post Partum Haemorrhage ...	1	1	2
Ruptured Uterus	1	3	4
Eclampsia	0	1	1
Pulmonary Embolism	1	0	1
Pneumonia and Obstetric Shock ...	0	1	1
Total.	6	8	14

EUROPEAN CHILD WELFARE.

The European Child Welfare Clinic, held at the Lady Northey Home on Wednesdays from 2—4 p.m., was conducted from January to May by Dr. Henry and from June to December by Dr. Gaffikin. Miss Lorimer was the Clinic Sister in January and February, Mrs. Pickwell from March onwards.

It was not found practicable to conduct a clinic in the Lady Northey premises on the recognised Child Welfare Clinic lines, with record cards and regular attendance, as those mothers who had the habit of clinic attendance were already entered on the lists of the Lady Northey Home Clinic on Mondays and Tuesdays, and brought their children on Wednesdays only for the specific purpose of inoculation or vaccination. A few received and welcomed general advice, but only incidentally to inoculations; only eight children have attended regularly for weighing and supervision.

The Child Welfare Centre and Day Nursery at Parklands was opened at the beginning of October and the first clinic was held there on 8th December from 4 p.m. to 5.30 p.m. This has presented a different picture. It it too early to say much, but numbers have increased steadily over the four weeks that the Clinic has been open, and the official time, 4 p.m. to 5.30 p.m. has now had to be extended up to 6.30 p.m.

The Clinic at Parklands is conducted in the Matron's office with the children's schoolroom as weighing room and waiting room — an unsatisfactory arrangement, and it is hoped that an extension to include a special Clinic room can be added in the not distant future. Children on their first visit receive a general medical checkover, and thereafter attend for weighing, advice on feeding, health and management, and for medical supervision. The children attending the Day Nursery also receive a medical examination, which it is hoped to repeat twice each year, and advice is given on any abnormalities found then or reported by the parents.

A campaign for anti-Diphtheria immunisation was conducted from September onwards, when a supply of anatoxin of the two-dose type became available from U.K. It met with a moderate response — some sixty children — but it has become apparent (from investigation of the children attending the Day Nursery) that the majority of European children are immunised in infancy by their family doctor.

A European Child Welfare Clinic for children of Military personnel has been held at the Lady Northey Annexe weekly through the year, with an Army Medical Officer and a Municipal Nursing Sister (Mrs. Pickwell) in attendance. A report from the Nursing Sister reads as follows :—

"The majority of babies attending the Clinic come from hostels attached to the camps, where communal living is the rule. As frequent

transfers take place both overseas and locally to other districts, the population is a shifting one.

There was an outbreak of Infantile Gastro-Enteritis in November during which nearly all the infants from one camp were seriously ill and took some time to recover and to re-gain weight.

It has been noted that a fairly large percentage of the babies have been artificially fed with Cow & Gate, the Standard Army issue. Fresh milk proved out of the question, owing to the unreliability of the delivery system of private dairies in the town."

Figures of attendance during the year are appended as in the following table :—

Attendance at Lady Northey Home Clinic.

1948	Clinics	Weighing & Advice	Vaccinations	Diphtheria Immuni-sations	T.A.B. Innocula-tions.
January	4	9	—	5	1
February	4	2	12	8	3
March	5	1	8	4	2
April	4	5	10	1	6
May	4	6	7	2	6
June	5	6	12	24	6
July	4	12	7	22	8
August	4	12	9	14	8
September	5	20	5	43	3
October	4	16	11	48	5
November	4	20	14	28	10
December	5	14	2	8	7

Parklands Clinic.

Clinics Held	4 (Opened December 8th)		
New Registrations :	From Day Nursery	...	68
	From Elsewhere	...	11
	Total Registered	...	79
Re-attendances :	Infants	...	17
	Toddlers from Day Nursery		6
	from elsewhere	...	3
			26
Immunisations :	Diphtheria	...	10
	Whooping Cough	...	1
	Smallpox	...	1
			12

Military Clinic.

Clinics held	50
New Registrations	47
Re-attendances	200
Immunisations:	
Diphtheria	13
T.A.B.	1
Smallpox	25

ASIAN MATERNITY AND CHILD WELFARE.

The Asian Maternity and Child Welfare Service continued to be carried on during 1948 at the three clinics at Ngara Road, Pangani and Sandiford Road, which were in existence in 1947. Of these Ngara Road is the oldest, now in its 12th year, and is very popular. The building stands in the grounds of the Asian Maternity Hospital, and is of permanent construction, with running water but no separate sanitation. It serves all Ngara and Parklands and the thickly populated area lying between Government Road and the Swamp. With the increasing use which is made of it, expansion is now urgent : it needs lavatories, a store and a bigger waiting room, and provision for these is being made in the 1949 estimates.

Pangani Clinic is situated behind the new Eastleigh Police Station. It is a credit to the Clinic staff that they carry out their duties with efficiency in such a building, constructed of timber and painted hessian, with a leaking roof and no inside water supply. Its defects are knowledged, and rather than continue to spend money on a building basically unsatisfactory it has been decided to build anew, possibly in 1950, on a site more centrally situated to cater for the rising population of the Eastleigh area. Land for this purpose has been reserved.

Sandiford Road Clinic is a building belonging to E.A.R.& H. and for the limited area which it serves it is adequate in structure. In theory it has water laid on — the pipes are there — but the water situation has been such that on no forenoon during 1948 has water flowed from the taps.

Staff. Dr. Margaret Bax was Medical Officer in Charge from January to April : Dr. Phillippa Gaffikin took over in May.

Miss Priscilla Benjamin, the Senior Health Visitor, has been at Ngara Road Clinic throughout the year, also supervised Sandiford Road Clinic during a period when there was no Health Visitor there, and carried out the duties of Supervisor of Midwives and Dais.

Mrs. Savitri Chaddah has been at Pangani throughout the year. Mrs. Savitri Bhaskare was at Sandiford Road Clinic till the end of August, when she resigned.

Miss Elizabeth de Mello SRN joined the staff at the beginning of September, and was employed as relief Health Visitor and on an intensive home-visiting campaign in the River Road area until December when the house made available for the Health Visitors' use by the courtesy of E.A.R. & H. was vacated by Mrs. Bhaskare. Miss de Mello then moved in and took over the Clinic.

Health Assistants Miss Kaushalya Sood and Miss Kursheed Ramzan joined the staff at the beginning of the year, and after a period of moving about from Clinic to Clinic have remained at Ngara Road since May.

Miss Tirlochan Kaur Naru has been at Sandiford Road since May, in lieu of Miss O. Fernandes who went to India on unpaid leave and forwarded her resignation from there as she had married. Miss Naru has now been given the permanent appointment. Miss Jena Sidi Mohammed was at Pangani till November when she left to be married. Miss Vimla Sood is now at that clinic.

