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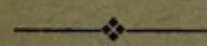


TWENTIETH

ANNUAL REPORT

of the

Medical Officer of Health



1949



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MUNICIPALITY OF NAIROBI
Kenya Colony.

With the Compliments
of
The Medical Officer of Health.

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



MUNICIPALITY OF NAIROBI
Nairobi, Kenya

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Public Health Department
Town Hall
Nairobi
Kenya

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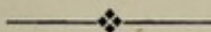


TWENTIETH

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Medical Officer of Health



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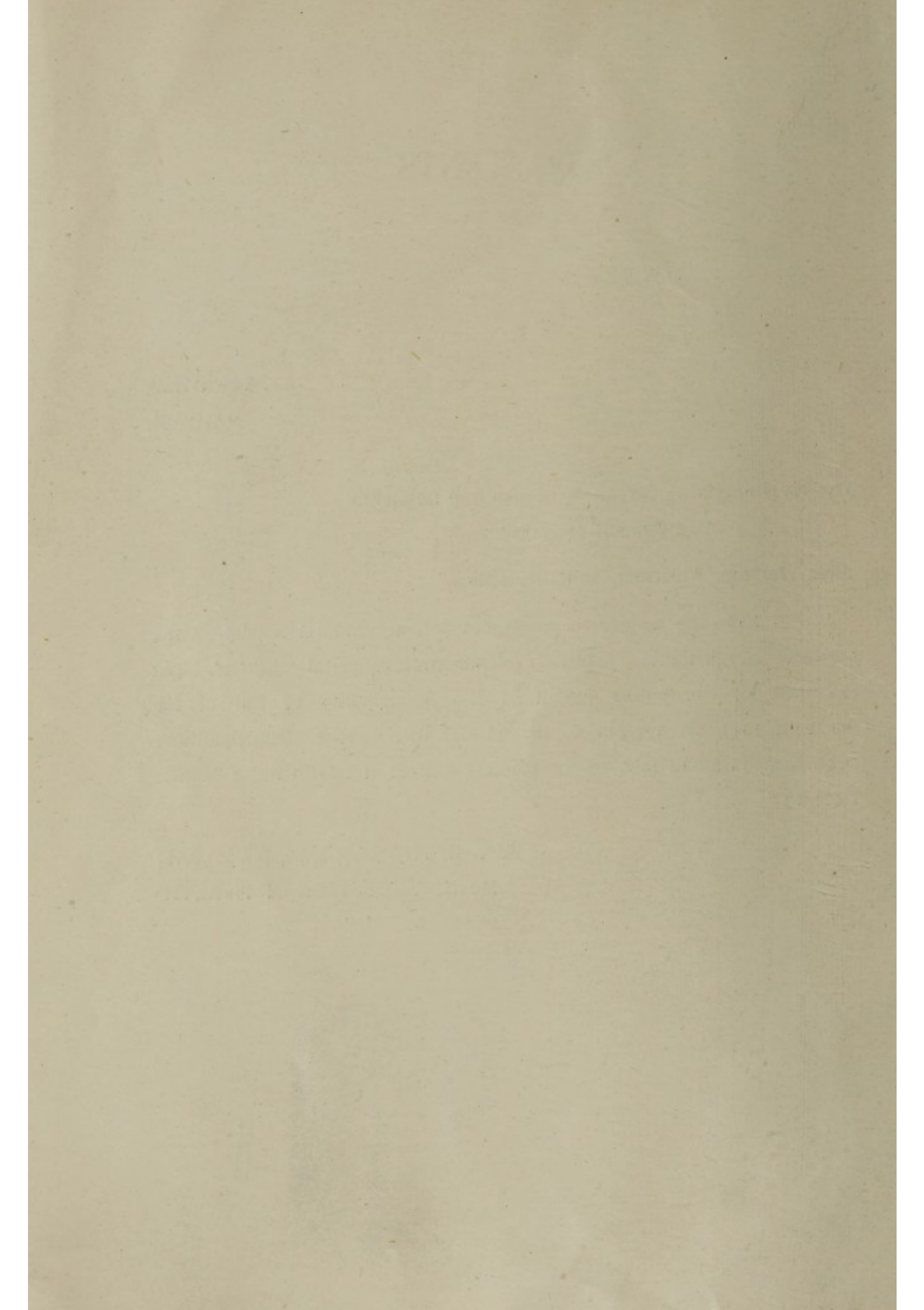
**Town Hall,
NAIROBI,
May 1st, 1950.**

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

Your Worship, Aldermen and Councillors,

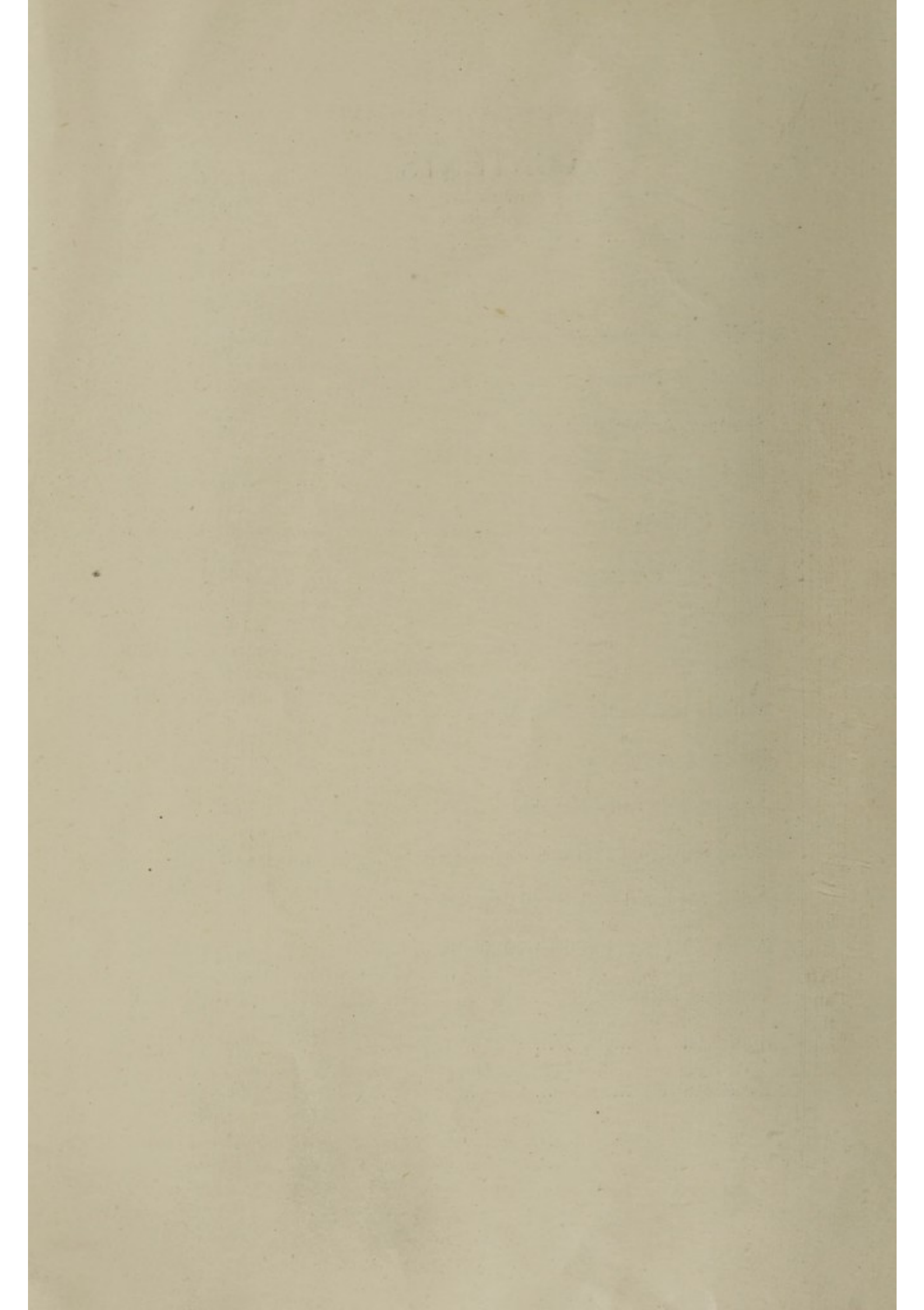
I have the honour to present to you my Annual Report on the sanitary circumstances, sanitary administration, vital statistics and the state of the public health of the Municipality of Nairobi for the Year 1949, as required by the "Local Government (Municipalities) Ordinance, 1928 and 1948," "The Medical Officers of Health Rules Section 2 (12.d.) "

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



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INTRODUCTION

At the time of writing this report on the health of Nairobi for the year 1949, the town is celebrating its accession to the status of a City. It therefore seems appropriate to include a few items of interest indicating the progress which has been achieved by the Public Health Department during the past four or five years.

Many of the facts quoted simply speak for themselves, but many of them also are as important as indications of the future trends as of past progress. In the body of the report, therefore, particular consideration has been given to the future development of each Department, with a view to planning ahead. One or two points deserve special mention.

In 1949, as in previous years, the task of obtaining the demolition of many of the unsound, overcrowded and obnoxious buildings in the town was pursued. Unfortunately the usual difficulties again hampered progress. The legal mechanism for protecting the health and welfare of the public against the evil influence of bad housing is still slow, cumbersome and uncertain. Even owners of property who are abundantly willing to demolish are hampered in so doing by the endless evasions and devices adopted by the overcrowded tenants. The excuse is always the same "shortage of accommodation"; but this vicious circle must be broken. How it is to be done is a matter for speculation. Africans and Asians continue to crowd unceasingly into town. The natural increase of the population is considerable, and the amount of new accommodation provided far behind in proportion. Possibly the public conscience may ultimately be rudely awakened by a vicious epidemic, though it must be noted that during the past five years there has been very little epidemic disease.

Possibly one way to tackle the problem is to introduce a Housing Act and endeavour to secure slum clearance along the lines adopted by local authorities in England. This has been suggested. A slight innovation in this report is the introduction of two brief memoranda, one on the subject of T.B. amongst the Africans and the other in connection with African housing. There is a close relation between these two problems, and it is hoped that a move can be made towards their solution before they attain the magnitude which might be anticipated from their development during the past few years. On the whole, it can be stated that so far as the general work of the Department was concerned, the year 1949 saw steady and satisfactory progress.

The Public Health Department is a spending department — in 1948 (including the Cleansing Department) it cost £125,000. It is also to some extent a revenue-earning Department — in 1948 to the extent of £58,000 (excluding fines received).

In general its achievements cannot be measured in concrete terms like those of other departments and can only be shown by statistics. It is in fact a kind of insurance policy. Partly owing to this, and partly because of the necessarily limited general knowledge of its activities it is in the nature of a Cinderella.

This tendency is not confined to Nairobi. It exists elsewhere as well. The prevention of an epidemic by systematic routine work behind the scenes elicits much less popular approbation than its successful control and eradication when once established.

The following figures relating to the period 1945—49, inclusive, show as clearly as possible :—

1. The progress of the Public Health Department in all its branches.
2. The difficulties which have confronted it during that period.
3. That in efficiency, progress and economy, the Nairobi Department compares favourably with that of comparable Municipal bodies. This can be shown (i) by comparison with five other African towns.
 - (a) Nairobi has 0.67 Sanitary Inspectors per 10,000 population as against an average of 1.1 per 10,000 population, in the other African towns.
 - (b) Nairobi has 91% non-European population as against an average of 58% non-European population, in the other African towns.
 - (c) In spite of this the Death Rate, Infant Mortality Rate and T.B. Death Rate are considerably lower than the average.
- (ii) by comparison with the Ten County Boroughs :—
 - (a) Nairobi, with a 91% "hygiene unconscious" population, has 0.67 Sanitary Inspectors per 10,000 population compared with an average of 0.9 in England.
 - (b) All the English towns quoted have been built up for a very long time, and are provided with all modern amenities and few undeveloped areas where nuisances are likely to occur.
 - (c) Nairobi has one Sanitary Inspector to each 2,500 acres as against one to each 800 acres in English towns.

In spite of this, the health of Nairobi for all races, as evidenced by figures universally accepted for this purpose, is better than the average of five of the largest South African towns and 10 English County Boroughs.

The figures are :—

Authority	Area (acres)	Average Popu- lation	Non- Euro- peans % of whole	No. of San. Insp.	No. of S.I.'s per 10,000	General Death Rate	Infant Mort. Rate	T.B. Death Rate
Nairobi.	20,000	118,000	91%	8	0.67	11.3	113	0.85
Average of 5 African towns	—	215,000	58%	24	1.1	14.8	130	1.38
Average of the 10 County Boroughs	8,000	109,000	—	10	0.9	—	—	—

* 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.

Comparisons regarding cost :—

From time to time, when we wish to make certain comparisons between public health administration problems in Nairobi with those in other places, we choose average figures from Ten County Boroughs in England, the population of which lies between 100,000 and 120,000 and which are therefore approximately the same size as Nairobi. Their average population is in fact 109,000.

Unfortunately it is extremely difficult to work out an exact financial comparison between the cost to the rate-payer of various Municipal services including Public Health as between the resident in Nairobi, and one in an English Town. The reason for this is that the whole system of rating is different, and the picture here is complicated by the existence of 3 main races all of whom make different contributions to the general funds. It might be suggested that comparison could be made by taking the actual disbursements paid by the average rate payer and balancing them against the cost of the services provided. This indeed gives a certain comparison, but the figures quoted must necessarily be regarded as an approximation only, although they do, in fact, give a clear indication of the proportionate expenditure.

On the public health services, excluding hospitals, but including cleansing, the following figures are comparable. The average gross expenditure on public health for the Ten County Boroughs, in 1947, the last year for which full figures are to hand, and the middle year of the period was £122,000, whereas for Nairobi it was £97,000.

The salient point is that the amount allotted to public health (and in these calculations the cleansing services are included) in Nairobi is about £25,000 less than in the English County Boroughs. This fact becomes the more important when it is remembered that conditions as between the boroughs and the town of Nairobi are vastly weighted against the

latter, so that the public health expenditure in Nairobi might be expected to be proportionately much greater. In the English boroughs the public health services have had many years to establish themselves, and to develop smooth running. They have to deal with a literate population which has been trained since childhood to a scale of decent living far in excess of average standards. In most cases the populations are fairly static, there is no great amount of building, and the public services have been long established. In contrast, the growth of Nairobi has always outstripped its public services. A large part of the population is irresponsible, illiterate, undisciplined and dirty. Older buildings are overcrowded, illplanned and large numbers of them are unsound. Finally, it must be stressed that whereas the legislation in England to control hygiene and sanitation has long stood the test of time and has the support of the Courts, such legislation in this Country is often still found sadly wanting and is often ineffective in Court action. All this should mean that public health administration in Nairobi should cost annually considerably more than comparable towns in England, in fact it costs £25,000 per annum less.

To sum up then :—

- (1) The Public Health Department Administration has not only maintained but increased efficiency during the period 1945—1949 in spite of serious staff difficulties and an overall shortage of staff compared with other towns.
- (2) There is no service in the ten County Boroughs comparable to our malarial control in Nairobi, which cost about £10,000 in 1947.
- (3) Nairobi's acreage being more than two and a half times that of the ten County Boroughs, — 21,000 acres as compared with 8,000 acres — results in :—
 - (a) greater distances to be covered on inspections.
 - (b) greater areas of unoccupied land, neglect of which leads to nuisances, and
 - (c) scattered population which always makes sanitary services more expensive per unit of population than in places where the population is compact.
- (4) In the ten County Boroughs the public health services have been well established for many years and have had ample time to develop smooth running.
- (5) In the County Boroughs the population is all literate, whereas in Nairobi a large percentage of the population cannot be approached through any form of literature.
- (6) In the ten County Boroughs practically all the individuals have been trained since early childhood in decent standards of living. Fully two thirds of Nairobi's population have had no training in decent hygienic living.

In spite of the above difficulties militating against the economy and efficiency of the Public Health services in Nairobi, the latter are run at a standard comparable with their British counterparts for a considerably smaller expenditure of money.

Administration

Improvements

- (a) Complete reorganisation of office.
- (b) Complete reorganisation of Medical Stores system in cooperation with the Municipal Treasurer.
- (c) Introduction of Staff Medical Treatment Scheme.
- (d) Production of Nursing Homes Bye-laws.
- (e) Production of Milk Bye-laws better than any at present existing in the world.
- (f) The maintenance and increase of Sanitary work as follows :—

(1) Removal of junk dumps.

In 1945 there were 451.

In 1946 there were 584.

In 1947 there were 203.

In 1948 there were 232.

(2) Notices served.

		Under P.H.O.	Under Other Laws.
1945	...	228	471
1946	...	328	393
1947	...	327	206
1948	...	357	335

- (g) The coping with a greatly increased demand for vaccinations and inoculation services, and dealing with the personal problems connected therewith, in 1948, 46,607 inoculations were given.
- (h) Public relations and co-operation with other Departments.
- (i) Propaganda, introduction of broadcasting, films for the three races, posters, newspapers, publicity pamphlets.
- (j) Clean food campaign and considerably increased control.
- (k) Introduction of European M. and C.W.
- (l) Parklands Child Welfare Centre (European).
- (m) Construction of Victoria Street Asian Maternal and Child Welfare Centre.

The outstanding handicap suffered by the Public Health Department is in regard to shortage of staff. Through the whole period under review it is only for a few months that the Medical Officer of Health has had available the full services of a Deputy, since until recently at

least half the latter's time has been absorbed by the considerable work in connection with inoculation and vaccination.

During this period there have been no less than ten changes of clerks in the Public Health Office.

One European Sanitary Inspector died, another resigned after a short appointment from England and the establishment for six African Sanitary Inspectors is now filled by a strength of three, shortly to be two. All this means discontinuity of action, and added to the inroads made by sick absence and leave means that the Department has been chronically understaffed.

To the public eye, one of the most significant evidence of progress in a town is the appearance of its streets, especially in the commercial and principle residential areas. The most important item in preserving a good appearance is the demolition of unsound buildings, the repair of those not suitable for demolition, and above all the control of the conduct of untidy and litter-producing trades in prominent thoroughfares. The responsibility for dealing with these matters is divided between the Building Inspector's Department and the Sanitary Inspectors. The former deal especially with unauthorised and unsound premises from the structural point of view, the latter with a prime view to their sanitary fitness. Unfortunately, this most important branch of public health work has been most gravely hampered, particularly by lack of trained staff to deal with it and particularly by the innumerable flaws in the legal procedure, which is the only means by which they can be dealt with. Bye-laws and ordinances have been found either to be inadequate in scope, or to possess legal flaws which are seized upon by clever advocates, or to be found unacceptable to the Magistrates' Courts for either of these reasons or because they were deemed "ultra vires." It is not that there are too few bye-laws; there are in fact too many. The trouble is that none of them are sufficiently certain in their action. Nairobi also presents special difficulties of its own apart from legal weaknesses. Until recently the overall shortage of accommodation, and the impossibility of eviction of tenants under the Rent Restrictions Acts, made it impossible for demolitions to be carried out. The divided ownership and absentee ownership of many Indian premises, has made the task of structural improvement one of the greatest difficulty. These drawbacks apply not only to occupied premises but to overcrowded and littered plots.

Junk Dealers

One of the unwholesome legacies of World War II was the release to the public of enormous quantities of military equipment. This was hoarded in the most squalid manner by merchants behind flimsy bamboo fences, and constitutes a most grievous eyesore and menace to health. Court action against the owners proved inoperative because of the lack of alternative accommodation in which these men could carry on their business, which is quite a legitimate one if properly conducted in the right place. Protracted negotiations have been carried on with the Department of Lands to secure such sites, and the debate continues.

Casual Junk

In addition to rubbish hoarded behind fences for trading, large quantities of it littered the road reserves and private plots. Until recently these could not be dealt with, partly because the Cleansing Department transport was strained to the utmost by its normal duties, and partly because doubt exists as to our legal rights in the matter. During the past year, 1000 tons of junk have been removed, and a marked improvement in appearance is noticeable.

Unauthorised structures

This problem suffers from the usual difficulties in its solution. One is the constant difficulty of locating and identifying the owner, the other is that there is a divided responsibility between the Building Inspectors and the Sanitary Inspectors. An unauthorised structure is regarded as the Building Inspector's responsibility if not completed, afterwards that of the Sanitary Inspectors. It is far easier to deal with these buildings before they are occupied.

Overgrown Plots

The difficulty here is the absentee owner, and in addition the fact that many road reserves which have not been taken over by Council have no known owner.

Sullage Disposal

The chief problem here is cost, owing partly to the nature of the soil in some built-up parts of the town, partly to the gross overcrowding of many dwellings, and of course, also to the absence of sewers. The great difficulty in dealing with those nuisances which arise when the water lies in stagnant pools is to find any individual responsible. The only ultimate solution of this problem is the completion of sewers.

Table 1
Meteorological Summary for Nairobi

		Dry		Humidity		Rainfall 1949		Average for Thirty-three years 1914, 1917 to 1948	
		Bulb °F	°F	%	%	Total	No. of	Rainfall	
1949		0830	1430	4830	1430	Ins.	Days	inches	Days
Jan.	63.7	77.7	77	42	0.14	2		1.53	4
Feb.	64.5	81.2	69	34	2.93	1		2.00	4
March	66.7	82.5	74	34	0.23	2		5.20	9
April	67.3	78.6	77	48	5.91	14		7.72	14
May	64.9	76.5	81	48	1.85	4		5.00	13
June	61.6	74.6	80	46	0.21	3		1.63	6
July	59.5	72.8	82	50	0.14	5		0.58	4
August	59.6	74.5	82	58	1.17	6		0.95	4
Sept.	60.8	76.5	72	41	0.31	5		0.96	4
Oct.	64.4	80.6	75	31	0.50	4		2.01	7
Nov.	65.9	79.2	76	39	2.23	7		3.97	14
Dec.	64.5	75.5	78	63	4.44	19		2.61	9
Year	63.5	77.5	77	44	20.06	72		34.16	92

VITAL STATISTICS

The population figures given this year are an estimate by the East African Statistical Office taking into account such movements of the populations of the three races as have been known during the year. It is hoped to check these figures by a sample census during the course of 1950.

About the vital returns themselves, the most striking figure in the tables is the European Infant Mortality rate and a word of caution is necessary in connection with this figure. Necessarily the calculations of European Infant Mortality are based on very small numbers, and the deaths of one or two infants under one year of age during the course of twelve months may shift the index by as much as 8 points

In order to obtain other figures on which to base calculations it is more satisfactory to take five-year periods, as has been done during the last two years, the five-year period ending the year previous to that of annual report, being utilized for comparison with the figures for the given year. If we compare the quinquennium ending 1948 with that ending 1949 we find that the relative Infant Mortality figures for the two quinquennia are 57 and 50 respectively, a decrease of 12%. This in itself is very creditable and it is to be hoped that the decrease will continue next year.

There has been an increase of one point in the European Birth rate and of nine points in the Asian Birth Rate over the rates for the quinquennium ended in 1948. It is of interest that in the last four years the Birth Rate for Nairobi has increased steadily, both in the European and Asian sections of the population. This falls into line with a current trend in Britain, but whereas the increase in Nairobi, even among the Europeans, is of an order sufficient to make an appreciable difference in the numbers of population if maintained over a period of 20 years or so, the increased Birth rate in Britain can scarcely effect the decline of population there which has already set in. These increases of birth rate are expected to occur after major wars and in the case of Nairobi figures there must in addition be an element due to confidence in the future prospects of the country, since the increased rate is probably too great to be accounted for alone by post-war factors.

The Death Rate for Europeans shows a slight decrease on last year's figure and an increase on the figure for the quinquennium ended 1948. As noted last year, however, these figures are comparatively small and are certainly very low when the high birth rate is taken into account.

In connection with birth and death rates it is interesting to take note of the figures which have just come to hand for Preston, one of the great County Boroughs of the industrial North of England, whose population is about the same as that of Nairobi. During the first five decades of this century the mean birth rates for Preston were 28, 21, 19, 15 and 19,

showing, apart from the latter years of the war and the first years of peace, a marked and steady decline; the mean death rates for the same decades were 18, 16, 14, 14 and 14. That is to say that whilst the birth rate has declined very markedly, the death rate has done so to a very small degree, so that during the last 20 years the mean birth rate has been scarcely any higher than the death rate. The birth rate for Nairobi at present is approximately the same as was that for Preston at the turn of the century. Every effort must be made to ensure that the Birth rate does not start to decline here.

A glance at the main causes of death among European is of interest since, although the figures involved are rather small, the causes themselves are limited to two or three main groups.

The death rate from cancer is a little lower than might be expected, and that from Myocarditis and Coronary Thrombosis is quite appreciably lower, as also is the rate for the Respiratory diseases.

At present the only figures to hand for comparative purposes are the returns from the Registrar General for Scotland, and a table is appended below showing the comparative death rates per 10,000 of the population from these three main causes :—

Cause	Scotland	Nairobi
Cancer	1.85	1.25
Myocarditis and Coronary Thrombosis	2.51	2.08
Respiratory Diseases	1.30	0.93

The deaths from violence will strike anyone reading through Table 16 as being surprisingly high in the European group. Half of these violent deaths have been from motor accidents. Road accidents, quoting from the Ministry of Health's Report for 1947, are 1.1 per 10,000 of the population of England and Wales; for all races in Nairobi the general average this year was 3.1. When split up racially, however, there would appear to be marked disparity between the races as the following figures show :—

Race	Death Rate from Road Accidents. (per 10,000 population)
Europeans	7.5
Asians	1.6
Africans	3.4

The proportions of the three races holding licences either in the Nairobi City area or in Kenya generally is not known.

Table 2
Summary of Vital Statistics
(crude figures only)

	Estimated Population	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	12,000	118	9.8	326	27.2	8	25.0
Asians	50,000	332	6.6	2656	53.1	154	57.0
Africans and Others	66,000	922	13.9	1703	25.8	286	167.9
	128,000	1372	10.7	4685	36.6	448	95.6

Table 3
 Population Figures for Nairobi as at Dec. 31st, 1949
(Estimated by the E.A. Statistical Department)

	Males	Females	Total
Europeans	6,000	6,000	12,000
Asians	29,800	20,200	50,000
Africans & others	53,000	13,000	66,000
	88,800	39,200	128,000

Table 4
Population Figures for the Preceding 5 Years

Race	1944	1945	1946	1947	1948*
Europeans	10,431	10,257	10,377	10,500	10,830
Asians	31,877	36,517	37,191	39,000	41,810
Africans & others	66,592	66,040	63,183	64,000	65,939
	108,900	112,814	110,751	113,500	118,579

*Census Year

Table 5
Births
(Corrected for Outward Transfer)

	S.Births.	L.Births.	Total
Europeans	6	326	332
Asians	104	2656	2760
Africans	96	1703	1799
	206	4685	4891

Table 6**Live Births for Preceding Five Years**

Race	1944	1945	1946	1947	1948	Total
Europeans	249	211	168	236	226	2,090
Asians	1,252	1,515	1,566	1,668	2,250	8,251
Africans and Others	1,009	1,276	1,351	1,346	1,554	6,536
	2,510	3,002	3,085	3,250	4,070	15,917

Table 7**Birth Rates***(Live births per thousand of the population)**(Corrected for Outward Transfer)*

Comparative rates for preceeding 5 years						5 year mean	Birth Rates 1949	Variation of 1949 from mean of preceeding 5 years
Race	1944	1945	1946	1947	1948			
Europeans	23.6	20.5	15.9	17.5	24.6	26.2	27.2	4% increase.
Asians	39.3	41.5	41.3	43.9	53.9	44.3	53.1	20% increase.
Africans	15.2	19.3	20.4	17.5	23.6	20.1	25.8	28% increase.

Table 8**Still Births***(Corrected for Outward Transfer)*

Race	Residents		Total
	Male	Female	
Europeans	...	3	6
Asians	...	31	104
Africans & others	...	35	96
			206

Table 9**Infant Deaths***(Corrected for Outward Transfer)*

	Male	Female	Total
Europeans	...	5	8
Asians	...	83	154
Africans	...	146	286
Totals	...	234	448

Table 10
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.					5 year mean	I/M Rates 1949	Variation of 1949 from means of pre- ceding 5 years
	1944	1945	1946	1947	1948			
European	49	33	48	64	75	57	25	56% decrease.
Asian	62	56	60	98	67	69	57	17% decrease.
African	154	131	148	224	187	168	168	—

Table 11
Causes of Infant Deaths
(Under One Month)

Cause	Europeans	Asians	Africans & Others	Totals.
International List Number				
12. Tetanus	...	1	1	2
13. Pulmonary Tuberculosis	...	—	1	1
24. Septicaemia	...	—	1	1
30. Congenital Syphilis	...	—	9	9
56. Infected Haemangioma	...	—	1	1
66. Toxaemia	...	—	1	1
72. Purpura	...	—	1	1
83. Cerebral Haemorrhage	...	—	1	1
106. Bronchitis	...	—	1	1
107. Broncho Pneumonia.	...	8	3	11
109. Pneumonia—Undefined	...	4	3	7
118. Pyloric Stenosis	...	—	2	2
119. Enteritis	...	—	2	2
119. Diarrhoea	...	5	2	7
119. Gastritis	...	—	1	1
119. Gastro Enteritis	...	3	5	8
157. Congenital Malformation	...	1	—	1
157. Spina Bifida	...	1	1	2
157. Congenital Heart	...	2	1	6
158. Malnutrition	...	4	3	7
158. Inanition	...	1	—	1
158. Congenital Debility	...	3	2	5
159. Prematurity	...	33	67	101
160. Birth Injury	...	6	13	20
161. Asphyxia Atelectasis	...	9	7	18
161. Jaundice	...	—	1	1
161. Icterus Neonatorum	...	1	—	1
200. Undefined	...	—	4	4
Totals	6	84	132	222

Table 12
Causes of Infant Deaths
(From One Month to One Year)

Cause	Europeans	Asians	Africans & Others	Totals.
International List Number				
6. Cerebro Spinal Meningitis ...	—	—	1	1
9. Whooping Cough ...	—	—	1	1
10. Diphtheria ...	—	1	1	2
13. Tuberculosis ...	—	—	4	4
27. Dysentery Bacillary ...	—	1	—	1
28. Malaria ...	—	1	2	3
28. Cerebral Malaria ...	—	1	1	2
30. Congenital Syphilis ...	—	—	1	1
33. Influenza ...	—	1	—	1
69. Kwashiokor ...	—	—	1	1
73. Anaemia ...	—	—	2	2
79. Unspecified Poisoning ...	—	—	1	1
81. Meningitis unspecified ...	—	—	2	2
86. Convulsions ...	—	2	—	2
103. Telangiectasis ...	1	—	—	1
105. Tracheotomy ...	—	—	1	1
106. Bronchitis ...	—	1	2	3
107. Broncho Pneumonia ...	—	11	50	61
108. Lobar Pneumonia ...	—	—	2	2
109. Pneumonia undefined ...	—	7	18	25
110. Empyaema ...	—	—	1	1
119. Diarrhoea ...	—	6	9	15
119. Enteritis ...	—	—	2	2
119. Entero Colitis ...	—	2	—	2
119. Gastro Enteritis ...	—	20	18	38
122. Strangulation of Bowel ...	1	—	—	1
123. Acute Intestinal Obstruction ...	—	—	1	1
124. Cirrhosis of Liver ...	—	—	1	1
127. Catarrhal Jaundice ...	—	1	—	1
130. Acute Nephritis ...	—	—	2	2
153. Dermatitis ...	—	1	—	1
157. Congenital Heart Disease ...	—	1	—	1
158. Marasmus ...	—	2	10	12
158. Congenital Debility ...	—	5	—	5
159. Prematurity ...	—	4	2	6
160. Convulsions ...	—	—	1	1
181. Burns ...	—	—	1	1
182. Suffocation ...	—	—	1	1
200. Multiple Bites ...	—	1	—	1
200. Undefined ...	—	—	7	7
200. Pyrexia of unknown origin ...	—	1	8	9
Totals	2	70	154	226

Table 13**Maternal Mortality**

Race	Live and Still Births	Maternal Deaths	Rate per 1,000 Live Births.
Europeans	332	1	3.0
Asians	2,760	—	—
Africans and Others	1,799	5	2.8

Table 14**Deaths***(At all Ages)**(Corrected for Outward Transfer)*

		Male	Female	Total
Europeans	...	65	53	118
Asians	...	174	158	332
Africans	...	595	327	922
Totals		834	538	1372

Table 15**Death Rates***(Per 1,000 of the population)**(Corrected for Outward Transfer)*

Race	Comparative rates for the preceding five years					5 year mean	Death Rates 1949	Variation of 1949 from mean of pre- ceding 5 years
	1944	1945	1946	1947	1948			
Europeans	5.9	7.5	7.5	7.0	10.0	8.0	9.8	23% increase.
Asians	7.4	5.9	6.3	9.0	8.2	7.5	6.6	12% increase.
Africans and Others	10.4	9.6	10.9	11.8	12.0	11.3	13.8	22% increase.