Ante-natal and Child Welfare Clinics have been held at all three centres weekly throughout the year. Attendances have been good the figures showing an increase over last year. (See table 1) Particular endeavour has been made to increase the attendance of toddlers, as this age is apt to be neglected when a younger infant arrives and claims the mother's attention.

Ante-natal Clinics have endeavoured to take care of the next generation from its first beginnings. A set scheme has been laid down whereby the mothers undergo a general medical examination on their first attendance, and if anything suspicious in their personal or obstetrical history suggests it they are referred to their own doctor for such investigations as the Khan test or a test of Rhesus incompatibility. Thereafter they come (by appointment) once a month till seven months, twice in the eighth month and then weekly till term. As soon after delivery as the birth notification is received — often not as soon as is desirable — a home visit is paid and a post-natal examination is made six weeks after delivery.

At the routine visits advice on general and personal hygiene, health habits and the care of young babies is given. Classes of ante-natal exercises are held, and expectant mothers are encouraged along with other mothers and young girls to attend the regular First Aid, Home Nursing, Hygiene and Sewing Classes. Post-natal Exercise classes have been started and are proving popular, doubtless due to their good effect on the figure !

Of abnormalities detected in the expected mothers the most common was albuminuria. This, if mild, was treated by dietetic advice; moderate cases were referred to their own doctor, severe cases, threatening eclampsia, were advised to apply for immediate admission to the Maternity Hospital and to request their family doctor to attend them there.

During the year 74 cases of moderate or severe albuminuria were detected, but of these only 2 went on to develop eclampsia. Organic lesions requiring treatment were referred to their own doctor, cases of pyorrhea to their dentist. An investigation into the incidence of anaemia of pregnancy was carried out at Ngara Road Clinic and produced the unexpected finding of a higher level among non-vegetarians. (See table 2) Treatment was by iron, reinforced in severe case by reference to the family doctor for liver injections.

Cases of pelvic abnormality were advised to be confined in Hospital as were cases of malpresentation not correctable by external version.

Child Welfare Clinics have been conducted during 1948 as centres for observation, advice and instruction, not for the treatment of overt illness. Minor treatments such as a dose of a laxative are given, but the former tendency to regard a Clinic as a free dispensary is being gradually overcome. Despite this, attendances have increased. (See table 1) Co-operation from the mothers is surprisingly good, they bring the children regularly and the great majority follow the advice given. Children from up-country when visiting Nairobi are brought for examination, and even from further afield — the most distant so far was an infant from Mogadishu !

The children receive a general medical examination on their first visit — which is as early in life as the mother will bring them : in the case of the hospital-born babies, 10 days. Thereafter they attend for weighing, supervision, advice on care and feeding, and are referred to the family doctor for treatment if needed and the correction of any abnormality. A final medical examination is carried out at the age of 5 years before the child's record card is closed.

Milk has been available for distribution, and in the Sandiford Road area it has been given to toddlers whose condition warranted it. There has been no demand for regular free milk at Ngara Road and Pangani, and the supply there has been used chiefly for demonstration purposes, for mothers and toddlers after Exercise classes.

Breast-feeding is the accepted custom among Asian mothers, but in any case of a failing supply, or of the infant not gaining, a test feed was done and if the supply proved inadequate complementary feeding was advised (and demonstrated) and every effort made to prevent premature weaning.

Home Visiting — direct contact with the people in their own environment — is the backbone of a Maternity and Child Welfare Service : much emphasis has been laid on it during the past year and the response of Health Visitors and Health Assistants has been admirable. Visiting has been carried on with vigour under disheartening conditions. In a home which is exceedingly overcrowded and with an inadequate water supply, advice on fresh air and sunlight, cleanliness of person and surroundings is very difficult to translate into practice; yet the visits are welcomed and the mothers do make an effort. An extra effort has been made to revisit frequently families living under exceptionally poor conditions in the Racecourse Road area, and in the later months of the year there has been some visible improvement in the condition of the children from that area.

Both at the Clinics and during home visits advice and persuasion have been used to prompt the direct prevention of illness by vaccination and inoculations. The response is shown by table 3

Co-operation with the Indian Maternity Hospital, Indian private practitioners and Indian midwives has continued satisfactory. Pupil midwives from the Hospital attend the Clinics for instruction, and the

Hospital is always ready to admit such cases as albuminuria referred from a Clinic. Private practitioners refer gynaecological cases — 492 during the year — for examination and opinion, and the majority of them respond readily to requests for investigation or treatment of patients from the Clinics. The midwives have brought numerous cases for examination and encourage the patients to attend regularly.

In the course of the year four more Dais have undergone a course of training, mainly directed to inculcate principles of hygiene and to teach recognition of abnormalities and the wisdom of seeking help with such cases. These Dais were examined in October and all passed : four more are now under training. It is hoped that in time the untrained Dai and the "handywoman" will be eliminated. Lectures on Health and allied subjects have been given by the Health Visitors, at intervals through the year, to Clubs and Associations in the town.

Plans for 1949 envisage a new Clinic to serve the River Road area, and a scheme for the local training of Health Visitors. This fourth Clinic, to be built on a site behind the Fire Station in Victoria Street, is now at the stage of detailed planning both of building and equipment, and it is very much to be hoped that it will be built within the coming year. It will be in the heart of the most crowded Asian area in the whole Municipality — the district lying between Government Road and the Swamp. At present this district is served by Ngara Road Clinic, which is difficult of access, being on the further side of the river, and is already kept busy with people from its own area. The people of River Road and Upper and Lower Canal Roads do attend Ngara Road Clinic but not as often as is desirable for their welfare : when the new Clinic is available it will be possible to do much more for them.

Recruitment of staff from overseas is always a gamble, and more trained health visitors will be needed shortly for increased commitments and leave reliefs. Detailed plans are in preparation for a training scheme, to begin in April 1949 whereby suitable candidates will take a course lasting approximately a year with a final examination and a Health Visitors Certificate to which Government has agreed to extend recognition.

Mortality and Morbidity. Two maternal deaths occurred during the year, both in the early months of pregnancy. One was attributed to hyperemesis gravidarum, the other to toxaemia. Neither woman was a Clinic attender.

Known stillbirths numbered 47, and the causes are set out in Table 4.

There has been no major outbreak of epidemic disease among Asian children during the year. Cases of typhoid, diphtheria, pneumonia, measles, whooping-cough and chickenpox occurred, and there has been a considerable amount of epidemic diarrhoea especially among the younger infants. Deaths under the age of 5 years, and the causes thereof, occurring among the Asian children within the purview of the Clinics, are appended as Table 5. It is noteworthy that by far the greatest number are attributable to prematurity, a factor closely related to overcrowding.