Table 16

Summary of the Causes of Death

	Europeans.	Asians.	Africans and Others.	Totals.	Percentage of all Deaths 1949.	Percentage of all Deaths 1948.	Death Rate 1949.	Death Rate 1948.
1. Infectious and Parasitic Diseases. ...	6	27	191	224	16.5	17.5	1.75	1.89
2. Cancer and Other Tumours ...	15	9	10	34	2.5	2.3	0.27	0.26
3. Rheumatism and Diseases of Nutrition, etc. ...	3	11	18	32	2.4	1.1	0.25	0.13
4. Diseases of the Blood etc. ...	—	6	11	17	1.3	1.6	0.13	0.18
5. Poisoning. ...	1	1	4	6	0.4	0.6	0.05	0.07
6. Diseases of the Nervous System. ...	6	12	48	66	4.4	3.8	0.55	0.44
7. Diseases of the Circulatory System. ...	25	17	12	54	4.0	3.5	0.42	0.40
8. Diseases of the Respiratory System. ...	11	54	241	306	22.5	24.2	2.39	2.74
9. Diseases of the Digestive System. ...	10	53	111	174	12.8	11.1	1.36	1.25
10. Non-Venereal Diseases of the Genito-Urinary System. ...	4	8	19	31	2.3	1.1	0.24	0.13
11. Diseases of Pregnancy, Childbirth and Puerperal State ...	1	—	5	6	0.4	0.9	0.05	0.10
12. Dermatitis. ...	—	1	—	1	—	0.2	—	0.02
13. Diseases of the Bones and Joints. ...	—	—	—	—	—	—	—	—
14. Congenital Malformations. ...	2	6	2	10	0.7	1.0	0.08	0.12
15. Diseases Peculiar to the First Year of Life. ...	4	68	106	178	12.7	10.1	1.39	1.14
16. Old age. ...	5	5	—	10	0.7	0.3	0.08	0.03
17. Deaths from Violence. ...	17	21	68	106	7.8	6.0	0.83	0.68
18. Ill-defined Diseases. ...	8	33	76	117	8.6	8.2	0.91	0.98
Total all Diseases ...	118	332	922	1372				

Table 17

Causes of Death

*(Corrected for Outward Transfer)**International List 1938.***GROUP 1.—Infectious and Parasitic Diseases.**

		Europeans	Asians	Africans and Others	Totals
1. Typhoid.	...	—	1	14	15
6. Cerebro Spinal Meningitis.	...	1	—	3	4
7. Anthrax intestinal.	...	—	—	1	1
9. Whooping Cough.	...	—	—	3	3
10. Diphtheria.	...	—	2	2	4
12. Tetanus.	...	—	2	3	5
13. Tuberculosis Pulmonary.	...	4	8	76	88
14. Tuberculosis Meningitis.	...	—	2	14	16
15. Tuberculosis Miliary.	...	—	2	7	9
24. Gas gangrene.	...	—	—	1	1
24. Septicaemia.	...	—	1	6	7
27. Amoebic Dysentery.	...	—	—	1	1
27. Bacillary Dysentery.	...	—	1	17	18
28. Malaria.	...	—	3	11	14
28. Cerebral Malaria.	...	—	1	9	10
30. Ruptured Aortic Aneurysm.	...	—	1	4	5
30. Syphilis.	...	—	—	2	2
30. Congenital Syphilis.	...	—	—	10	10
31. Tick Typhus.	...	1	—	—	1
33. Influenza.	...	—	2	1	3
35. Measles.	...	—	—	4	4
36. Poliomyelitis.	...	—	1	1	2
38. Acute Yellow Atrophy.	...	—	—	1	1
Totals	...	6	27	191	224

GROUP 2.—Cancer and Other Tumours.

		Europeans	Asians	Africans and Others	Totals
46.	Carcinoma Bowel.	... 1	—	—	1
46.	„ Colon.	... 1	—	—	1
46.	„ Liver.	... 2	1	2	5
46.	„ Oesophagus.	... —	—	2	2
46.	„ Pancreas.	... 1	—	1	2
46.	„ Stomach.	... 2	1	1	4
47.	„ Lung.	... 1	1	—	2
48.	„ Uterus.	... —	1	—	1
49.	„ Ovary.	... 3	—	—	3
50.	„ Breast.	... 2	2	—	4
52.	„ Bladder.	... 1	—	—	1
52.	Tumour Kidney.	... —	—	1	1
53.	Sarcoma Foot.	... —	1	—	1
55.	Carcinoma Abdominal.	... 1	1	—	2
55.	Carcinoma Femur.	... —	1	—	1
55.	Malignant Growth.	... —	—	1	1
56.	Chondro-Sarcoma.	... —	—	1	1
56.	Infected Haemangioma.	... —	—	1	1
Totals.		... 15	9	10	34

GROUP 3.—Rheumatism, Diseases of Nutrition.

		Europeans	Asians	Africans and Others	Totals
58.	Rheumatic Fever.	... —	1	—	1
58.	Rheumatic Endocarditis.	... —	6	1	7
59.	Rheumatic Arthritis.	... 1	—	—	1
61.	Diabetes Mellitus.	... 1	4	3	8
63.	Thyrotoxicosis.	... 1	—	—	1
66.	Toxaemia.	... —	—	3	3
69.	Kwashiokor.	... —	—	10	10
69.	Pellagra	... —	—	1	1
	Totals.	... 3	11	18	32

GROUP 4.—Diseases of the Blood.

		Europeans	Asians	Africans and Others	Totals
72.	Purpura.	...	—	1	1
73.	Anaemia.	...	3	9	12
74.	Lymphatic Leukaemia.	...	1	—	1
74.	Myeloid Leukaemia.	...	2	1	3
Totals.		...	6	11	17

GROUP 5.—Poisoning.

	Europeans	Asians	Africans and Others	Totals
77. Alcoholic Poisoning.	1	—	3	4
77. Corrosive Poisoning	—	1	—	1
79. Unspecified Poisoning.	—	—	1	1
Totals.	1	1	4	6

GROUP 6.—Diseases of the Nervous System.

	Europeans	Asians	Africans and Others	Totals
80. Cerebral Abscess	—	—	1	1
80. Encephalitis.	—	—	2	2
81. Meningitis undefined.	—	1	8	9
81. Meningitis Pneumococcal.	—	—	9	9
81. Meningitis Streptococcal.	—	—	1	1
83. Subarachnoid Haemorrhage.	—	—	2	2
83. Cerebral Haemorrhage.	4	6	6	16
83. Cerebral Thrombosis.	1	2	—	3
83. Cerebral Embolus.	—	—	1	1
84. Insanity.	—	—	17	17
85. Epilepsy.	1	—	1	2
86. Convulsions.	—	2	—	2
89. Acute Mastoiditis.	—	1	—	1
Totals.	6	12	48	66

GROUP 7.—Diseases of the Circulatory System.

	Europeans	Asians	Africans and Others	Totals
90. Pericarditis.	—	—	1	1
91. Infective Endocarditis.	—	1	—	1
92. Aortic Incompetence.	—	1	3	4
92. Mitral Stenosis.	—	2	3	5
92. Valvular Endocarditis.	—	—	3	3
93. Myocarditis.	11	2	—	13
94. Coronary Thrombosis.	13	7	1	21
94. Coronary Embolism.	—	2	—	2
95. Cardiac Asthma.	—	1	—	1
95. Rheumatic Heart Disease.	—	1	—	1
95. Ventricular Degeneration.	—	—	1	1
97. Arteriosclerosis.	1	—	—	1
Totals.	25	17	12	54

GROUP 8.—Diseases of the Respiratory System.

	Europeans	Asians	Africans and Others	Totals
100. Generalised Thrombo-Phlebitis.	—	1	—	1
103. Telangiectasis.	1	—	—	1
105. Oedema Larynx.	—	—	1	1
105. Tracheotomy.	—	—	1	1
106. Bronchiectasis.	—	1	—	1
106. Bronchitis.	1	3	5	9
107. Broncho-Pneumonia.	3	23	115	141
108. Lobar Pneumonia.	1	2	30	33
109. Pneumonia unspecified.	4	20	81	105
110. Empyema.	—	1	3	4
111. Pulmonary Embolism.	1	2	2	5
112. Asthma.	—	1	3	4
Totals.	11	54	241	306

GROUP 9.—Diseases of the Digestive System.

	Europeans	Asians	Africans and Others	Totals
115. Cellulitis Neck.	—	—	1	1
117. Duodenal Ulcer.	1	—	1	2
117. Gastric Ulcer.	—	1	1	2
118. Pyloric Stenosis.	—	2	—	2
119. Diarrhoea.	—	11	15	26
119. Enteritis.	—	—	10	10
119. Entero-Colitis.	—	2	—	2
119. Gastritis.	—	—	1	1
119. Gastro-Enteritis.	2	29	49	80
122. Paralytic Ileus.	1	1	—	2
122. Strangulation Intestines.	1	—	1	2
122. Volvulus.	—	—	4	4
122. Intestinal Obstruction.	—	2	3	5
123. Acute Intestinal Obstruction.	—	—	1	1
123. Diverticulitis.	1	—	—	1
124. Cirrhosis of the Liver.	2	3	12	17
125. Hepatitis.	—	—	1	1
125. Liver Abscess.	—	—	2	2
127. Catarrhal Jaundice.	—	1	—	1
127. Obstructive Jaundice.	—	1	1	2
128. Acute Pancreatitis.	—	—	1	1
129. Generalised Peritonitis.	2	—	7	9
Totals.	10	53	111	174

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

	Europeans	Asians	Africans and Others	Totals
130. Acute Nephritis.	...	1	6	7
130. Renal Failure.	...	—	1	1
131. Chronic Nephritis.	...	1	3	4
132. Nephritis.	...	2	5	7
132. Uraemia.	...	2	3	8
133. Chronic Pyelitis.	...	1	—	1
133. Pyelonephritis.	...	1	—	1
134. Nephrolithiasis.	...	—	—	1
139. Endometritis.	...	—	1	1
Totals.	...	4	8	19

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

	Europeans	Asians	Africans and Others	Totals
140. Abortion.	...	—	1	1
142. Ectopic Gestation.	...	—	1	1
144. Eclampsia.	...	—	2	3
147. Puerperal Fever.	...	—	1	1
Totals.	...	1	5	6

GROUP 12.—Diseases of the Skin.

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

GROUP 13.—Diseases of the Bones and Joints.

— nil —

GROUP 14.—Congenital Malformations.

	Europeans	Asians	Africans and Others	Totals
157. Spina Bifida.	...	1	1	2
157. Congenital Heart.	...	4	1	7
157. Congenital Malformations.	...	1	—	1
Totals.	...	2	6	10

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

	Europeans	Asians	Africans and Others	Totals
158. Congenital Debility.	...	8	2	10
158. Marasmus.	...	2	10	12
158. Malnutrition.	...	4	3	7
158. Inanition.	...	1	—	1
159. Prematurity.	...	37	69	107
160. Convulsions.	...	—	1	1
160. Birth Injury.	...	6	13	20
161. Atelectasis.	...	9	7	18
161. Jaundice.	...	—	1	1
161. Icterus Neonatorum.	...	1	—	1
Totals.	...	68	106	178

GROUP 16.—Old Age.

	Europeans	Asians	Africans and Others	Totals
162. Senility.	...	5	—	10
Totals.	...	5	—	10

GROUP 17.—Deaths from Violence.

	Europeans	Asians	Africans and Others	Totals
163. Aspirin Poisoning.	...	—	—	1
163. Carbon Tetrachloride Poisoning.	...	—	1	1
163. Suicidal Poisoning.	...	1	—	1
164. Gunshot wounds, Suicide	...	—	1	3
164. Accidental Hanging.	...	—	1	1
164. Hanging, Suicide.	...	—	2	2
164. Drowning.	...	1	2	4
166. Murder Gunshot Wounds.	...	—	2	4
167. Stab Wounds.	...	—	3	3
168. Fractured skull, murder.	...	—	2	3
169. Railway Accident.	...	—	1	1
170. Bus and train accident.	...	—	2	2
171. Motor accident.	...	8	23	40
181. Burns.	...	5	4	9
182. Suffocation.	...	—	1	1
186. Fall from height.	...	—	4	4
193. Electrocution.	...	2	1	3
195. Multiple Injuries.	...	1	4	5
195. Fractured Skull.	...	3	10	13
195. Fractured Spine.	...	—	1	1
198. Legal Executions.	...	—	3	4
Totals.	...	21	68	106

GROUP 18.—III-Defined Diseases.

		Europeans	Asians	Africans and Others	Totals
200. Acute Generalised Infection.	...	1	—	—	1
200. Cardiac Failure.	...	5	23	9	37
200. Congestive Heart Failure.	...	—	2	2	4
200. Malnutrition.	...	—	—	11	11
200. Multiple Bites.	...	—	1	—	1
200. Post Operative Shock.	...	1	1	3	5
200. Pyrexia of Unknown Origin.	...	—	1	8	9
200. Undefined.	...	—	5	38	43
200. Under investigation.	...	1	—	5	6
Totals.	...	8	33	76	117

INFECTIOUS DISEASES

The number of Infectious Diseases, (excluding Malaria) notified during the year increased by 107% over 1948 being 1,221 cases compared with 589. The increase is partly due to better notification by practitioners.

340 cases of Chicken-pox, including 100 Africans compared with 16 for 1948. Tuberculosis rose by 8.5% from 281 to 305. The Dysenteries, mostly Bacillary increased to 332 cases, 606%. This almost entirely due to better notification, since the disease was only made notifiable in 1947. Many known cases still remain unnotified. Enteric showed a 21% increase from 106 to 130. There was a welcome decrease in Diphtheria notifications, 12, compared with 33 in '48, and a notable decrease in Cerebro Spinal Meningitis, 5 cases compared with 26 in 1948. Anthrax increased to 25 from 12, all cases being amongst Africans, particularly employees of Hide Godowns.

Poliomyelitis. Since 1947, 48 cases have been recorded as contracted in Nairobi, 17 in 1947, 11 in 1948 and 21 cases in 1949. The 48 cases were made up of 43 children and five adults. By races 21 Europeans, 13 Asians, and 11 Africans.

In May, a monkey, *Cercopithecus aethiops* was successfully inoculated with virus from septic tank effluent from a house in which a case of poliomyelitis had occurred 6 weeks previously. The monkey specimen was sent to the Virus and Rickettsia Laboratory in Johannesburg where the virus was isolated and maintained.

Tick Typhus, 27 cases were notified. Investigation showed that the majority of cases were from two small well defined areas of the town, recently built over. In a few cases mites were suspect as the vector.

Tuberculosis in the African

The T.B. attack rate amongst Africans has risen from 12.6 in 1945 to 40 in 1949 and the disease in this last year has caused 11% of all African deaths. It is therefore a very major problem among the African population. In any case these figures are only an approximation since diagnosis and notification of T.B. among the Africans is by no means an exact matter, the population is fluid, and it is very probable that many people who become infected in Nairobi, return to their Reserve where they ultimately die without our having any knowledge of their illness.

This means that such error as there is, is probably in the direction of making our figures too low.

In order to get some comparative idea of the problem in other parts of the world, in the table below the corresponding figures are given for Nairobi Europeans, Nairobi Africans, England and Wales and the non European population of four other great African Towns, all for 1948, the last year for which comprehensive figures are available :

	<i>Attack Rate</i>	<i>percentage of all Deaths.</i>
	(per 10,000 of the population)	
Nairobi (5 year period 1943-47) (Europeans)		2.0
England and Wales (1947)	13.0	4.6
Nairobi (1948) (Africans)	41.0	11.0
Mean of Four other great African Towns (non-Europeans)	83.7	21.1

It is at once apparent that for the Nairobi European population T.B. is not a problem comparable with its gravity in England and Wales. In Britain of course the overall figure includes such "hot spots" as Glasgow and Tyneside.

The Nairobi African figures are seen to be only half of those in the other great African towns, but the rather imponderable factor of failure of notification mentioned above may operate in Nairobi's favour to some extent more than in cities such as Durban and Cape Town where information may be more exact. Moreover, in Nairobi, there is no problem akin to that of the thousands of employees in the mines and dockyards of South Africa. Industry in Nairobi, active and increasing as it is, has not yet reached anything like the scale found in South African cities.

It would seem clear that the greatest single factor in the spread of Tuberculosis among the African population is urbanization. This causes.