Attendance

	Ngara Road	Pangani	Sandiford Rd.	Total
Ante-natal Clinics				
Clinics held ...	76	50	46	172
Attendances ...	3,117	2,988	600	6,705
New Registrations ...	824	571	109	1,504
Child Welfare Clinics				
Clinics held ...	51	52	46	149
Attendances ...	4,557	2,972	2,162	9,691
New Registrations				
Infants 0—1 yr. ...	607	389	105	1,101
Toddlers 1—5 yrs.	375	354	133	862
Home Visits				
By Health Visitor ...	2,223	2,364	1,309	5,896
By Health Assistant ...	1,429	1,543	1,109	4,081
Treatments ...	352	393	385	1,130

Ante-natal Clinics	2,602	3,249	3,560	4,021	6,715	67%
New Registrations	669	839	1,074	1,032	1,504	45.7%
Child Welfare Clinics	4,131	6,000	7,661	8,311	9,691	16.6%
New registrations :						
Infants 0—1 yr.	—	—	—	—	1,101	—
Toddlers 1—5 yrs.	—	—	—	—	862	—
	144	402	579	329	1,963	162.0%

Anaemia of Pregnancy

(Ngara Road Clinic only).

New Cases — 824 Vegetarians — 614
Non-vegetarians — 210

Found to be suffering from anaemia :—

	Vegetarians	Non-vegetarians
Primiparae	63	18
Multiparae	166	69
Total	229 = 37.3%	87 = 41.4%

Inoculations and Vaccinations

	Ngara Road	Pangani	Sandiford	Total
Vaccinations ...	264	178	238	680
T.A.B. ...	80	23	548	651
Diphtheria Inoculations	573	312	318	1,203

Still Births — Causes

Obstructed labour	...	...	...	8
Macerated foetus	...	...	...	7
Undiagnosed	...	...	...	28
Premature	...	...	...	1
Albuminuria	...	...	...	1
Eclampsia	...	...	...	2
				47

Causes of Deaths of Asian Children under 5 years

		Under 1 mth.	6 mths.	6—12 mths.	1 yr. — 5 yrs.
Pneumonia	...	6	10	12	15
Jaundice	...	3	—	—	—
Gastro-enteritis	...	13	8	6	7
Cerebral injury	...	3	—	—	1
Marasmus	...	5	2	1	—
Debility	...	2	—	—	—
Prematurity	...	42	2	—	—
Congenital syphilis	...	1	—	—	—
Congenital debility	...	7	—	1	—
Acute Diarrhoea	...	—	—	1	—
Diphtheria	...	—	—	—	2
Malaria	...	—	—	—	1
Accidents and burns	...	—	—	1	—
Asphyxia	...	3	—	—	—
Septiceamia	...	—	1	—	—
Pyloric stenosis	...	1	—	—	—
Anaemia and Malaria	...	—	—	—	4
Encephalitis	...	—	—	1	—
Tuberculosis	...	—	—	—	1
Convulsions	...	—	1	—	2
Icterus neonatorum	...	—	—	—	—
Peritonitis	...	—	1	—	—
Undiagnosed	...	7	—	—	—
		94	25	23	33

Total Deaths under 1 year = 142

AFRICAN CHILD WELFARE

STAFF.

European.

There were few changes during the year, but we were glad to welcome Mrs. Bull on 1st July as replacement for Mrs. Brooks during sick and overseas leave, and Mrs. Pickwell from 16th March to assist with the Gynaecological Clinics.

The health record is very good, only seven days were lost by Mrs. Dugmore, and 97 by Mrs. Brooks, who, unfortunately, contracted Tick Typhus Fever and had the protracted convalescence which follows that infection in so many cases.

Mrs. Pickwell was unable to attend the Gynaecological Clinic for many weeks due to doing relief duty at the Venereal Diseases' Clinic and to illness. During these periods and from January 1st to March 16th, duties at the Gynaecological Clinic were undertaken by the Health Visitor of Kariakor, and at the European Clinic by the Supervisor and other Health Visitors and by the Nursing Sisters from the Town Hall.

The European Nursing Staff are to be congratulated on the very high standard of work which they have maintained throughout the year; also, for the improvement in record keeping, which, after a long, hot, tiring session of crying babies and language problems, entails real effort and self discipline.

African.

Two new Grade "C" assistants, Rhoda and Delina, joined the Clinics on 1st March and 1st June respectively. Compared with Grade "A" assistants, by reason of their training, they have a greatly increased capacity for work and are able to relieve the Health Visitors, so that the latter can turn to other duties. Experience indicates that additional grade "C" assistants on each clinic would allow the maximum benefit to be obtained from the expenses incurred in providing the present European Staff, buildings and equipment.

Due to sickness, 100 African days were lost.

Leave without pay was granted as follows :—350 days for maternity leave and 28 days for domestic reasons.

The African assistants have worked well and loyally and, because of their greater knowledge of the people and language, it is by them that the teaching of positive health can be most efficiently done.

REVIEW OF ACTIVITIES.

Antenatal Clinics:

The total attendances at the five clinics have increased by 295 compared with 1947.

Venereal Disease attendances are poor in spite of visiting and propaganda.

Post-natal examinations are slowly increasing, but are resisted in some instances because of the erroneous belief that, at the time of examination, something is done to prevent another pregnancy.

Gynaecological Clinics :

The Gynaecological Clinic was held at Kariakor throughout the year. Dr. P. G. Preston, M.R.C.O.G., was in charge until the end of April, and then Dr. Mark and Dr. Craig attended one day each per week. In view of the decision to reduce this clinic to one session per week and to make it available for Nairobi women only, the following figures are relevant :—

No. of clinics held	88
New Cases	1,116
Re-attendances	574
Total attendances	1,690
Source of new cases attending :	
Locations	310
Other Municipal Areas	146
Out-districts	660
Total	1,116
Tribes.	
Kikuyu	655
Embu — Meru	6
Mkamba	164
Kavirondo	123
Maragoli	40
Kisi	9
Lumbwa	3
Kipsigis — Masai	13
Nandi	14
Teriki — Teita	6
Swahili	8
Lamu	1
Iran	1
Sudani and Nubian	11
Somali	5
Tanganyika and Msiba	30
Uganda and Mgisu	27
	1,116

Referred By :

V.D. Clinic	393
African Maternity Hospital ...	50
A-M and C-W Clinics	66
General Dispensary	140
Missons and employees	26
Own request	441
Total	1,116

Disposal :

Referred to V.D. Clinic ...	102
„ „ African Maternity Hospital (pregnant) ...	42
„ „ General Dispensary ...	80
Total	224

Surgical Cases :

Operations performed.	254
Operations refused.	361
Total Operations advised.	615

Laboratory Specimens Examined :

Male	32
Female	29
Total	61

Investigation at Native Civil Hospital :

Total	28

Treated at Clinics :

Cervical erosions cauterized ...	229
Insufflations.	168
Advice	168
Medicine given	74
Total	660

Treated at V.D. Clinic (refined cases) :

Douches (1—6 wks.)	238
Sulphathiazole (25 gms.)	51
Penicillin	9
Total	298

Whether this work be regarded as the responsibility of the Government Medical Service, or of the Public Health Department, it is obviously an integral factor in the health and happiness of the African community.

Child Welfare Clinics :

The Baby Show held on 26th November afforded again a wonderful picture of large numbers of healthy, happy babies and toddlers. Even although the total numbers of entries had purposely been reduced the examiners, all trained medical people, had great difficulty in reaching their final decisions.

The visitors and onlookers attended in smaller numbers this year and it has been decided for the future to arrange something for their entertainment while the judging is in progress and to collect sufficient money to give them all at least a bun and cup of tea.

Total Infant Welfare attendances compared with 1947 decreased by 1,628, but new cases increased by 820.

Dispensary attendances have increased by **8,217** and this figure represents a vast amount of hard work in initial propaganda and following up. A great effort has been made by European and African staff to complete treatments and thus avoid wastage of time and material, and to this end, registers of malarial treatment are being kept on all clinics and detailed records of such drugs as the sulphonamides.

In case it may be felt that these figures do not represent an increase in the work over previous years, the following factors must be considered:—

1. Throughout the year great attention has been given to treating only the mothers and children of Nairobi, in accordance with the Council's policy.

2. Record keeping is a constructive aspect of the work of clinics and attention has been given to this and to the standardizing of it, so that, as well as improving efficiency, the work should not suffer greatly if European and African staffs have to be transferred to other Clinics. Moreover, statistical records of clinical usefulness are available for the better direction of policy.

It is interesting to note that, although the Health Visitors at Makongeni and Kariakor were exchanged in July, the figures for these clinics maintained a high level.

3. The European Medical Staff are firmly of the opinion that the quality of the work cannot now improve further without more time for visiting. The total visits have maintained a high level — **22,842,** — and this in spite of the time given to other duties by Africans and Europeans, e.g. Gynaecological Clinic and European Clinic.

It has been interesting to follow up many of the children into both Railway and Municipal Nursery Schools and the Medical Officer in

charge of the Clinics has examined all Nursery school children at least twice monthly throughout the year. She has found a very low standard of health, particularly in the case of the children returning from the Kisumu Reserves; diet is deficient in many cases, not only in quality, but in the actual quantity of food eaten.

Medical Aspects :

There has been no major epidemic during the year, but measles started in October in all districts and the number of cases and differing types of illness became quite formidable in Makongeni during December.

Upper respiratory tract and middle ear infections and conjunctivitis have continued everywhere throughout the year. Sometimes the wind and dust are to blame, and at others, the damp and cold, but, whatever else is involved, bombardment with infection and lack of immunity are always contributory factors.

In January, February and December there were many cases of gastro-enteritis in Muthuruwa, and lesser numbers in all districts.

Large numbers of malaria cases, many of whose blood films showed sexual forms, came back from the reserves, chiefly from Kisumu; and once-lovely babies returning to Nairobi as skeletons with malaria and scabies form one of the really spirit-breaking aspects of the work in Makongeni and Muthuruwa.

Children examined returning from Kisumu — **749.**

Result of examinations on return from Reserves :—

Enlarged spleens	352
Positive malaria	536
Scabies	409
Ringworm	230

An infant of seven days died from tetanus (umbilical infection) in Muthuruwa.

Vaccinations.—1,706. There was a marked improvement in the results when lymph became available straight from ice-storage.

T.A.B. Inoculations — 1,980. The reduction here resulted partly from a period when no inoculations were done whilst a ruling was awaited as to what responsibility could be taken by a Health Visitor in inoculating without a Medical Officer being present. A new method of approach and new type of registers have been circulated, but additional staff is needed to keep them up to date.

Housing continues to be very bad and inadequate, and a certain amount of conflict arises between the officers in charge of housing and the clinic staff, because the care and attention afforded at the clinics to temporary residents, who have often no other business in Nairobi, leads to the existing housing being further overcrowded.

The Supervisor of Health Visitors, who knows all of the housing estates and clinics, wrote in her report for 1948 :—

"The greatest problem throughout the year has been shortage of trained African Staff, and until this can be provided, no further progress can be made, either in raising the standard of efficiency in the Centres, or by additional tuition to the women of the locations. As long as the staff numbers remain stationary and the numbers demanding antenatal and infant care in the clinics increase, so must the home visits decrease and with them the true duties of the Health Visitor, which are to give advice and practical assistance as to diet, clothing, general hygiene, etc., points which can only be made in the home, where storage of food, preparations for the mid-day meal, sleeping accommodation, etc., can be observed. This information is also essential if the Infant Weighing Sessions are to be of any practical value."

Can these ideals be achieved under conditions such as the following ?

Extract from Health Visitor's report at Pumwani :—

"Pumwani Village is in a very sad state of delapidation. Many houses are not fit for human habitation. One often wonders why there has been no serious epidemic, observing the unemptied, over-flowing dustbins, flies and rats galore, and dirty drains, which are seldom flushed, and owing to the perennial shortage of water.

Extract from Health Visitor's report at Kariakor :—

"The Ziwani area, with its clean two-roomed houses and well laid out grounds, is very good indeed and needs no comment. The Kariakor district is very different and consists of over 600 single rooms, built in rows, each the size of an average horsebox, but not so well ventilated. Into these crowd one or two families with their children and as many friends as they are willing to accommodate. They are inevitably filthy. Worst of all, not one dustbin in the location has a lid, and as the number of bins is entirely inadequate, they are invariably overflowing and surrounded by a thick cloud of flies. Much has been done to improve the health of the residents, but it is a most urgent necessity to solve the refuse problem."

The Health Visitor at Muthuruwa feels that disinfestation of quarters and fumigation of bedding are inadequate to cope with bug infestation unless the furniture is also treated.

The inadequacy of the water supply is a grave problem in the Kaloleni housing estate.

District Midwives :

On January 1st there were three midwives licenced to practice in the locations :

Kariakor ..... Mrs. Ruth Elikana
Makongeni ..... Mrs. Sarah Charles
Muthuruwa ..... Mrs. Doris Robert

Mrs. Sarah Charles continued without a break throughout the year.

Mrs. Ruth Elikana was absent on maternity leave for a few weeks.

Mrs. Doris Robert was in the Reserve for January and February and then, due to pregnancy and lack of diligence, it was decided to dispense with her services.

There was no midwife appointed until September, when Mrs. Esther Nathon applied. After six weeks, during which time she was only called upon to deliver three cases, she resigned. For the present, no further effort will be made to replace her.

In Kaloleni, Mrs. Peris James practised from February 1st till September and then, due to pregnancy and unsatisfactory work, she was asked to resign. Mrs. Helena Alexander was licensed to practise in her place from October 17th. Deliveries in Kaloleni for the year were only 23, but this can be accounted for by the fact that a high percentage of the houses in Kaloleni are let out as single male quarters (two men to a room) and when there are also women in these rooms, it is unsuitable for the midwife to attend.