- (a) Separation from his tribal life and discipline.
- (b) The performance by him of new types of labour.
- (c) Alteration of his habits of diet.
- (d) Alteration in his individual financial economy.
- (e) Occupation of overcrowded and insanitary quarters.

(a) Separation from family and from tribal life tends to lead to moral deterioration, and a life of squalor, and it has been abundantly proved in Britain that the latter is a direct cause in the spread of T.B.

(b) New types of labour very often involve heavier manual work than that which the African has been used to in the Reserves. This, coupled with the physical disadvantages of moral deterioration and of impoverished diet can dispose to T.B.

(c) If in the Reserve it can be said that the average African's diet is not particularly nutritious, in the towns it is apt to be worse because he does not have the recourse to vegetables open to him in the country, and since he has been allowed to buy European beer he has drifted away from the cheaper and more nutritious native article, to his own detriment.

(d) The African comes to Town to make money, in doing so he undertakes to send money to his people in the Reserve, and he will often starve himself or his children in order to do this, so that not only is he doing heavier work, but he is not even using all the pay he gets from

that work in order to feed himself sufficiently to keep himself fit.

(e) Overcrowding exists in the locations due to the fact that whilst houses are allocated to individual African workmen, as soon as the latter get an allocation of a house they tend to sub-let it to other Africans who bring their families, with the result that two or three families are sometimes crowding into one room. Should one of these many Africans happen to have open T.B., spread is inevitable. Furthermore spitting is a universal habit among the Africans. The remedies for these conditions suggest themselves, but are far from easy of attainment.

By far the most important factor and remedy is of course the improvement of housing conditions and increase of space. Not only must many new houses be built which can readily be kept clean and well ventilated, but sufficient must be built to ensure that the temptation or opportunity to sub-let, disappears.

Real discipline in the locations is unlikely however to be achieved until every village is surrounded by a high perimeter fence as is already the case with the Railway locations. Once this is done, it is possible to check the ingress of unauthorized people, and overcrowding due to sub-letting disappears. This discipline is in the best interests of the African himself.

Something is being done in the matter of Health Education by means of films, lectures and posters, but this is bound to be slow work amongst a population many of whom are illiterate.

Table 17.
Notifiable Infectious Diseases, by Races.
(excluding Malaria, for which see page 51).

	Europeans	Asians	Africans and Others	Totals
Anthrax	...	1	24	25
Beri Beri	...	—	1	1
Blackwater Fever	...	1	2	3
Cerebro-Spinal Fever	...	—	4	5
Chicken-pox	...	10	318	340
Diphtheria	...	8	3	12
Dysentery, Amoebic	...	13	29	43
Dysentery, Bacillary	...	60	223	289
Erysipelas	...	1	—	2
G.C. Conjunctivitis	...	—	5	5
Leprosy	...	1	3	4
Malta Fever	...	—	4	4
Poliomyelitis	...	10	3	21
Puerperal Fever	...	—	4	4
Scarlet Fever	...	—	—	1
Tuberculosis	...	31	268	305
Typhoid Fever	...	26	100	130
Typhus (Tick).	...	2	7	27
Totals.	...	163	908	1221

Table 18.

		January	February	March	April	May	June	July	August	September	October	November	December	Totals
Anthrax	...	1	1	—	3	3	—	2	3	6	1	3	2	25
Beri Beri	...	—	—	—	—	1	—	—	—	—	—	—	—	1
Blackwater Fever	...	2	1	—	—	—	—	—	—	—	—	—	—	3
Cerebro-Spinal Meningitis	...	—	—	2	1	—	1	—	—	—	1	—	—	5
Chicken-pox	...	19	12	22	33	37	27	29	30	28	42	36	25	340
Diphtheria	...	2	2	4	—	—	1	1	—	1	1	—	—	12
Dysentery, Amoebic	...	3	3	—	3	2	2	7	5	3	3	5	7	43
Dysentery, Bacillary	...	23	38	32	21	21	20	37	8	17	11	34	27	289
Erysipelas	...	—	—	—	—	—	—	—	—	1	—	—	1	2
G.C. Conjunctivitis	...	1	—	2	—	—	—	—	—	—	—	2	—	5
Leprosy	...	1	1	2	—	—	—	—	—	—	—	—	—	4
Malta Fever	...	—	1	1	1	—	—	—	1	—	—	—	—	4
Poliomyelitis	...	—	—	—	—	6	—	—	—	2	5	7	1	21
Puerperal Fever	...	—	—	1	1	—	—	1	1	—	—	—	—	4
Scarlet Fever	...	—	1	—	—	—	—	—	—	—	—	—	—	1
Tuberculosis	...	28	16	20	31	25	20	29	18	19	21	36	42	305
Typhoid Fever	...	9	21	29	16	18	7	7	10	2	3	3	5	130
Typhus (Tick)	...	3	1	3	5	4	1	5	1	2	1	—	1	27
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SANITARY ADMINISTRATION

This report is being written and compiled at a time when there is great activity towards celebrating in a manner fitting the occasion, the completion of the first fifty years of local government in Nairobi.

Having reached a position of some prominence in the Colonial Empire the town is to receive by Royal Charter the high dignity of City status.

The year 1949 which is covered by this report is not the one for comparison with five decades ago — this must be done in a delayed jubilee report on the fiftieth year of local Government Administration which is 1950 — nevertheless, such a time does bring home to the local inhabitants, particularly the older residents, the almost bewildering changes that have taken place and which doubtless continue to take place in the town which, in the space of half a century has grown from thorn-sprouting veldt to a highly organised centre of commercial and governmental administration. Alas, although Nairobi is above the description of a boom town it does possess as in all rapidly growing places, its shady slums, its squalor, and those problems which always have and always will accompany rapid development. Social Welfare must needs give way to the urge for acquisition. Sanitation is never in the van of development. It invariably follows, like the dust cart, to clean up the mess after it has been created and, often also after pain, sickness and much suffering.

Large areas were scheduled for development during 1949 but as in the case of private estates in years past the communal side of sanitation has been deferred on the score of expense. The developers are compelled to comply with the by-laws but the public services remain very much a matter of hope.

It seems extraordinary that buildings should be approved without first of all providing the essential services, which include a designed drainage system. These methods lead invariably to river pollution wherever a flowing river exists nearby, but during the dry periods the river beds become simply a series of sullage ponds. Where rivers-cum-open-sewers do not lend their useful if foul support for the purpose, and flat land is the site of development, numbers of cess pits are the only solution, these cess pits (if they can rightly be termed the solution) being emptied from time to time by the Council's 'exhauster' tank-lorries.

However, the presence, expected to be temporary, of these receptacles does remove some of the qualms the staff might otherwise suffer. These conditions are part of the cost which the people in a rapidly growing town must pay, though to sanitarians it seems a needless price and, who knows, in the long run a very heavy price. Areas which are in process of being sewered and therefore do not justify the expense of temporary cesspits are in a condition which is the complete negation of sanitation. Offensive ponds of bubbling filth held by sewage-sick land, wait to be washed away by a providential storm, or slowly evaporated by our greatest and most abundant gift — the sun.

Nairobi is not likely to sink into the near-oblivion of a ghost town, the day will come when all the amenities in the way of roads and sewers must be provided and there can be no cogent reason, indeed there can be no reason at all to delay putting the horse before the cart.

Yet withal, the health statistics of the town, particularly when considered alongside the adverse conditions, are not such as to call for censure, rather are they figured proof of an administration in which any local authority might take some pride. But, and there will always be a large 'but' in Public Health work, conditions are far from approaching the stage when it can be said that nothing else need be done. Those whose work takes them behind the facade of the more prominent modern achievements are only too well aware of the unmade roads and lanes with their pools of filth, the lack of suitable drains and permanent sewers, the insanitary property, the want of suitable and sufficient housing for all races, overcrowding which is by-passed, like dirt on a footpath. One dwelling designed for about eighteen occupants was recently found to hold no fewer than 82 people and this is by no means the only one of its kind. It is a murky reflection on any community when people are reduced to living in disused and converted latrines or in fuel stores, and to sleeping in their kitchens or permitting their servants to sleep in them overnight, whilst rent-paying tenants occupy the approved servants quarters. "Turn them out" people say, "demolish this and that" but no suggestions whatever are forthcoming as to where these displaced persons are to live. If we were quite honest about it we would say these people should be given notice to remove themselves, not only from the shacks but from the town, because there are no places available in which to dwell. For if they remain they must further overcrowd other already overcrowded quarters. It becomes a question of whether these people should be permitted to continue in their slums with 300 cubic feet of air space or go to live in stores and kitchens with perhaps half that space, and double the risk of ill health.

It should be an obligation on the part of every employer of labour to provide at least a percentage of housing for his employees — or be taxed until he does, and be taxed for any excess of labour particularly in the case of African domestics who are not housed by employers. Local authorities should not be expected to subsidise some employers of labour by providing sub-economic housing while other employers possessing a higher social conscience refuse to sponge on the rate-payers but build sufficient housing of their own.

The African locations are overflowing with the "homeless" individuals both employed and unemployed who squeeze into the gloomy rooms of friends. The problem however does not only concern the African, other races are in a similar plight, though, in the case of European employers of Europeans, there have been many instances within recent months where housing has been provided by the employer, yet there is more than a suspicion that the incentive came more from a desire to

satisfy their staff requirements rather than from purely altruistic motives. No house — no service !

The number of dwellings demolished during the year was 145 although the designation of 'dwellings' considerably flatters those shacks and shelters which were erected by individuals to provide at least a sleeping place. Most of the occupants — those displaced persons of peacetime — have doubtless gone further to reduce the cubic space per person in already overcrowded lodgings elsewhere within the town boundaries. Later on they will probably find another deserted corner and put together a few scraps of wood and discarded petrol tins and call it "home."

As in previous years most of the notices served have been against dirty conditions, accumulations of refuse and defective and inadequate latrines.

Some people of course can learn their lessons through the sufferings of others, while many, possibly the great majority only shake off their innate sloth through personal affliction or by witnessing the cruel sufferings of their helpless children, perhaps not even then. It is a pity. Possibly only greater and more persistent training in matters of health and hygiene through the schools will, in time, reduce those foul conditions which are a danger not only to individuals but to the public generally. An Englishman's home is his castle, a claim to be respected. But immediately that castle becomes a nuisance to his neighbours or even to his family, the claim or right should be abrogated and nothing, no assertions on tribal, religious or any other grounds should be allowed to interfere. This is not a declaration in favour of the Welfare State but a principle calculated to benefit individuals and communities, which added theories have hitherto failed to do. It will give them something for which they sometimes pray, but seldom try to get. It becomes the duty of the Health authority and its staff to help them on their way, and sometimes it is a bitter way.

For many years the lodging houses in the town have conducted their affairs without being registered and thereby were insufficiently supervised. This was not because by-laws did not exist to control such houses — they did — but owing to one stipulation they were useless for all practical purposes. This restrictive clause has now been removed and a start has been made in the registration, regular inspection and supervision of these severe homes of poverty. Floors make poor beds and charcoal braziers a mean cooking stove. This almost universal use of charcoal for cooking and heating by the Town's impecunious inhabitants has probably a more damaging effect on their health than some of the more obvious nuisances, shut up, as these people so often are, in small ill-ventilated rooms. Ill ventilated because the provision made for proper "permanent" ventilation when the house was built becomes, in the eyes of these people a sanitarians fetish — something to be hidden if not destroyed — something to be rendered useless because fresh air "smells." There is an inherited dislike for these openings, and

perhaps for a very good reason. Maybe the air outside of some of their ancient dwelling places was once more dangerous than the gas-diluted atmosphere inside their sleeping quarters. Whatever the reason for the dislike of fresh air no ordinary instructions or even mild threats seem able to break down this obstinate antipathy to something good.

The day will come when the account must be met, but it could be reduced even now if means could be found to provide each family with a sound and easily maintained dwelling and instructions given on the science and art of living. "Easily maintained" is not intended to suggest obeisance to the devil of laziness, it is meant to provide means of eliminating unnecessary labour and the waste of energy which might otherwise be expended in more pleasant pursuits and which in turn can have only a most beneficial effect on the mind.

Elsewhere a note is made of the incidence of tuberculosis among the African population of the Colony. But tuberculosis is not the only robber of physical fitness. The condition of many of the town's inhabitants of all races is below normal and were it a personal matter it would be bad enough, but when the danger of contaminating others is a very real one, it assumes an importance which is not always fully appreciated.

Efforts have been made over many years, to control venereal diseases, but only within comparatively recent times have they sought to protect the public through the elimination from food manufacturing and distributing premises, of people who are known to carry infection. Yet the officers concerned feel somewhat frustrated in that these efforts are only part of a much larger scheme to provide a sound and well-served food supply. It is only necessary, as has been the case for most of the year, for the staff establishment to be down by one or two inspectors, to bring the routine work to a dangerously low level. And the inspection of foods and food shops is, in the main, routine work. So much emphasis has been laid on insanitary property, and the engineering department has made such efforts in the construction of sewers that the staff has been under an obligation to follow up the work of the Municipal Engineer, by getting the old pail type closets converted to the water-borne system. Mention has been made in various reports of the difficulties experienced in dealing with the absentee landlord and this becomes most prominent when dealing with rows of houses as for example in the case of drainage conversions. Time and again notices are returned unserved because of the absence of the owner from the country. The tenants pay the rent into the landlord's account in the bank, thereby defeating the well thought out methods of securing compliance with the provisions of the various ordinances and by-laws. Although ways and means have been devised for the legal (if not practical) service of notices, the same procedure is unacceptable when the service of a summons becomes necessary.

Absentee owners who leave their affairs to chance by neglecting to appoint an attorney should be accountable to the local authority for any statutory works which may become necessary during their absence.

Serious nuisances sometimes persist for days while efforts are being made to trace such owners, and dangerous conditions arise which should not be permitted for a moment longer than is necessary to arrange for their removal by the local authority. No doubt, if such a system were adopted, owners would arrange for an agent to deal with such matters during their absence if only from a sense of fear that expenses might otherwise be higher.

Then we have "Trusts" and "Committees" and owners who refuse to give receipts for rent paid, making it most difficult to build up a concrete case for prosecution, the Increase of Rent (Restriction) Ordinance requires a "landlord" to supply his tenant with a rent book but does not compel the owner or landlord to give the name and address of the person responsible for carrying out repairs. This is a serious omission which should be rectified.

Given time the staff can usually find the person responsible (except in the case of absentee landlords) but it is questionable whether in the public interest, the expenditure of so much time is justified, when, by a simple amendment to the law, many hours of investigation might be saved.

It will be noted in the summary that of the 1,147 notices served no fewer than 659 were for requirements under, or for contravention of the by-laws. These by-laws which have been published in two volumes, the first, concerning matters of a general nature such as, licencing, water supplies, markets and transport came into force as revised towards the end of 1948. The second volume deals with building and drainage and became operative in its amended form early in 1949.

These by-laws are being found to be increasingly useful despite the criticisms which have been made from time to time. Building practice is of a more established nature than, for example, that of the food distributing and preparing trades, and although some amendments have been made to the sections on buildings, those which are designed to secure a clean and wholesome food supply are and will continue to be fluid for some time to come. More advanced knowledge is continually being brought into practice and with it must come a greater sense of hygiene and more forcible methods adopted in its application. To this end the by-laws must unfortunately be subject to periodical amendment, a disturbing course which is disliked as much by the executive as by the respondents, but is unavoidable.

The number of notices served and prosecutions undertaken gives no idea of the security, admittedly incomplete, which is given to the public in the distribution of food.

Inspection of food premises alone numbered 3,624 and as these shops, restaurants and the like are subject to licencing by-laws more is done along these channels than by the time-consuming process of notices and court procedure. Again, the knowledge that inspections may be made at any time tends to keep the business in a reasonably satisfactory condi-

tion. Occasionally, however, people are found who are criminally negligent in the management of their affairs and it is recalled that during the war years many very serious cases were prosecuted and heavy penalties were imposed with the result that a number of irresponsible shopkeepers and food manufacturers went out of business. The most serious case during 1949 concerned the improper storage for sale of a large quantity of sugar. As reports of jaundice had been received the possibility of rat contaminated food had to be considered and closer attention was given to the many store houses in the town. During the course of inspection the Council's Rodent Officer found what might well prove to be the source of the trouble. A godown containing bags of sugar was found on inspection to contain many tons of this commodity which only too obviously had been grossly contaminated by rats. One hundred and ninety sacks of sugar were condemned and destroyed and only sixty-one passed out for distribution. The cases of jaundice ceased to occur.