Deliveries — Total **164.**

Details of cases :—

	Kariakor	Makongeni	Muthuruwa	Kaloleni
Normal delivery — living child ...	48	79	2	23
Normal delivery — dead child ...	Nil	4	1	Nil
Abnormal delivery — living child ...	Nil	3	Nil	Nil
Abnormal delivery — dead child ...	Nil	4	Nil	Nil
Perineal sutures ...	5	6	Nil	Nil
Post-natal examinations	22	40	Nil	9

Still births were due to :

At Makongeni	Macerated foetus	2	
	V.D.	2	
	Primary uterine inertia	1	
	Cord round neck	1	
	Asphyxia livida	1	
	Breech	1	(Midwife called too late)
At Muthuruwa	Macerated foetus	1	

The new Clinic at Kaloleni was opened on May 20th, and the building and beautiful grounds are greatly appreciated. The equipment is not yet complete, but there is sufficient to carry on work and the numbers attending are increasing, especially from the outlying districts, e.g. Marura, Quarry and Police lines.

The new venture in teaching this year has been by cinema films. Shows are now given on Wednesday afternoons, alternating between Kaloleni Clinic, for Makongeni, Kaloleni and Muthuruwa, and Kariakor Clinic, for Pumwani and Kariakor. Mr. Beechey, of the Public Health Department, who very kindly operates, has had difficulty in obtaining appropriate films, but we hope the supply will improve. It is difficult to get sufficiently simple ones for mothers unaccustomed to looking at pictures and whose thought reactions are slow.

It was interesting to note how many of the husbands of patients attending the gynaecological clinic because of infertility were willing to be examined, but, for many, their sense of responsibility seems to end at fertilization of their wives, so that they will not make available for the wives care at the time of delivery, chiefly to avoid expenditure of a few shillings.

It is felt that the husbands are the chief obstruction to the development of a domiciliary midwifery service. The African Affairs Officers are doing their best to teach the men about health and hygiene, and at Makongeni, the African Welfare Workers are holding a class for fathers and have invited the Clinic staff to suggest propaganda subjects suitable for ten-minute talks.

Unhappily, the Africans, both adults and children, are content to accept a low standard of health, and indeed to regard it as inevitable, but, none-the-less, the Municipal clinic services are of inestimable value in providing the African population with a gateway to a happier because more positively healthy life, once they take the initial step of attendance at a clinic. That these facilities are being appreciated in increasing degree by the African community; is evidenced by following the schedule of attendances :

African M. and C.W. Clinics

	1948					TOTALS				
Antenatal	Pumwani	Kariakor	Kaloleni	Makongeni	Muthuruwa	1944	1945	1946	1947	1948
New Cases	163	364	107	342	202	470	536	771	-,184	1,178
Births at Home	49	88	51	196	91	282	337	282	422	475
Births in Hospital	55	119	56	32	66	—	—	—	276	326
Left Nairobi before delivery	24	129	13	67	40	—	—	—	319	273
Total Attendances	958	1,067	870	1,289	748	3,312	2,567	3,664	4,637	4,932
Infant Welfare										
0 - 1 year. New cases	251	535	831	414	231	748	1,226	1,352	1,492	2,262
0 - 1 yr. Transferred to pre-school register	61	59	44	76	106	—	—	—	247	346
1 - 5 years. New cases	210	407	194	384	192	934	1,353	1,018	1,337	1,387
0 - 5 years. Total Attendances	9,423	7,468	3,031	7,124	5,149	40,820	39,518	33,949	33,823	32,195
Home Visits										
By Health Visitors	1,694	1,888	811	1,446	873	9,212	6,612	10,384	9,292	6,712
By African Staff	2,531	4,672	1,250	4,695	2,982	10,218	10,140	11,054	15,158	16,130
Total home visits :—						19,430	16,752	21,438	24,450	22,842
Dispensary										
Women	1,365	2,190	1,086	1,879	709	—	—	—	4,846	7,229
Children	3,703	6,748	4,886	8,440	10,084	—	—	—	27,927	33,861
Total Attendances	5,068	8,938	5,972	10,319	10,793	23,336	7,002	12,850	32,773	41,090

VENEREAL DISEASES

During the year, consultations, at 24,397, show an increase of 18%, with an average of 96 patients at each of the 254 morning clinics held. These clinics have become very crowded, a maximum of 188 patients being recorded on one morning. The main waiting room, with seating capacity for 25 people, is quite incapable of accommodating even the average attendance.

The number of local treatments given, has risen also, a proportion of these treatments being given to patients referred from the gynaecological clinic. As already mentioned, some treatments are given in the mornings when patients attend for examinations; other treatments are given in the afternoons.

Of the consultations, 73% were made by patients suffering from venereal diseases, whose visits to the Clinic increases by 28%. The greater part of this increase was due to the visits of patients with syphilis.

The number of cases of venereal disease attending the Clinic in 1948 was 2,045. This figure represents an increase of 282 cases over the 1947 figure, an increase of 16%. "Other cases" increased by 3%, the lower increase being satisfactory as indicating that more of our time at the V.D. Clinic was spent on people suffering from venereal diseases. An average of 19 cases of all sorts, were admitted at the Clinic every morning.

On considering syphilis, there is a striking increase in the number of Primary cases. There were 25 of these in 1947; and 246 of them in 1948. Secondary Syphilis also increased; 217 cases in 1947, and 349 in 1948. There were evidently more cases of infectious syphilis, in and near Nairobi, in 1948, than in 1947. Altogether, more cases of syphilis were seen at the Clinic in 1948, the increase being 25% on the 1947 figures; whereas the increase in all cases of venereal disease was 22%.

The general impression from the 1948 figures, is of increased attendance, more of the patients being V.D. cases.

The ratio of Syphilis to Gonorrhoea rose by half in 1947, and remains at about the same point this year. Taking new cases of Gonorrhoea as 100, the comparative figures for Syphilis are :—

1946	1947	1948
140	220	230

It is interesting to notice that the corresponding figure for non-Europeans in Capetown is 322, whilst for Europeans in Capetown and for the Ten County Boroughs, the figures are 70 and 60 respectively.

The increase in the number of cases of syphilis attending the Clinic, led to an increase in the number of injections given. The total number of injections given to syphilitic patients was 15,262; an increase of 31% on the 1947 figure. The average number of injections given each day was 60; the peak number being 141 injections on one day. An average of 24 specimens of blood for Kahn examination were taken daily; the

maximum on one day being 60. The average number of injections received by each syphilitic patient was 10.5. Although still a low figure, it is higher than the 1947 figure of 9.6. The full course would involve between 24 and 54 injections according to the severity of the case.

The penicillin injections given (650) were 57% fewer than the number given in 1947 (1505). This was due to our using the single dose of penicillin in oil-wax, since March 1948, instead of the aqueous solution used before, of which 5 doses comprised the treatment. Penicillin was used for cases of gonorrhoea only, on account of the cost; with the exception of 6 cases of congenital syphilis, who each received 10 doses of penicillin, three of them having nearly completed the whole course of penicillin, arsenic and bismuth combined.