The magistrate, having taken a very serious view of the case, inflicted appropriate penalties which should have a beneficial effect well beyond the borders of the town.

African Housing

Previous efforts directed to the solution of the problem of African housing have suffered greatly from lack of large scale planning or the evolution of settled policy, and the evidence of this can be seen in the wide difference in quality of housing in the locations. Houses range from excellent semi-detached cottages to dirty and ill-devised temporary hovels. Nevertheless the difficulties are extreme and are basically much complicated by the unnatural composition of the population. The ultimate factor in raising both the moral and physical status of the inhabitants of the locations will be their having facilities for leading a normal family life, in reasonable accommodation. It can only be by this means that the evil effects of urbanisation and detribalisation can be overcome.

Communal living encourages a sense of irresponsibility which is at present so unhappily evidenced by unclean habits, crime, immorality and wanton destruction of the facilities provided for them. Obviously, however, the move from communal to self-contained family life can only be a slow and gradual one. That is not to say that it should not be started. It would appear that the simplest way to study housing requirements is to divide the population into the three classes which need accommodation :—

1. Men without wives in casual employment.
2. Men without wives in steady employment.
3. The families.

This classification suggests housing priorities, in the nature of accommodation to be aimed at.

Communal cooking and accommodation are advocated as provision for the first class, in fact, a 'camp' life is inevitable, and it is in this

class that some method of enforcing discipline — at least in some degree — is so important. Casual labourers have no stake in the locations, little incentive to better themselves either personally or in their surroundings. Provision made for them could be of the simplest compatible with sanitary adequacy.

The second class, men without wives, in steady employment, are intermediate between the two others. They deserve better than the casuals, but should take second place to the family men. The basic provisions for them should be :—

- (i) Adequate floor space and weather protection.
- (ii) Accommodation self-contained if possible.
- (iii) Sanitary conveniences within reasonable distance.
- (iv) Water within reasonable distance.
- (v) Cooking facilities.

This sounds a somewhat grandiose list, but the provisions envisaged are of the simplest.

Finally, as regards the family, the conditions suggested would be an improvement on those given above by the addition of :—

- 1. Inside water tap and washplace.
- 2. Inside water closet.
- 3. All houses self-contained.
- 4. A small garden.

The remarks above suggest social development in stages on the part of the individuals, and this is in fact the desideratum.

In determining "promotion" it would be desirable if possible to take into consideration the worthiness of any families to obtain better accommodation as evidenced by their past performance; in other words, to secure the best accommodation to those who are most likely to benefit from it and maintain it decently. The locations even now show many examples of good class houses which have inspired the tenants to progress.

Close consideration is at present being given to the construction of African traditional housing, in certain areas, to meet the pressing shortage. If such building is carefully regulated both in design and layout, and if adequate sanitary provisions are made, there is no objection to this as a temporary expedient. All such development however should take place peripherally, the idea being to start from the centre of the town with well laid out permanent locations, expanding these gradually into the outer temporary areas as resources permit.

One final point, and that is that standards of accommodation provided by Europeans and Asians for their domestic staff are often deplorably

low. In many cases, while the houses of the owners are luxurious to a degree, the boys' quarters are little better than hovels. This is, of course, a very short-sighted and unimaginative attitude. Personal servants come into fairly intimate contact with employers, especially as regards the preparation of food, and it is no less than an essential precaution to keep them clean and healthy, even if there were no worthier grounds for so doing.

The Municipal by-laws are weak in this respect, since the control given is only over the planning of new boys' quarters, for which certain standards can be demanded. The Labour Department, however, have fairly adequate powers in this respect, and are increasingly active in securing improvement.

Table 19
Summary of Sanitary Works Performed

Nuisances :

Inspections made to :—

Dwelling houses	...	...	...	...	...	...	3317
Laundries	...	...	...	...	...	...	194
Offensive Trades	...	...	...	...	...	...	33
Stables and Cattle Sheds	...	...	...	...	...	...	24
Trade premises and Offices	...	...	...	...	...	...	2970
Public Buildings	...	...	...	...	...	...	201
Open spaces, streets, etc.	...	...	...	...	...	...	1809
Camps	...	...	...	...	...	...	33
Complaints investigated	...	...	...	...	...	...	535
House to House inspections	...	...	...	...	...	...	217
Miscellaneous inspections	...	...	...	...	...	...	324
Interviews	...	...	...	...	...	...	1875

Defects Remedied :

Premises dirty or verminous	...	...	...	...	...	...	346
Dwellings unfit for habitation (including native huts)	...	...	...	...	...	...	145
Yards unpaved	...	...	...	...	...	...	14
Premises rat infested	...	...	...	...	...	...	27
Latrine accommodation	...	...	...	...	...	...	224
Drains choked or defective	...	...	...	...	...	...	155
Septic tanks or pits choked or defective	...	...	...	...	...	...	52
Waste water disposal defective or inadequate	...	...	...	...	...	...	113
Accumulations of refuse	...	...	...	...	...	...	310
Food unprotected against rats	...	...	...	...	...	...	96
Sleeping in kitchens or foodstores	...	...	...	...	...	...	16
Mosquito breeding	...	...	...	...	...	...	121
Plots overgrown	...	...	...	...	...	...	130
Miscellaneous	...	...	...	...	...	...	198

Defects Remedied Following :

Verbal intimation	...	...	...	...	...	1184
Written intimation	...	...	...	...	...	78
Statutory Notices	...	...	...	...	...	685

Licences :

Trade premises inspected and re-inspected	...	...	...	...	2691
Taxi cab inspections	...	...	...	...	453
Food carts : Milk, meat, bread, sweetmeats	...	...	...	...	168

Erection and Alterations of Buildings :

Plans scrutinised	...	...	...	...	...	504
Inspections made	...	...	...	...	...	1905
Completion certificates issued	...	...	...	...	...	453
Number of premises connected to sewers	...	...	...	...	...	60
No. of new water closets discharging into sewers	...	...	...	...	...	225
No. of septic tanks installed	...	...	...	...	...	120
No. of new water closets discharging into septic tanks	...	...	...	...	...	316

Notices Served :

Intimation	...	...	...	...	...	136
Public Health Ordinance	...	...	...	...	...	352

 488

By-laws, (B) Building By-laws, (G) General.

No. 241 (B) Conversions	...	...	...	...	...	191
No. 262 Insanitary huts, etc.	...	...	...	...	...	113
No. 328 Mosquito control — overgrown plots, etc.	...	...	...	...	...	72
No. 235 (B) Drainage — other than conversions	...	...	...	...	...	62
No. 616 Deposit of Materials	...	...	...	...	...	52
No. 261 (G) Back premises, cleansing	...	...	...	...	...	42
No. 243 (B) Maintenance of drains	...	...	...	...	...	41
No. 266 (G) Provision of latrines and W.Cs.	...	...	...	...	...	28
Miscellaneous	...	...	...	...	...	58

 1,147

Prosecutions, all sections :

	Cases	Convictions	Withdrawn	Discharged
Public Health Ordinance	63	53	5	5
Milk and Dairies Regulations	24	22	2	—
Rats and Mice (Destruction) Rules	7	5	1	1
By-laws (Food)	13	11	—	2
By-laws (Mosquitoes)	141	128	7	6
By-laws (Other)	37	24	2	11
Totals	285	243	17	25

Fines and Costs Shs. 17,046/00.

To the cases prosecuted for contraventions of the Milk and Dairies Regulations there should be added a further fourteen prosecutions undertaken by the Police, this procedure being necessitated by certain legal formalities.

Furthermore, in addition to the fines imposed, prison sentences were awarded in a number of cases to a total of one hundred and thirty two weeks Hard Labour.

Inspections of Premises subject to Special Control :

					No. of Inspections.
Aerated water factories	...	...	...	...	107
Bakeries	...	...	...	...	207
Barbers	...	...	...	...	197
Butchers	...	...	...	...	691
Dairies and Milk shops	...	...	...	...	297
Eating Houses	...	...	...	...	1042
Fishmongers	...	...	...	...	147
Food Factories	...	...	...	...	198
Hotels and Bars	286
Markets	98
Restaurants and Tea rooms	251
Vegetable Sellers	300
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FOOD INSPECTION

The most encouraging sign in connexion with the control of food during the year has been the marked improvement in the quality of the milk being supplied within the Municipality. 74% of the samples examined were of category 'A' standard compared with 60% for the previous year, but it is even more gratifying to note the steady improvement which took place from month to month, beginning with 60% category 'A' in January and rising to 84% in June — a percentage which was maintained to the end of the year. Another pleasing feature has been the number of producers supplying category 'A' milk, the percentage having improved from 40% to 80%. This means that only about 30 of the 150 farms sending milk into Nairobi are producing milk with Resazurin Readings of less than 4.

This improvement can be attributed to a number of factors; to a growing consciousness on the part of dairy farmers of the importance of milk and its increased value if handled hygienically; to the co-operation which has been developed between this Department, the Dairy farmers' Association and the individual farmers; to regular sampling and testing; and not least to the coming into operation in October of the Nairobi Municipality (Milk and Dairies) By-laws, which gives the Municipality powers which it had sorely lacked in the past, in that hitherto no control could be exercised over dairies outside the Municipal area nor over the bacteriological quality of the milk received from them. This weakness is underlined when it is realised that practically the whole of the 10,000 gallons of milk consumed daily in Nairobi is produced on farms situated outside the Municipal boundary. Under the new by-laws, persons producing milk for the Nairobi market must obtain a licence from the Council and milk offered for sale must have a Resazurin Reading of not less than 4.

The initial licensing of these farms is a considerable task, but it is encouraging to find that in the great majority of cases the visit of the Council's inspector has been welcomed and the advice which has been given has been appreciated. There are already many indications of improvements to dairy premises, milking sheds and methods of sterilization and not a few farmers are coming to realise the advantage of proper pasteurisation.

Unfortunately, as in every community, there is a minority who resent "interference" with their business, a minority composed mainly of those to whom milk production is a sideline and whose interest is proportionately detached. The Council is reluctant to use the courts in order to impress upon the producers of so precious an article of food the necessity of maintaining a high standard of hygiene whether the total production be large or small. But where the condition of both dairy

premises and dairy products fall below a reasonable standard and no attempt is made to improve them, the possible reduction in the supply of milk available to the town will not deter the Council from taking legal action.

There is still room for improvement in retail dairy premises, mainly in the matter of general cleanliness and tidiness. It is hoped that the supply of water and electricity will improve sufficiently in the coming year to enable the rules of cleanliness to be more rigidly enforced.

It will be noticed in Table A (iv) that more than half of the 274 samples of milk analysed were found to be deficient in fat or non-fatty solids. It should be explained that all milk samples submitted for Resazurin tests are also lactometer tested and, normally, only those which have a low specific gravity are subjected to a more detailed analysis. It is the results of these examinations that are shown in the table so that it must not be assumed that more than half of Nairobi's milk falls below the legal standard. Nevertheless, there is an increasing tendency for the non-fatty solid content of much of the milk to fall below the statutory minimum, probably due to protein deficiency, and it is hoped that this problem may be more fully investigated during the coming year.

What has been said regarding retail dairies applies broadly to all places within the Municipality where food is prepared or sold. The cleanliness and appearance of both premises and personnel leave much to be desired and it is a sad reflection on many of the persons engaged in the food-handling trades, that it should be necessary to devote the time of a public health department's staff to pointing out such obvious shortcomings. But that such official supervision is necessary was emphasised when it became necessary early in the year to prosecute a dealer for having in his possession for the purpose of sale nearly 200 bags of sugar which had been so contaminated by rats that it was unfit for human consumption. It would seem that in order to combat effectively such gross negligence and disregard for the public health it is necessary for staff to be detailed to the sole task of supervising food premises — such a step is however quite impossible with the existing establishment.

The introduction of a well equipped aerated water factory and a modern ice cream plant manufacturing pasteurised ice cream have set a standard in these two commodities which it is hoped others may be induced to attain.

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

Table 20

Samples Examined by Food Inspector

(i) Resazurin Reduction Tests.

Month	A	B	C	Total
	4-6	Disc Reading 1-3½	0-½	
January	130	14	73	217
February	155	20	50	225
March	191	34	39	264
April	164	35	43	242
May	210	40	42	292
June	250	18	28	296
July	262	24	24	310
August	207	19	16	242
September	189	24	13	226
October	168	20	18	206
November	152	13	25	190
December	147	14	14	175
Total	2225	275	385	2885

(ii) Phosphatase Tests

Efficiently Pasteurised	Inefficiently Pasteurised	Not Pasteurised	Total
268	7	10	285

(iii) Methylene Blue Reduction Test

	A	B	C	Total
Milk	26	3	—	29
Cream	2	—	—	2
	28	3	—	31

(iv) Estimation of Fat and Total Solids

	Satisfactory	Unsatisfactory	Total
Milk	134	140	274
Cream	2	—	2
	136	140	276

Table 21**Samples Examined by Government Chemist**

Article	Satisfactory	Unsatisfactory	Total
Butter	1	—	1
Cocoa	—	1	1
Ghee	1	—	1
Ginger	1	—	1
Jam	1	—	1
Maize Meal	1	—	1
Milk	—	7	7
Rice	1	—	1
Sherry	1	—	1
Soda Water	—	1	1
Sugar	—	1	1
Tea	1	—	1
Tinned Fish	—	1	1
Tinned Fruit	—	3	3
Water	3	—	3
Wheat Flour	1	—	1
White Pepper	1	—	1
	—	—	—
Total	13	14	27
	—	—	—

Table 22**Samples Examined by Government Bacteriologist**

Article	Satisfactory	Unsatisfactory	Total
Water	96	15	111
Aerated Waters	27	2	29
Cordials	1	—	1
	—	—	—
Total	124	17	141
	—	—	—

Table 23
Legal Proceedings in Connexion With Food Offences

Nature of Offence	Prosecu- tions	Convic- tions	Acquit- tals	Penalties	Costs
Milk and Dairies Regulations					
(a) Using unregistered premises as dairy	1	1	—	6 wks. hard lab.	
(b) Selling milk without licence	10	10	—	Total: Fines 55/- Hard Lab. 12 wks.	
(c) Using unapproved type of can	3	3	—	Total: Fines 80/-	
(d) Selling, or conveying for sale adulterated milk	23	23	—	Total: Fines 625/- Hard Lab. 106 wks.	10/50
Public Health Ordinance					
(a) Exposing for sale unsound foodstuffs	1	1	—	Shs. 1,600/-	10/—
(b) Failing to protect foodstuff against contamination	1	1	—	1,500/-	
Public Health (Food) Rules					
(a) Using unregistered premises for preparation of foodstuffs	1	1	—	200/-	10/—
Nairobi Municipality (General)					
By-laws					
(a) Using unlicensed store premises	1	—	1	—	—
(b) Permitting use of an unlicensed swimming pool	1	1	—	20/-	
(c) Permitting swimming pool to be used without a supervisor	1	1	—	70/-	10/—
(d) Failing to maintain a proper chlorine content in a swimming pool.	1	1	—	70/-	

Table 24

Unsound Food Condemned					lbs.
Cocoa	...	...	...	...	83
Dried Fruit	...	...	...	...	4759
Fish	...	...	...	...	1008
Ice Cream Powder	...	...	...	...	552
Matzos	...	...	...	...	145
Milk	...	...	...	...	140
Miscellaneous Provisions	...	...	...	...	924
Mustard Flour	...	...	...	...	456
Olives	...	...	...	...	56
Patent Medicine	...	...	...	...	2487
Pudding Powder	...	...	...	...	2436
Sweets	...	...	...	...	1430
Sugar	...	...	...	...	42560
Tinned Fish	...	...	...	...	1329
Tinned Fruit	...	...	...	...	78
Tinned Meat	...	...	...	...	3488
Tinned Vegetables	...	...	...	...	3273
Tomato Puree	...	...	...	...	720
Total					65924 lbs.

MEAT INSPECTION

The inspection of meat was carried on at the Abattoir throughout the year by one European Inspector assisted by a locally trained African assistant.

The amount of work is progressively increasing. The total number of carcasses inspected during the year 1949, 269,843, exceeded the number inspected in 1948 by 28%.

The maintenance of supervision of Butchers Shops and Poultry stalls was continued. Five prosecutions were instituted and fines amounting to Shs. 2,020 imposed for infringements of the By-laws controlling the sale of meat and poultry.