A special analysis was made of the pregnant women attending the Clinic. Thirty-six per cent of them were found to be suffering from venereal disease. Of this number almost 60% were infected with syphilis. The actual number of cases of syphilis among the pregnant women was 334. The following table gives the type of syphilis, the number of injections received, and the average number of injections per patient, in each group.

Primary	32	238	7.5
Secondary	65	584	9
Latent	236	1,950	8
Tertiary	1	22	22
Total	334	2,794	8

The average of 8 injections per syphilitic pregnant woman does not compare favourably with the average of 10 injections for all syphilitic cases. This is due in part, in my opinion, to the fact that many of these women live far from the clinic, and as pregnancy advances, they are unable to undertake the journey. On this account, I have asked the Medical Officer in charge of the African Maternity Hospital, from whom we get a large number of our pregnant cases, to try to limit the patients referred, to women who live near enough to the V.D. Clinic to be able to attend weekly, if required to do so for treatment. The treatment of these women is of great importance, both on their own accounts, and in order to prevent the birth of syphilitic infants into the community. The treatment of these infants once they are born, is very difficult, because the mothers dislike hearing them cry when they get an injection, and they soon default, disappearing into the Reserves and we never see them again. The average number of injections received by syphilitic infants during 1948, works out at 7 per infant. This cannot be regarded as satisfactory. These cases do not include the infants receiving the combined penicillin, arsenic, and bismuth treatment. Considerations of cost prevent me from adopting this treatment for all congenital syphilitics.

While the attendance at the Clinic is increasing every year, and more cases of venereal disease are coming up for examination, it cannot be regarded as satisfactory that an average of only 10.5 injections is received

by each case of syphilis. The length of the treatment with arsenic and bismuth, a matter of from 6 months to a year, prevents most women from receiving an adequate course of treatment, because they do not remain in Nairobi for long enough at a time. If the combined treatment with Penicillin, Arsenic and Bismuth, could be employed, occupying 4 months in all, many more women would complete the course. The cost of the Penicillin preparation prevents it being adopted in this Clinic.

Attendance

Number of consultations	24,397
Number of local treatments	10,523

These numbers have not been added together this year, to give a grand total, because an alteration has occurred in the method of doing the treatments. Some are now done in the mornings when the women attend for an examination, others in the afternoons when the women receive local treatments only. It is not possible to separate the numbers, as the same woman may attend sometimes in the morning and sometimes in the afternoon.

Consultations

		increase or decrease % on 1947
By patients with Syphilis	14,895	+34%
By patients with Gonorrhoea	2,735	+ 5%
By patients with Yaws	115	
Total by patients with V.D.	17,745	+28%
By other patients	6,652	
Total consultations	24,397	+18%

Analysis of Cases

	Cases	Cases	Total	New Cases : increase or decrease % 1947
Primary Syphilis	14	232	246	+867%
Secondary Syphilis	38	311	349	+ 67%
Latent Syphilis	150	487	637	— 25%
Tertiary Syphilis	2	20	22	+ 82%
Congenital Syphilis	21	174	195	+ 64%
Total Syphilis	225	1,224	1,449	+ 25%
Gonorrhoea	30	541	571	+ 18%
Yaws	1	24	25	— 14%
Total V.D.	256	1,789	2,045	+ 22%
Other Cases	124	2,653	2,777	+ 4%
Total Cases	380	4,442	4,822	+ 10%

Injections Given

Intravenous injections	6,259	+ 3%
Intramuscular injections		
Bismuth and Acetylarsan	9,003	+ 63%
Penicillin	650	− 22%
Total	15,912	+ 22%

Specimens Taken for Laboratory Tests

Specimens for Kahn test.	Positive.	Doubtful.	Negative.
6,024	1,319	491	4,214

Smears for Gonococcal Examination :—

Number of smears taken from	Urethra	4,523:	Number positive	32
„ „ „ „ „	Cervix	4,465:	„ „	129
„ „ „ „ „	Vagina	39:	„ „	3
„ „ „ „ „	Bartholin	6:	„ „	—
„ „ „ „ „	Eye	87:	„ „	11
				—
Total number of smears taken		9,120	Total positive	175

Home Visits to V.D. Patients.

The number of home visits paid to these patients was 2,714, an increase of 44% on last year. The patient was contacted on 1,414 occasions, and 495 of these contacts, that is 35%, resulted in a return to the Clinic for further treatment.

Women Prisoners From the Jail

Number referred for examination ...	34	
Number negative	16	
Number found to be infected	18	(=53%)
Suffering from syphilis	15	
Suffering from gonorrhoea	3	

Examination of Ayahs Referred by Their Employers

Number referred for examination	45	
Number negative	25	
Number found to be infected	20	(=44%)
Suffering from syphilis	17	
Suffering from gonorrhoea	3	

Examination of Pregnant Women

Number examined	1,615	
Number negative	1,053	
Number infected	562	(=36%)
Suffering from syphilis	334	
Suffering from gonorrhoea	228	

STAFF

MEDICAL OFFICER OF HEALTH

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

Deputy Medical Officer of Health.

L. S. Anderson, B.Sc. (Edin.) M.B., Ch.B. (Manc), D.P.H. (Edin.)

Medical Officer in Charge, African Child Welfare.

Jessie A. T. Henry, M.B., Ch.B. (Edin.), D.T.M. & H., O.B.E.

Medical Officer-in-Charge, Asian Child Welfare.

Margaret E. B. Bax, M.B., Ch.B., L.R.C.P. and M.R.C.S. (until April).

Phillipa Gaffikin, M.B., Ch.B. (May onwards).

Medical Officer-in-Charge, Venereal Diseases Clinic.

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

Senior Sanitary Inspector.

Mr. R. C. 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. and Meat.
Mr. A. A. Watts, Cert : R.S.I. and Meat (until December).
Mr. R. D. Belsare, Cert : R.S.I. (India).
Mr. I. L. Wareham (Trainee) (until September).
Mr. Mohammed Din.
Three African Sanitary Inspectors.

We have to record with regret that Mr. A. A. Watts, Sanitary Inspector, died in December. He had been in the service of the Council for 20 years, during most of which time he was Inspector of Meat and Foods, and was on the point of retiring. By his death the Council lost an extremely conscientious and loyal officer and the staff a colleague of a most pleasant and unassuming nature.

Inspector of Foods.

Mr. H. T. Beechey, Cert.R.S.I. and Meat, also Dip.: R.I.P.H.H. (Hons.)

Clerical Staff.

Miss J. M. Atkins — Stenographer.
Mrs. D. Butcher — Clerk.

Infectious Diseases Control Department.

Municipal Entomological Officer.

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

Mosquito Inspectors.

Mr. H. G. Bilcliffe.
Mr. A. Gocs.
Mr. Abdul Karmali.
Mr. F. S. Cowburn (until February).
Mr. M. I. Shah (April onwards).

Rodent Officer.

Mr. J. Morrill.

Typist and Dispenser.

Mrs. E. M. Sullivan, S.R.N. (until March).
Mrs. A. Chalmers, S.R.N. (March onwards).

African Vermin Overseer.

Mr. James Karebe.

Laboratory Assistant.

African Assistant, William Ongare.

Sister i/c Inoculation Centre and Dispenser.

Mrs. E. M. Sullivan, S.R.N. (March onwards).

African Maternity and Child Welfare Clinics.

Supervisor of Health Visitors :—

Mrs. E. T. Dugmore, S.R.N. C.M.B.

Health Visitors :—

Mrs. A. Gibb, C.M.B.
Mrs. J. C. Brooks, S.R.N., C.M.B.
Mrs. C. M. Davis, S.R.N., C.M.B., H.V. Cert.
Mrs. J. Rowe, S.R.N., C.M.B.
Miss J. Lorimer, S.R.N., C.M.B., H.V. Cert.
Mrs. A. Bull, S.R.N., C.M.B.
and fifteen African Clinic Assistants.

Asian Maternity and Child Welfare Clinics.

Health Visitors :

Miss Priscilla Benjamin.
Mrs. S. D. Bhaskare.
Mrs. S. Chadda (until July).
Miss de Mello (August onwards).

Clinic Assistants :

Miss Jena Sidi Mohamed.
Miss Kaushalia Sood.
Miss Kurshid Ramzan.
Miss Olive Fernandes.

Lady Grigg Maternity Hospital.

Medical Officer-in-Charge : Aileen Williams, M.R.C.S., L.R.C.P.
Matron : Miss K. M. Foord, S.R.N., C.M.B.

Nursing Sisters :

Miss M. Francis, S.R.N., C.M.B.
Miss E. M. Weigert, S.R.N., C.M.B.
Miss A. M. L. Beveridge, S.R.N., C.M.B.
Miss F. G. Pippett, S.R.N., C.M.B.

Venereal Diseases Clinic

Mrs. M. Humphreys, S.R.N.
Mrs. P. Graham, S.R.N.
Mrs. E. Jarvis, S.R.N. (until March).
Mrs. Pickwell, S.R.N. (March onwards).

Cleansing Department.

Cleansing Superintendent : Mr. R. A. McDonell, M. Inst. P.C.
Deputy Cleansing Superintendent : Mr. T. E. Davies.
General Clerk : Miss D. M. Irving.
Overseers : Mr. T. Peinaar.
Mr. G. Savy.
Mr. G. Rozaner.
Mr. G. Beaufond (May onwards).
Mr. G. Victorine (October onwards).
Mr. G. E. Aspinall (December onwards).
Mr. L. H. Clough.
Mr. P. Gordon (January to May)
Mr. J. D. Luies (until August).

PUBLIC HEALTH DEPARTMENT.

EXPENDITURE

	£ s. cts.	£ s. cts.
Administration :		
Salaries	9,311 14 04	
Cost of Living Allowances	1,596 14 65	
Provident Fund	681 1 09	
African Sanitary Inspectors' Salaries	498 12 36	
Wages, etc. — Native Staff	472 13 85	
Uniforms	44 6 04	
Medical Attention	153 12 00	
Rent of Offices	1,200 0 00	
Locomotion and Transport	459 1 15	
Printing, Stationery, Advertising and Telephones	584 6 96	
Postages	145 17 00	
Food and Drug Analysis Fees	46 12 65	
Laboratory — Maintenance and Equipment ...	5 11 17	
Public Health Propaganda	254 15 77	
Staff Appointments — Passages	31 12 27	
Miscellaneous	81 14 15	
Administration Expenses (Propn.)	500 0 00	
Stores and Workshops Expenses	170 0 00	
	16,238 5 15	
Less : Charged to Cleansing Department	400 0 00	15,838 5 15
Infectious Diseases Prevention :		
Salaries	3,139 17 78	
Cost of Living Allowances	764 3 78	
Provident Fund	239 4 49	
Medical Attention	7 0 00	
Wages, etc. — Native Staff	5,341 1 44	
Rent of Stores	25 0 00	
Uniforms	226 11 52	
Oil and General Stores	920 8 81	
Transport	2,572 2 14	
Printing, Stationery and Advertising	95 8 74	
Maintenance of Buildings, etc.	103 11 46	
Vaccination and Inoculation Expenses	38 3 95	
Hospital Fees	2,206 8 00	
Notification Fees	32 0 00	
Miscellaneous	4 8 00	15,715 10 11
Venereal Diseases :		
Salaries	1,672 13 63	
Cost of Living Allowances	314 17 28	
Provident Fund	147 11 40	
Medical Attention	2 0 00	
Wages, etc. — Native Staff	361 4 00	
Uniforms	36 14 82	
Locomotion and Travelling	10 8 80	
Repairs to Buildings and Furniture	15 5 61	
Medical Stores and Equipment	1,728 13 53	
Water, Sanitation and Cleaning Materials ...	22 6 53	
Printing, Stationery and Advertising	35 9 74	
Miscellaneous	4 13 53	4,351 18 88

Maternity and Child Welfare:			
Parklands Child Welfare Centre:			
Salaries	178 6 66		
Cost of Living Allowances	15 0 00		
Wages	24 8 14		
Uniforms	3 2 79		
Provisions	83 12 45		
Maintenance of Buildings	4 16 31		
Maintenance of Equipment	126 13 51		
Electricity and Fuel	44 16 77		
Water and Conservancy	5 0 07		
Printing, Stationery, Advertising and Telephones	13 2 05		
General Stores	25 11 12		
Miscellaneous	3 19 31		
Loan Charges — Interest	55 0 00	583	9 18
Asian and African Clinics:			
Salaries	5,834 17 34		
Cost of Living Allowances	1,166 2 27		
Provident Fund	367 14 90		
Medical Attention	28 15 50		
Locomotion Allowances	873 2 24		
Wages, etc. — Native Ayahs and Drivers ...	985 0 83		
Uniforms	127 16 93		
Maintenance of Clinics	75 18 77		
Furniture Repair and Renewals	135 0 51		
Medical Stores and Infant Food	2,010 3 07		
Surgical and Medical Equipment	33 8 36		
Rent and Rates of Clinics	203 17 00		
Cleaning Materials	73 3 61		
Electricity	122 18 94		
Fire Insurance	1 12 36		
Water and Conservancy	27 3 44		
Printing, Stationery, Advertising and Telephones	120 9 25		
Staff Appointments — Passages	246 0 00		
Kariakor Clinic — Lavatories	287 4 12	12,720	9 44
African Maternity Hospital:			
Salaries	3,347 16 17		
Cost of Living Allowances	748 12 08		
Provident Fund	200 3 07		
Medical Attention	6 5 00		
Medical Fees — Locums	174 9 00		
Locomotion and Transport	406 13 52		
Staff Appointments — Passages	96 15 25		
Wages, etc. — Household Staff	552 19 90		
Wages, etc. — Nursing Staff	872 6 97		
Uniforms	218 14 40		
Medical Stores and Equipment	297 3 22		
Provisions	996 18 84		
Linen, Cutlery and Crockery	185 5 29		
Maintenance of Buildings	234 3 96		
Furniture Repairs and Renewals	39 13 94		
Cleaning Materials	101 10 48		
Printing, Stationery, Advertising and Telephones	134 4 87		
Electricity and Fuel	329 10 85		
Water and Sanitation	65 14 48		
Fire Insurance	10 1 11		
Renewals Reserve	500 0 00		
Loan Charges — Interest ... 46 19 86			
Redemption 175 0 00	221 19 86	9,741	2 26
		58,950	15 02