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

Table 25
Carcasses Inspected

Animal	1947		1948		1949	
	Number of carcasses	Weight of meat passed lbs.	Number of carcasses	Weight of meat passed lbs.	Number of carcasses	Weight of meat passed lbs.
Grade Oxen ...	8,963	5,271,918	7,665	4,437,035	11,723	5,744,270
Native Oxen ...	7,347	1,469,724	10,011	2,212,431	10,119	2,307,923
Calves ...	391	24,494	1,231	101,455	1,058	76,556
Grade Sheep ...	10,756	486,308	9,313	402,067	14,582	510,360
Native Sheep ...	16,006	370,150	26,186	576,092	15,437	376,090
Goats ...	20,723	517,975	24,701	543,422	23,352	561,475
Pigs ...	9,025	823,173	6,969	576,569	9,208	747,922
Poultry ...	60,323	150,707	107,635	269,087	184,364	461,815
Total ...	133,534	9,060,449	193,711	9,118,248	269,843	10,786,411

Table 26
Carcasses Condemned

Animal	1947		1948		1949	
	Number	Rate per cent	Number	Rate per cent	Number	Rate per cent.
Grade Oxen ...	321	3.5	168	2.2	209	1.8
Native Oxen ...	1,122	15.2	1,162	11.6	1,157	11.4
Calves ...	119	30.4	190	15.4	173	16.3
Grade Sheep ...	265	2.4	114	1.2	34	0.2
Native Sheep ...	528	3.2	223	0.8	393	2.5
Goats ...	2,669	12.8	772	3.1	889	3.8
Pigs ...	66	0.7	20	0.2	34	0.3
Poultry ...	709	1.1	792	0.7	768	0.4
Total	5,799		3,441		3,657	

Table 27
Conditions Necessitating Condemnation

		Grade Oxen	Native Oxen	Calves	Grade Sheep	Native Sheep	Goats	Pigs	Poultry
Cancer	...	1	—	—	—	—	—	—	3
C. Bovis	...	123	868	157	—	—	—	—	—
C. Cellulosæ	...	—	—	—	—	—	—	17	—
Dropsy	...	—	9	—	—	17	5	—	5
Dropsy & Emaciation	...	21	149	—	16	314	700	5	2
Emaciation	...	2	7	5	—	2	20	—	56
Fevered Condition	...	33	85	—	11	41	121	3	154
Heartwater	...	—	—	—	—	—	2	—	—
Immaturity	...	3	—	11	—	—	—	—	—
Jaundice	...	—	8	—	3	6	1	—	50
Lymphadenitis	...	—	—	—	—	—	5	—	—
Moribund	...	—	1	—	—	1	—	—	196
Pleuro-pneumonia	...	15	3	—	1	—	5	—	—
Septic Condition	...	2	14	—	1	11	28	3	174
Tuberculosis	...	1	8	—	1	—	—	—	1
Bruising	...	8	4	—	1	1	2	6	86
Skin Disease	...	—	—	—	—	—	—	—	22
Decomposed	...	—	—	—	—	—	—	—	19

Table 28
" Measle " Rate

		Inspected	Condemned	Rate %	Measly Carcases Passed	Rate %
Grade Oxen	...	11,723	128	1.0	428	3.6
Native Oxen	...	10,119	868	8.5	1032	10.2
Calves	...	1,058	157	14.8	59	5.6
Total	...	22,900	1148	5.0	1519	6.6

Table 29
Organs Condemned

Hearts	...	...	...	...	2,768
Heads	...	...	...	...	271
Tongues	...	...	...	...	274
Kidneys	...	...	...	...	4,397
Livers	...	...	...	...	26,815
Lungs	...	...	...	...	7,917
Spleens	...	...	...	...	1,063
Stomachs	...	...	...	...	36
Intestines	...	...	...	...	36
Others	...	...	...	...	1,886
Total	...	...	...	...	45,463

Table 30
Total Weight Condemned lbs.

Grade Oxen	...	...	...	133,668
Native Oxen	...	...	...	329,961
Calves	...	...	...	14,209
Grade Sheep	...	...	...	9,320
Native Sheep	...	...	...	11,373
Goats	...	...	...	18,473
Pigs	...	...	...	5,715
Poultry	...	...	...	2,659
Total	...	...	...	<u>525,378</u>

Table 31
Disposal of Condemned Carcasses

			Number	Total Weight lbs.
Measly Carcasses Cooked	...	...	1,116	296,374
Diseased Carcasses Processed	...	...	2,541	329,403

WATER SUPPLY

(from the Municipal Engineer's Report)

General :

The rapid development of the town put a further strain on the inadequate resources of water supply and as a result of the increased demand there were many cases of hardship during the dry months, particularly in the Muthaiga, Burnbrae, Fairview and Desai Road areas.

Restrictions on the use of water for non-essential purposes had to be kept in force throughout the year.

Some relief was given by the addition of 220,000 gallons a day taken from Nairobi Dam, but this extra supply was insufficient to bring the total up to normal requirements.

Good progress was, however, made in the new Ruiru Dam and Pipeline and the long awaited relief was very near attainment by the end of 1949.

Existing Sources of Supply :

- (a) *Kikuyu Springs* : These have given an unfailing and very satisfactory supply of just over one million gallons of water per day throughout the year. The level in the Kikuyu Reservoir was lowered during the period of serious drought in November, but with the advent of good rainfall in December, the reserve in the Reservoir is being built up again.
- (b) *Ruiru Supply* : Pending completion of the main concrete dam, the supply of two million gallons a day has been maintained through the existing 9" and 12" pipelines from a small reservoir impounded by the construction of a temporary dam upstream of the main dam. To increase the quantity obtained from a purely gravity flow, a 45 h.p. booster pump was installed in the 12" line and whilst the booster has worked well, an increase of over 60,000 gallons per day has been obtained.

The booster pump and especially the diesel engine are, however, very old and considerable trouble arose towards the end of the year owing to frequent breakdowns of the pumping plant, which aggravated the shortage caused by drought and the increased demand due to hot weather.

- (c) *Nairobi Dam* : The pumping plant and filtration plant for this scheme were finally erected and completed in August and the plant put into service on 20th August.

Since that date the scheme has worked very satisfactorily and given a regular daily supply of 220,000 gallons per day approxi-

mately to the town and by means of strict supervision and regular bacteriological analyses, it has been possible to give a water which has been regularly classed as "highly satisfactory."

Services :

The demand for new connections shows no sign of diminishing and 653 new connections were given during the year, an increase of approximately 10% over the previous year.

The total number of connections is now 6,831.

Meters :

The position regarding supply of meters greatly improved and as adequate meter spares were also received, many defective meters were able to be repaired and put into service and it was found possible to meter all connections within the area of supply and there now remain no connections on the flat rate supply.

Purity of Water :

74 samples of water were taken for bacteriological examination during the year, the results of which were as detailed below :—

Highly satisfactory	...	...	...	49
Satisfactory	...	...	...	9
Suspicious or doubtful		...	...	1
Unsatisfactory	...	...	...	11
Spoilt or contaminated samples			...	4.

The unsatisfactory results came from first tests of the water from Nairobi Dam, which became "highly satisfactory" on further pumping and chlorination. There was some contamination on Whitehouse Road, but after super-chlorinating the line, the results from samples taken in the area were "highly satisfactory."

Rainfall :

The rainfall during 1949 was well below the average and almost drought conditions prevailed during the months of September to November. At Lari Forest Station, Uplands, which is in the main gathering ground for the Ruiru Dam, the details of rainfall were :—

1949	Total rainfall	31.96 inches.
1948	Total rainfall	52.96 inches.
1947	Total rainfall	68.19 inches.
1946	Total rainfall	57.02 inches.
1945	Total rainfall	45.35 inches.

New Works :

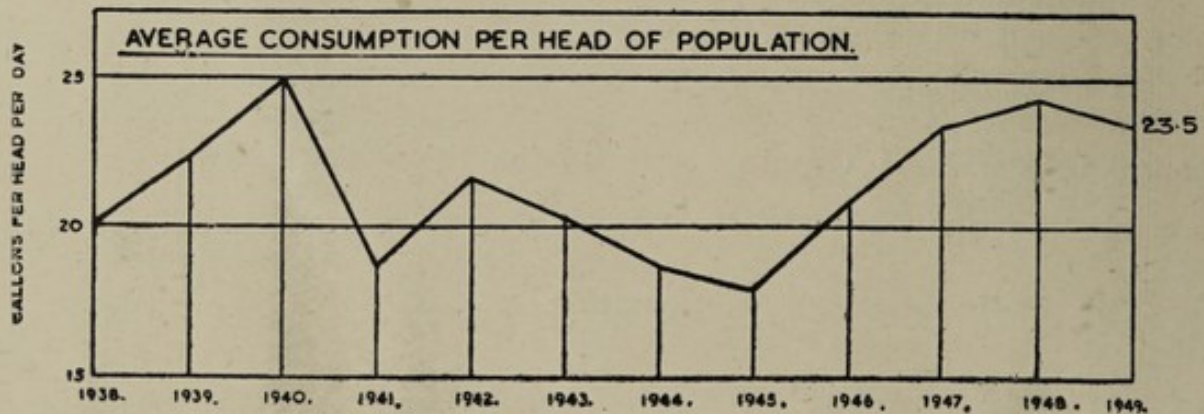
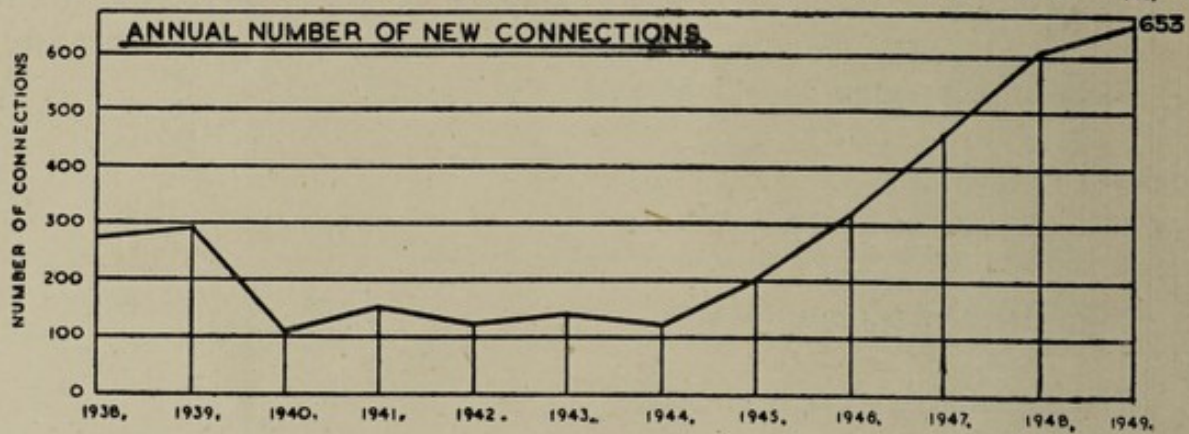
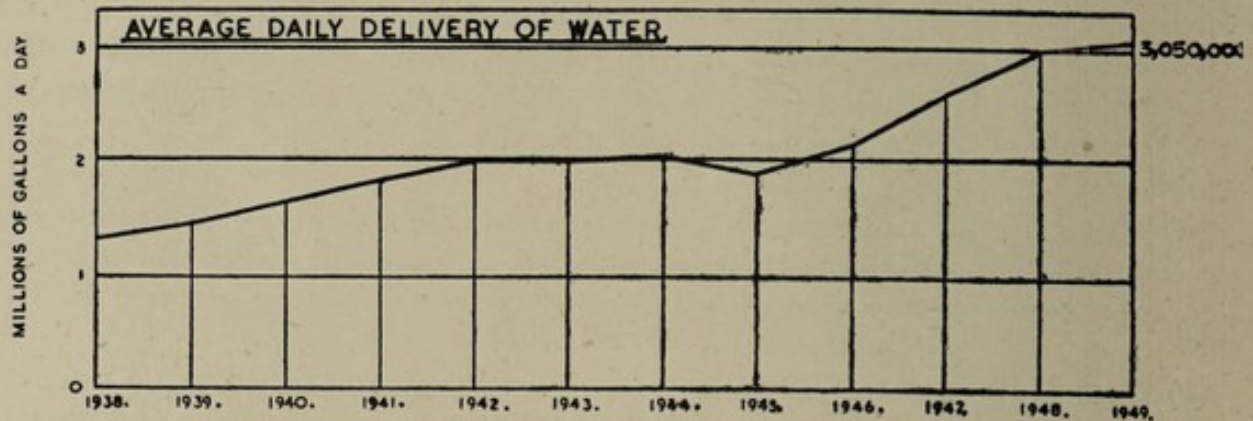
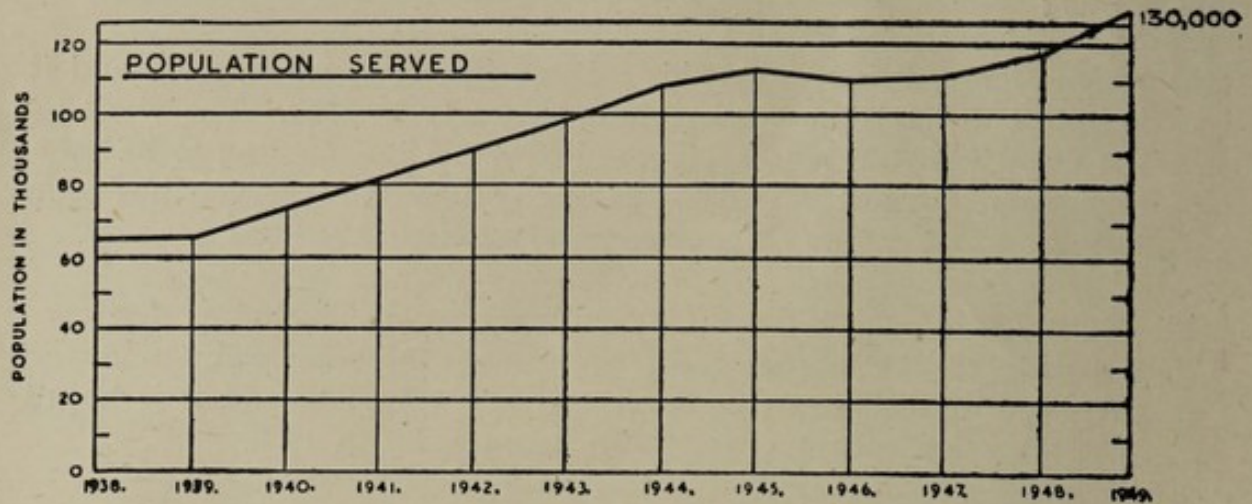
- (a) *Ruiru Dam* : Progress on this scheme has been satisfactory and it is hoped to have the work completed early in 1950. The work on the Dam was sufficiently advanced to allow impounding to be commenced in November, and to the end of 1949 the reservoir has been filling up at the rate of approximately 1,000,000 gallons per day.
- (b) *Chania/Sasumua Scheme* : Preliminary works, including the construction of the access road, provision of labour camp and the diversion of the Sasumua River are now complete and it is hoped that the main contract work will begin early in 1950.
- (c) *Ruiru/Nairobi Pipeline* : The provision of 16 miles of 16" diameter pipe and 2 miles of 12" diameter pipe to link the Ruiru Dam with the existing waterworks in Nairobi was started early in 1949 and should be completed early in 1950. This line will bring an additional supply of over 1,000,000 gallons a day.
- (d) *Filter Plant, Kabete* : In order to treat the extra 1,000,000 gallons a day, a further unit is being added to the present Filter Plant and work on this began in mid-1949 and will be completed early in 1950.
- (e) *New Mains* : Over 10 miles of new mains were laid to serve developing areas in the town. These included mains to serve the New Industrial Area, Woodley, Kileleshwa, Bahati, Nairobi South and many minor estate developments.

Statistics :

		1949	1948
Total delivery — million gals.	...	1,105	1,062
Average daily delivery — gals.	...	3,048,600	2,903,250
Population, estimated	... ..	130,000	118,500
Average daily delivery per head — gals.		23.5	24.5

General Information : Graphs accompanying this report show :—

- (a) Population.
- (b) Daily total water consumption.
- (c) New connections.
- (d) Daily water consumption per head of population.



CLEANSING

Services. The year saw much expansion and a consequent increase in the Department's work in all branches.

The figures below all shew a substantial increase with the exception of the conservancy tonnage, possibly due to increase in sewer connections.

When the Incinerator closed down in September Mr. Clough was transferred to charge of the Refuse Tip and then took over from Mr. Hoarau when he resigned.

Mr. Pienaar returned from six months leave on 16.6.49 and took over the Conservancy section until Mr. Davis proceeded on long leave.

African Staff. African employees worked throughout the year without going on strike but there was considerable unrest. During the period of the strike of African drivers attempts were made to get the African Cleansing Department crews to join in but these attempts failed.

Although there was a considerable expansion of work in all sections the numbers of employees did not increase.

Transport. The Cleansing Department cannot continue to expand without making calls on Council for further transport and personnel if the population increases at the present rate.

As an example of the work to be done, with regard to refuse disposal, it is estimated that the daily refuse disposal per 1,000 of the population is some 22 cwts. as compared with an average of 16 cwts per 1,000 of the population in the U.K.

The whole of the stock of refuse bins received in the early part of the year was put on hire. A further consignment arrived late in the year and were very much in demand.

Table 32
Performance Figures

Conservancy.					1948	1949
Estimated total tons night soil						
removed and disposed of	...				13,477	13,142
Exhausters.						
Total Conserving Tanks emptied	...				2,253	4,125
Total Septic Tanks emptied	...				609	741
Total waste water pits emptied	...				10,811	12,032
Refuse Removal.						
Total estimated tons refuse collected						
and disposed of	...	...	...	...	37,694	51,085
Sweeper Service.						
Estimated total premises serviced	...				690	1,100

SEWERS

(from the Municipal Engineer's Report)

Sewage Disposal Works:

In August the first extension to the Disposal Works was completed. This consisted of new sedimentation tanks, filters, humus lagoons and digestion tanks and raised the treatment capacity of the works from 600,000 gallons per day to 1,200,000 gallons per day.

Messrs. Howard Humphreys & Sons, Consulting Engineers, have been instructed to proceed with designs for a further extension which will be required to deal with the increase in sewage that will result from additional sewers and from Nairobi's improving water supply.

Maintenance of Sewers:

The maintenance of sewers during the past year has not proved easy. With few exceptions the sewers of Nairobi are of adequate capacity, but with the gradients available it would be impossible to design any sewers to withstand the abuses to which they are subjected.

The large quantity of grit which finds its way into some sewers reduces their capacity by as much as 70% and results in frequent chokages. Much of this grit is attributable to the custom of scouring cooking utensils with sand. Manholes appear to be the accepted dumping place for all manner of refuse and waste materials — the covers usually being left off in the process.

Rags and sacks are deposited in the sewers in enormous quantities and these mass together to form such substantial barriers that there is usually no alternative to digging out and breaking into the sewer to remove them, and this process sometimes means that the sewers are choked for many hours.

INFECTIOUS DISEASES CONTROL

The staff position was not improved during the year and the vacancies still exist. Mr. H. G. Bilcliffe resigned in June to take up a similar appointment in Tanganyika.

Insufficient allocation of funds precluded the engagement of sufficient African staff with the result that the Aedes Yellow Fever Control, had to be based on a fourteen day cycle instead of the recognised seven day cycle, but the whole Municipal area was brought under control. Only a portion being under control during 1948.

Considerably more time was spent by the staff in checking up in cases of infectious diseases and arranging for mass inoculations in many instances. Considerable work is involved in checking contacts particularly those contacts of cases coming from overseas, India in particular.

Malaria.—Malaria was made notifiable by Bylaw in 1930. Co-operation by practitioners in prompt submission of notifications would greatly facilitate our work and make records more accurate.

Death rate.—Deaths recorded amongst residents were Europeans nil, Asians four, and Africans twenty, a total of twenty four. In some cases the malaria was complicated by Bronchitis and Pneumonia.

The population figure is 128,000 giving a death rate of .19 per thousand, all races. The case mortality rate being 8 per cent and attack rate 2.4 per ten thousand all races. There were 302 notified locally-contracted cases, which is a substantial increase on 1948. Comparative figures for the last ten years are :—

1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
6342	1684	1363	1487	706	310	463	353	195	302

Table 33

Malaria cases by Months

Residents contracting in Nairobi.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Tot.
Europeans	2	7	5	2	3	5	3	2	1	—	—	1	31
Asians	3	6	12	4	10	7	2	4	—	1	—	1	53
Africans	8	33	43	24	22	23	28	18	13	5	—	1	218
	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	13	49	60	30	35	35	33	24	14	6	—	3	302
1948.	37	8	11	9	19	28	24	12	11	17	10	9	195

1948 Europeans 26: Asians 91: and Africans 78.

The peak period is unusual falling in February—March instead of June—July. This would appear to be the result of two factors, the first as will be seen from the graph, the unusually heavy rainfall of November

and December 1948, the high adult figure following in December and January and the cases following in turn. The second factor being the relaxation of control measures during the latter part of 1948 and the withdrawal of control to within the Municipal boundary permitting the vital eastern periphery to remain uncontrolled. It will also be noted that after February the cases remained at a high level through to July and then declined. Analysis of cases shows the majority 75% can be regarded as primary infections, 179 of which were subtertian and 106 clinical cases. Adults represent over 50% of the cases with 25% children, nearly all African children between the ages of one and ten years. Seven cases showed subtertian gametocytes; Benign two with rings and 2 with gametocytes and three Quartan infection one of which with gametocytes.

The majority of cases, African and Asian were resident in the eastern section of the town nearest the uncontrolled area.

Table 34
Malaria Cases by Months

Residents Contracting Outside Nairobi.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Tot.
European	5	10	3	1	14	5	5	5	3	2	1	2	55
Asian	3	3	6	—	1	2	5	2	1	1	1	3	28
African	6	1	5	9	7	2	48	15	15	8	25	11	152
	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals	14	14	14	10	22	9	57	22	19	11	27	16	235

Most of the patients contracted Malaria after holidays or business trips to the Coast or Uganda. In the case of Africans, the majority after visits to the Kisumu area.

Non-Residents Contracting Outside Nairobi.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Tot.
European	15	15	12	3	10	5	2	3	10	1	—	2	78
Asians	1	—	9	3	—	1	1	—	—	1	1	—	17
Africans	49	67	51	103	81	109	16	54	64	77	77	77	825
	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals	65	82	72	109	91	115	19	57	74	79	78	79	920

920 cases are recorded, a substantial increase on the 1948 figure of 643.

Of European cases 26 were school children returning to school from their normal place of residence having contracted malaria during the holidays, many were from Tanganyika. Thirtyfour cases of adults many of whom were officials who contracted malaria on Safari. In the case of

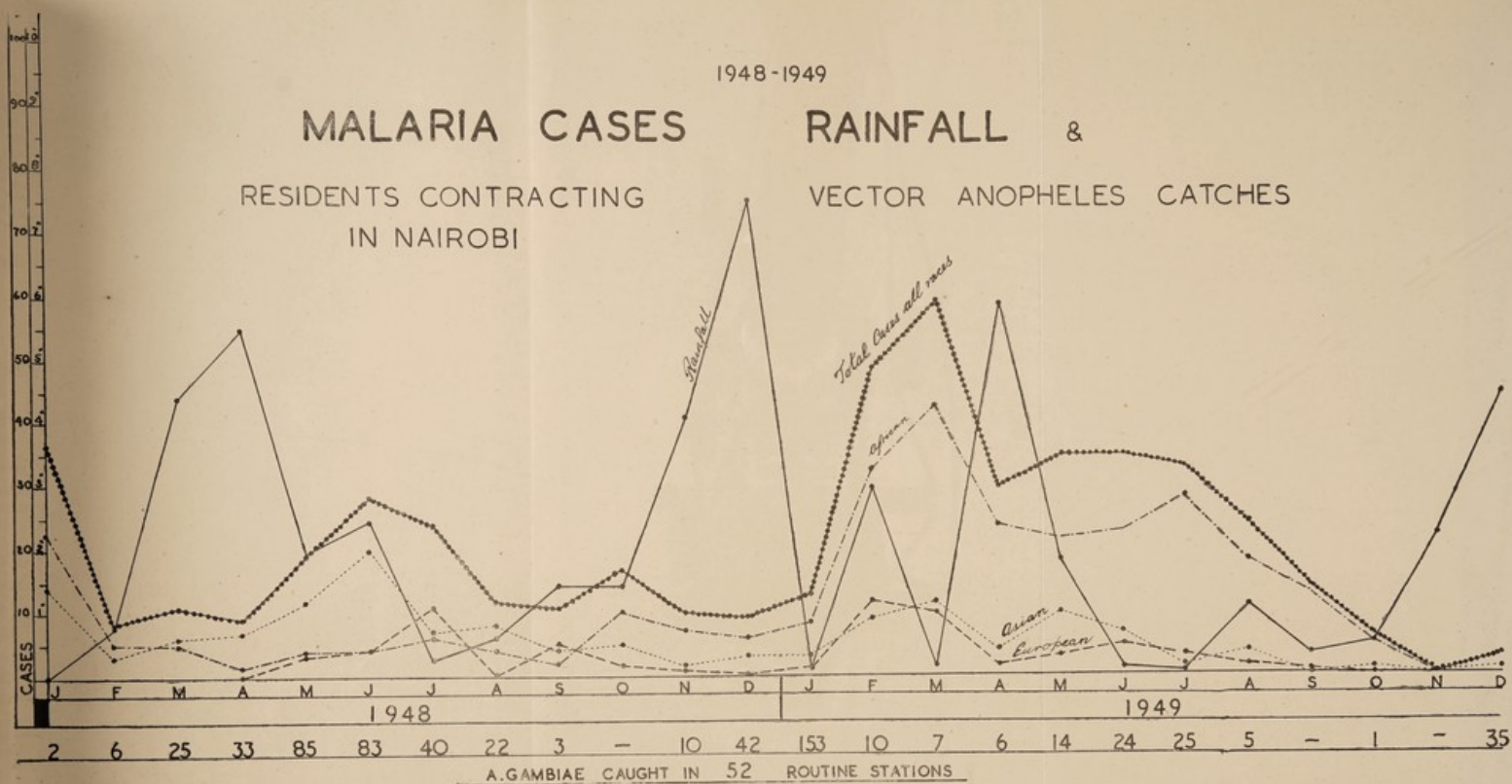
1948-1949

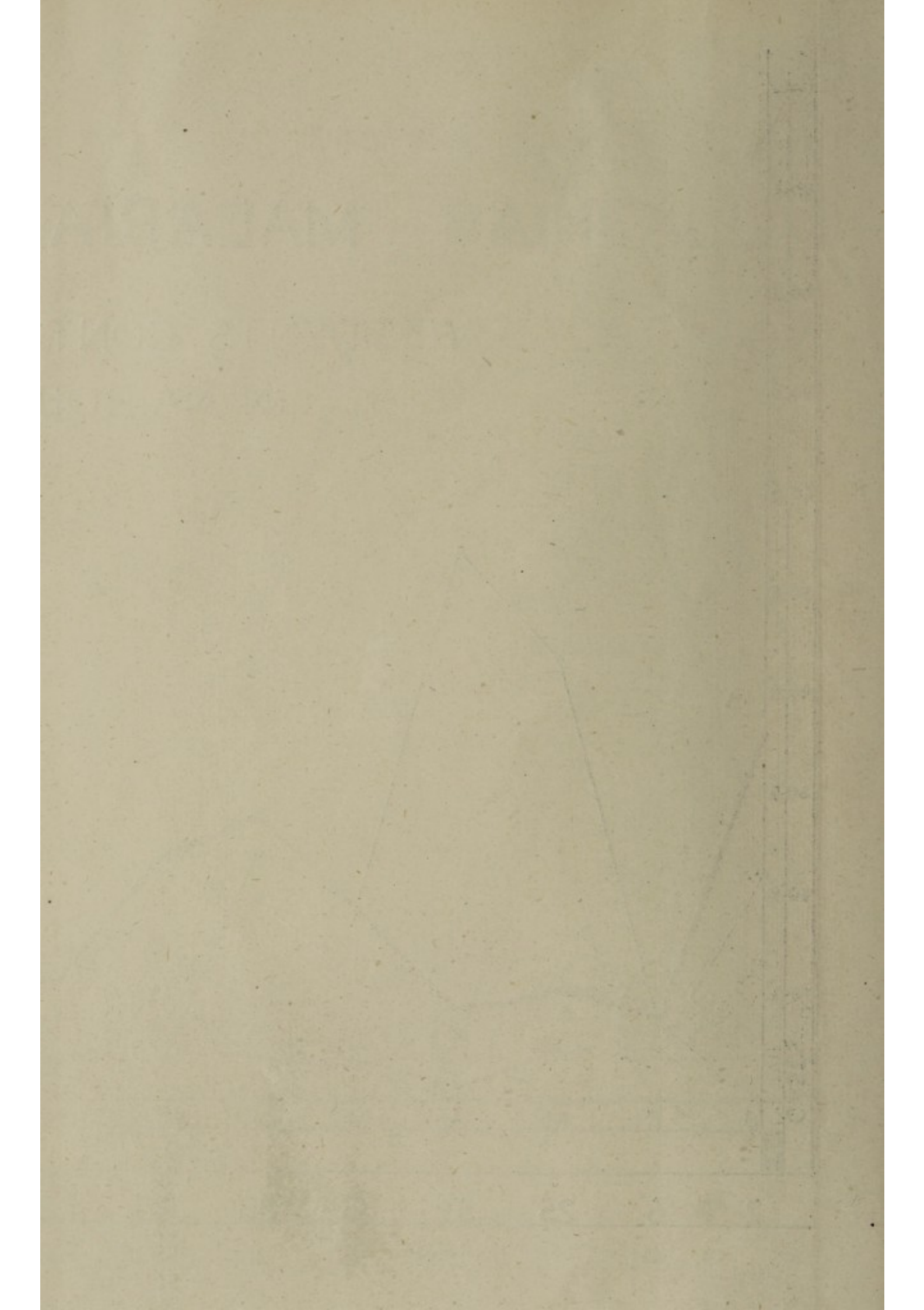
MALARIA CASES

RAINFALL &

RESIDENTS CONTRACTING
IN NAIROBI

VECTOR ANOPHELES CATCHES





Asians the figure is surprisingly low, doubtless due to non notification of cases by practitioners.

Of particular interest are the African cases, 123 were children under one year and 498 between one and five years, or 621 under five years. The vast majority being Lake Tribes from Kavirondo district of Lake Victoria. There are two high incidence periods April-May-June and October-November-December, followed by January, while the gametocyte rate rises in these same periods. This is similar to the finding for 1948 and follows the movements of these people to the findings for 1948 and follows the movements of these people to and fro between Nairobi and Kisumu for crop planting and harvesting. There is strong evidence from the Child Welfare Clinic returns that the majority of the cases are Railway employees. The majority of cases are subtertian 84% with 39% showing gametocytes, 11% were clinical cases leaving 5% Benign and Quartan.

Mosquito Data

Vector Species — Adult Catches

As will be seen from the table and the graph the peak of adult production is shown in the catch for January, this following the high catch in the previous December (1948), with cases following in March. The heavy rains of November and December providing the adult crop in January. Turning to the Table of Vector Anopheline Catches from stations to the east of the town it will be seen that the greatest number of mosquitoes were taken there in January. Numbers were again taken in June-July following the long rains. A situation similar to that of the early part of the year is anticipated in January 1950, as will be seen again from the graph and tables that the unusually heavy rainfall of November-December, resulted in an increase of adults in December. The control by oiling was not possible during the year outside the Township boundary with the result that breeding was unchecked giving rise to high catches, particularly to the east and south. As will be seen from the Table of Station designated Outer, Inner and Central, few vector species were caught in the Inner stations and only four in the central stations. Catches of non-vector species are included for comparison.

Larval Control

Control by oiling was confined to the township with the result that many important sections normally controlled just outside the town were permitted to breed their quota of *A.gambiae*, only a dry year preventing a large hatch of vectors. The increase in Vector larvae found in December, (17 collections out of a year's total of 26) is due to the fact that heavy rain fell during November and December and no oiling was carried out due to shortage of funds, the vote having been overspent by October. The consequences of this might be serious in 1950. It will also be noted from the Table of Non-Vector Species larvae found that there was a similar increase in December.

Table 39
A.gambiae Caught in the Fifty-Two Collecting Stations
(Per Week and Per Month)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1st week	36	10	2	1	2	10	10	1	—	—	—	3
2nd „	41	—	2	—	3	3	4	1	—	—	—	3
3rd „	46	—	3	3	4	7	7	—	—	—	—	3
4th „	30	—	—	1	5	4	2	3	—	—	—	13
5th „	—	—	—	1	—	—	2	—	—	2	—	13
Total for month	153	10	7	6	14	24	25	5	—	1	—	35
1948 Totals :	2	6	25	33	85	83	40	22	3	—	10	42

Table 40
Non-Vector Anopheline Catches

Species	Stations
A.demeilloni	3. 5. 7. 17. 18. 34.
A.christyi	3. 16. 17. 18. 34.
A.cinereus	5. 17. 18. 23. 34.
A.rufipes	3. 5. 7. 18.
A.coustani	6. 7.
A.squamosus	

Table 41
Vector Anopheline Catches

[illegible]

(total number of both sexes caught)
WESTERN STATIONS

Total Eastern Stations: 264.