REVENUE

	£	s.	cts.	£	s.	cts.
Government Grant towards Health Services	29,000	0	00			
Sundry Receipts	272	4	00	29,272	4	00
Infectious Diseases Prevention:						
Vermin Destruction	52	5	00			
Laboratory Fees	3	0	00	55	5	00
Maternity and Child Welfare:						
Parklands Child Welfare Centre:						
Fees				545	17	80
Asian and African Clinics:						
Sundry Revenue					15	00
African Maternity Hospital:						
Fees	971	17	15			
Native Trust Fund — Grant	400	0	00			
Local Native Councils — Grants	55	0	00	1,426	17	15
				31,300	18	95
Total Expenditure				58,950	15	02
Total Revenue				31,300	18	95
Balance Charged to Rates				27,649	16	07

CLEANSING DEPARTMENT.

EXPENDITURE

	£ s. cts.	£ s. cts.
Night Soil Removal :		
Wages, etc. — Labour		3,352 12 83
Uniforms		368 14 53
Mechanical Vehicles — Running Expenses		5,624 8 67
Lamps and Oil		99 7 30
General Stores		99 11 89
Buckets		40 5 96
Water and Conservancy		152 15 88
Maintenance of Buildings	100 14 22	
Maintenance Fund Contributions		50 0 00
Ox Transport — Oxen Upkeep	120 8 50	
Repairs to Carts	24 6 01	144 14 51
Septic Tanks and Waste Water Pits, etc.		2,919 0 00
Capital Expenditure out of Revenue :		
Scammell Conservancy Vehicles — Contribution		4,235 3 61
Cleansing Station :		
Wages, etc. — Labour	724 0 27	
Electricity and Fuel	147 8 26	
Upkeep of Buildings and Pumps	50 0 42	
Water and Conservancy	4 3 76	
Renewals Reserve	175 0 00	1,100 12 71
Salaries, Allowances and other charges —		
Cleansing Superintendent and Staff		2,524 6 48
Stores and Workships Expenses — Propn.		90 0 00
Administration Expenses — Propn.		2,650 0 00
Loan Charges : Interest	60 19 80	
Redemption	78 15 46	139 15 26
Refuse Removal :		23,691 3 85
Collection :		
Wages, etc. — Labour	2,869 11 36	
Uniforms	396 15 81	
Mechanical Vehicles — Running Costs ...	8,978 10 62	
General Stores	26 12 69	
Dust Bins	1,403 17 65	
Miscellaneous	8 16 79	
Capital Expenditure out of revenue		
Scammell Refuse Vehicles—Contributions	4,029 13 00	17,713 17 92
Incineration :		
Salaries	90 0 00	
Costs of Living Allowance	41 13 34	
Wages — Artizans and Labourers ...	674 4 02	
Uniforms	6 17 23	
Maintenance and Repairs	242 14 04	
Electricity	64 7 20	
Water and Sanitation	71 10 84	
General Stores	17 2 72	
Fire and Boilers Insurance	16 19 37	
Rates	135 0 00	
Renewals Reserve	1,000 0 00	
Loan Charges : Interest 90 10 05		
Redemption 274 5 00	364 15 05	2,725 3 81

Tipping : Wages, etc. — Labour			659 11 53
Salaries and Allowances :			
Superintendent and Staff			1,989 17 93
Stores and Workshops Expenses — Propn.			75 0 00
Administration Expenses — Propn.			950 0 00
			24,113 11 19
Scavenging :			
Wages, — etc. — Labour			6,408 6 93
Uniforms			346 6 02
Mechanical Vehicles — Running Costs			669 11 88
Brushes, Equipment and General Stores			440 2 20
Ox Transport—Oxen Upkeep	206 8 86		
Repairs to Carts	73 9 15		179 18 01
Street Orderlies—Maintenance	135 11 93		
Renewals Reserve	50 0 00		185 11 93
Capital Expenditure out of revenue :			
Scammell Scavenging Vehicles — Contribution			1,250 0 00
Rates			33 15 00
Miscellaneous			53 5 68
Salaries, Allowances and other charges :			
Superintendent and Staff			1,316 0 85
Stores and Workshops Expenses — Propn.			120 0 00
Administration Expenses — Propn.			225 0 00
			11,327 18 50
Public Conveniences :			
General			
Wages, etc. — Labour	536 7 72		
Uniforms	103 0 81		
Stores and Disinfectants	85 19 06		
Maintenance of Buildings	10 17 90		
Water and Sanitation Charges	1,066 13 59		
Reserve for Renewals	250 0 00		
Loan Charges : Interest	120 3 91		
Redemption	121 11 60	241 15 51	2,294 14 59
Locations :			
Wages, etc. Labour	1,933 0 55		
Uniforms	27 10 49		
Stores and Disinfectants	217 16 84		
Maintenance of Buildings	50 7 09		2,228 14 97
Sweeper Services :			
Wages, etc. — Labour	1,163 5 92		
Uniforms	64 4 35		
Stores and Disinfectants	46 17 35		1,274 7 62
Salaries, Allowances and other charges :			
Superintendent and Staff — Propn.			658 0 43
Stores and Workshops Expenses — Propn.			90 0 00
Administration Expenses — Propn.			450 0 00
			6,995 17 61
			66,129 11 15

REVENUE

	£ s. cts.	£ s. cts.
Night Soil Removal :		
Fees and Charges :		
Night Soil Removal	19,150 16 07	
Emptying Septic Tanks, etc.	3,379 6 50	22,530 2 57
Refuse Removal :		
Sundry Charges	383 13 50	
Dust-bins	432 12 40	
Steam	422 0 00	1,238 5 90
Scavenging :		
Sundry Charges		40 17 50
Public Conveniences :		
Receipts from Sweeper Services		3,944 9 70
		27,753 15 67
Total Expenditure		66,129 11 15
Total Revenue		27,753 15 67
Balance Charged to Rates		38,375 15 48