NON-VECTOR ANOPHELINE CATCHES WESTERN STATIONS

Total Eastern Stations : 19.

Total Western Stations : 99.

Table 44

A.gambiae Larvae

Collections per Section per month by weeks

Number		SECTION NUMBERS.												Total
MONTH	of Week.	8.	12.	17.	22.	25.	28.	31.	34.	49.	50.	51.	52.	Collections.
January	1			x1		x2							x1	4
	3													1
	4					x1								1 6
February	6					x1								1 1 1
56														
March	10								x1					1 1 1
May	20											x1		1 1 1
December	50									x1				1
	51	x1		x2				x1		x1			x1	6
	52	x5	x2	x1						x2				11 17
Totals														26

x1 = 1 focus
 x2 = 2 foci
 x3 = 3 faci

Table 45

Non-Vector Anopheeline Larvae

Months and Sections

1st and 2nd Stage.	SECTIONS.
January	7. 8. 11.
February	7. 8. 21. 22. 27. 34. 46. 51.
March	22. 27. 34. 35. 51.
April	9. 13A. 17. 23. 24B. 32. 46.
May	9. 23. 35.
June	10. 21. 23. 35. 52.
July	11. 22. 35.
August	35.
September	
October	35. 52.
November	14. 35.
December	9. 17. 18. 20. 23. 27. 30. 34. 35. 51. 52.
<i>An.christyi</i>	
January	1. 10. 11. 24B. 49.
May	13A. 46.
June	35.
July	35.
December	8. 20. 34. 50.
<i>An.coustani</i>	
January	46.
May	24B. 50.
June	1. 51.
December	8. 39. 50. 52.
<i>An.natalensis</i>	
January	21.
<i>An.demeilloni</i>	
January	1. 46.
June	35.
September	35.
<i>An.cinereus</i>	
January	10. 11. 14. 24B. 46.
April	11.
June	35.
August	35.
September	35.
October	35. 51.
<i>An.squamosus</i>	
February	34.
<i>An.pharoensis</i>	
December	49. 50.

Yellow Fever — *Aedes* (Domestic) Mosquito Control

Shortage of African Staff as mosquito Inspectors necessitated the control being carried out fortnightly, instead of weekly in order to cover the whole town. In 1948 control was only over a portion of the town. Once again there was no scavenging gang or tree hole (natural foci) gang.

Warning Notices and prosecutions were stepped up considerably but little improvement as a result of these can be claimed. Small fines were imposed. A synopsis in figures since 1942 is included for comparison.

Aedes Index

The index for 1949 to foci was 0.01 and to premises 0.10, which compares favourably with 1948 and 1947. See comparative Table. Total premises searched numbered 208,490 and average of 8,019 per cycle. Actual buildings now number 8,719. Foci searched numbered 1,597,147 an average of 7.66 foci per premise.

Aedes aegypti was found breeding 241 times, of these 195 collections were made from temporary foci, see Table.

Permanent foci searched number 616,643, these are permanent water retaining foci such as septic tanks, rainwater tanks, etc., Temporary foci such as tins drums numbered 980,504.

Analysis of breeding is given in Table and Table shows the districts, premises and the breeding found.

Notices and Prosecutions

A new system was adopted whereby only one Warning Notice was served, prosecution in the courts following on a second offence. 2,807 warnings were served. 146 cases were taken to the courts and convictions obtained in 135 cases. Thirteen cases had previous convictions. Three cases were acquitted and eight cases withdrawn as offenders had left the country before date of hearing. Total fines imposed amounted to Shs. 3,585/50 and average of Shs. 1,435/50 costs, being included. Average fine per conviction Shs. 26/63.

Table 46
Aedes, Houses Breeding, per Block

BLOCK		No. of Houses			Increase Houses Built		Aedes aegypti		Anopheles		Culex		Total All Species	
		1948	1949	No. of Houses	1949	1948	1948	1949	1948	1949	1948	1949	1948	1949
A	Burnbrae	276	367		91	—	—	34	—	5	—	218	—	257
B	Kilimani	279	325		46	—	—	5	—	1	—	304	—	310
C	Hill Area	280	302		22	—	—	3	—	—	—	157	—	160
D	Hill & Chiromo	326	340		14	—	—	10	—	1	—	156	—	157
E	Groganville	336	375		39	—	—	22	—	2	—	198	—	222
F	Upper Parklands	386	418		32	—	—	58	—	—	—	264	—	322
G	Parklands	314	335		21	—	—	18	—	—	—	307	—	325
H	City Park & Ngara	436	445		9	50	—	17	—	—	108	161	158	178
J	Muthaiga	227	362		135	72	—	41	1	—	112	8	185	129
K	Commercial	240	240		—	—	—	—	—	—	27	50	27	50
L	Commercial	232	234		2	—	—	—	—	—	9	35	9	35
M	Commercial	310	325		15	1	—	—	—	1	32	25	33	26
N	Ngara	612	576		—36	1	—	—	—	—	69	150	70	150
O	Pumwani	544	621		77	4	—	—	—	—	48	43	52	43
P	Shaurimoyo	412	478		66	—	—	—	—	—	1	3	1	3
Q	Racecourse	555	554		—1	1	—	—	—	—	28	23	29	23
R	Fairview	355	378		23	7	—	2	—	—	184	261	191	263
S	Eastleigh	479	500		21	10	—	—	—	—	411	479	421	479
T	Riverdene Farms	6	93		87	—	—	—	—	—	5	4	5	4
U	Industrial Area & African Locations	776	1020		244	2	—	3	7	2	221	228	230	233
V	Eastleigh	26	27		1	—	—	—	—	—	12	3	12	3
X	Kabete	158	183		25	—	—	4	—	1	—	46	—	51
Y	Govt. House & Kileleshwa	176	221		45	—	—	—	—	—	—	47	—	47
		7741	8719		978	148	—	217	8	13	1267	3240	1423	3470

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

Table 47

Aedes, Permanent and Temporary Foci Breeding and Indices

	No. examined	Larval Species found (times)				Larval Species found per cent.			
		Aedes eagypiti	Anopheles	Culex	All Species	Aedes aegypti	Anopheles	Culex	All Species
PERMANENT FOCI:—									
Rain Water Tanks	27152	25	—	78	103	0.09 %	—	0.28%	0.37%
Septic Tanks	67580	—	—	454	454	—	—	0.67%	0.67%
Soakage Pits	30717	2	—	484	486	0.006%	—	1.57%	1.58%
Sunken Dums and Bath Pits	23067	4	—	321	325	0.017%	—	1.39%	1.40%
Gully Traps	126475	6	—	119	125	0.004%	—	0.09%	0.09%
Earth Drains	75697	1	3	323	327	0.001%	0.004%	0.42%	0.43%
Concrete Drains	262864	—	—	86	86	—	—	0.03%	0.03%
Water Meters	3091	8	1	226	235	0.26 %	0.03 %	7.31%	7.60%
Permanent TOTAL	616643	46	4	2091	2141	0.007%	0.0006%	0.34%	0.34%
TEMPORARY FOCI:—		195	9	1385	1584	0.02 %	0.0009%	0.13%	0.16%
GRAND TOTAL	1517147	241	13	3476	3730	0.01 %	0.0008%	0.21%	0.23%

Table 48
Districts and Principal Foci
Aedes aegypti/Culex

Blocks —		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	X	Y						
No. of Houses	...	867	325	302	340	375	418	335	445	362	240	234	325	576	621	478	554	378	500	93	1029	27	182	221	8719					
Prosecutions	...	6	8	2	2	2	29	31	9	11	4	1	1	4	1	—	—	8	17	—	10	—	—	—	146					
FOCI		FOCI BREEDING																												
		FOCI																												
		SEARCHED																												
		Anopheles																												
		Aedes																												
		aegypti																												
		Culex																												
		Total																												
Septic tanks	...	-/30	-/113	-/44	-/7	-/42	-/68	-/67	-/12	-/23	—	—	—	—	—	—	-/4	-/5	—	—	-/3	—	-/5	-/29	67580	—	—	454	454	
Water tanks	...	9/10	2/2	—	1/5	3/2	1/9	1/13	1/11	3/3	—	—	—	-/4	—	—	-/1	-/4	-/8	—	-/6	1/-	—	—	27152	—	25	75	103	
Gully traps	...	-/5	-/5	-/5	1/20	-/3	-/6	1/26	1/9	3/6	-/3	-/9	—	-/3	-/4	—	—	—	-/12	-/1	-/2	—	—	—	126475	—	6	119	125	
Earth Drains	...	-/45	-/70	-/14	-/10	-/17	-/41	-/33	-/6	-/4	-/2	—	-/1	-/8	—	—	-/1	-/13	-/9	-/45	-/1	-/3	—	—	75697	—	—	86	86	
Concrete drains	...	-/10	-/2	-/13	-/3	-/1	-/1	-/8	-/11	-/5	-/2	-/5	—	-/2	-/1	—	—	—	-/5	—	-/10	-/3	-/4	—	262864	3	1	323	327	
Guttering	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	36764	—	—	—	—	
Bath pits	...	-/42	-/37	-/34	-/37	-/45	-/31	-/28	-/8	4/18	—	-/1	-/1	-/2	—	—	—	-/8	-/2	-/2	-/6	-/19	—	—	23067	—	4	321	325	
Tins	...	10/12	2/1	-/1	-/2	8/13	21/16	3/15	-/5	24/11	-/6	-/3	-/3	-/2	-/3	—	-/6	—	-/2	-/3	—	—	—	—	339495	—	73	104	177	
Drums	...	6/18	1/8	-/7	4/7	2/22	10/24	1/28	1/25	1/13	-/10	-/4	-/10	-/6	-/10	-/2	—	-/45	-/41	—	1/27	-/6	-/1	—	220845	1	27	314	342	
Bottles and Jars	...	—	—	—	—	—	—	—	—	-/2	—	—	—	—	—	—	-/1	—	—	—	—	—	—	—	23605	—	—	3	3	
Motor tyres	...	1/2	-/1	-/2	-/2	2/3	19/16	-/29	4/16	1/1	-/9	-/3	-/4	-/85	-/12	—	-/7	1/94	-/47	—	-/14	-/1	1/-	—	74388	—	29	318	347	
Motor parts	...	—	1/-	-/1	—	—	2/4	3/4	5/2	—	—	-/1	-/1	-/5	-/2	—	-/1	-/8	-/10	-/6	-/1	—	—	—	28861	—	11	46	57	
Hollows	...	-/1	-/18	-/1	-/5	-/5	-/1	-/1	-/3	—	-/5	-/2	-/3	-/19	—	—	-/1	—	-/6	—	-/33	-/1	—	—	1439	2	—	104	106	
Bamboos	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	501	—	—	—	—	
Banana cultivated	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	91108	—	—	—	—	
Bananas Wild	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	322	—	—	—	—	
Cacti	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2324	—	—	—	—	
Coconut shells	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29414	—	—	—	—	
Plants, not Specified	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12979	—	—	—	—	
Palms	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2187	—	—	—	—	
Pineapples	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—	—	—	—	
Sisal	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11261	—	—	—	—	
Tree holes	...	2/-	—	—	—	1/-	—	—	—	1/-	—	—	—	—	—	—	—	—	—	—	—	—	—	—	251	—	4	—	4	
Air-raid Shelters	...	—	-/2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	2	2	
Baths	...	-/2	-/1	-/1	—	-/1	-/1	-/2	—	—	-/1	—	-/2	—	—	—	—	—	—	—	-/1	—	—	—	1429	—	—	12	12	
Baths, Bird	...	1/-	—	—	—	—	-/1	3/-	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7122	—	4	1	5	
Basins	...	—	—	-/1	—	—	1/1	-/1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	897	—	1	3	4	
Barrels	...	1/3	-/1	-/1	—	2/2	-/4	-/1	-/1	—	—	—	-/2	—	—	—	-/1	-/1	—	—	-/2	—	—	—	2720	—	4	19	23	
Batteries	...	—	—	—	—	1/2	1/-	1/-	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	255	—	3	2	5	
Buckets	...	—	—	—	-/2	-/1	—	—	1/-	—	—	—	—	—	—	—	—	—	—	-/1	—	—	—	—	48097	—	1	4	5	
Cement tanks	...	-/2	-/2	—	—	-/5	-/1	-/4	—	—	-/5	—	—	-/1	—	—	—	—	—	-/9	-/1	—	—	—	800	—	—	30	30	
Cooling tanks	...	—	—	—	—	-/1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	449	—	—	1	1	
Egg Shells	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	706	—	—	—	—	
Ornamental Ponds	...	1/12	-/6	-/3	-/7	1/18	-/1	1/9	—	2/3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1848	1	5	59	65	
Hot Water Tanks	...	—	—	1/-	1/1	1/1	5/6	1/-	2/1	1/-	-/1	—	-/1	-/2	—	—	-/1	—	—	—	—	-/1	—	—	3973	—	12	15	27	
Hand-grips Insp. covers	...	—	—	—	—	-/1	—	—	—	1/-	—	—	—	—	—	—	—	—	—	—	—	-/1	—	—	5	—	—	1	2	
Holes	...	-/1	-/3	-/1	-/8	-/3	—	—	—	—	-/4	—	-/1	—	—	—	-/3	—	—	—	-/13	-/1	—	—	261	—	—	38	38	
Karais	...	—	—	—	—	—	2/-	-/1	—	-/1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13744	—	2	3	5	
Others not specified	...	2/11	-/8	1/9	1/8	-/7	-/13	2/11	2/8	3/2	-/12	—	-/2	-/9	-/2	—	-/2	2/10	-/12	-/1	1/68	-/3	-/8	—	8258	5	14	206	225	
Pots	...	—	—	—	2/1	1/-	-/1	-/1	—	1/1	—	—	-/1	—	—	—	-/1	—	—	—	—	—	—	—	8310	—	4	6	10	
Rubbish Pits	...	-/1	-/6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-/1	-/2	—	—	—	—	—	40	—	—	8	8	
Soakage Pits	...	-/7	1/27	-/18	-/11	-/5	-/16	-/49	-/24	1/-	—	—	—	-/2	—	-/4	-/91	-/221	-/6	-/1	—	-/2	—	—	30717	—	2	484	486	
Small Drums	...	—	—	—	—	—	-/1	-/1	—	—	—	—	—	—	—	—	-/1	-/2	—	—	—	—	—	—	110	—	—	5	5	
Sumps	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-/2	—	—	—	—	—	147	—	—	2	2	
Troughs	...	-/4	-/1	-/1	-/1	—	-/2	-/5	—	-/4	—	—	—	—	-/10	—	-/3	-/1	—	—	-/2	—	—	—	3702	—	—	32	32	
Tar Boilers	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	—	—	—	—	
Underground tanks	...	-/1	—	—	—	—	—	-/1	-/1	—	—	—	—	—	—	—	-/1	—	—	—	—	—	—	—	225	—	—	4	4	
Water Meters	...	-/2	-/2	-/7	-/8	-/2	2/9	-/6	1/14	3/2	-/4	-/1	-/1	-/32	-/1	-/1	-/3	-/15	-/109	-/7	2/-	—	—	—	3091	1	8	226	235	
Wells	...	-/3	-/2	—	-/3	—	-/2	—	-/8	—	—	-/1	—	-/7	—	—	-/3	-/11	—	—	—	—	—	—	864	—	—	40	40	
Wheel Barrows	...	—	—	—	—	—	—	-/1	—	—	—	—	—	—	—	—	—	-/2	—	—	—	—	—	—	780	—	—	3	3	
Anopheles	...	5	1	—	1	2	—	—	—	—	—	—	1	—	—	—	—	—	—	—	2	—	1	—	13	—	—	—	—	
Aedes aegypti	...	33	7	3	10	22	67	22	18	49	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—
Culex	...	224	316	164	148	199	280	340	170	100	58	36	31	159	48	3	24	512	499	3	269	3	48	47	—	—	—	—	—	—
TOTAL	...	262	324	167	159	323	347	362	188	149	58	36	32	159	48	3	24	315	499	3	264	3	53	47	1597147	13	214	3476	3730	

Inspections and work generally have been directed towards the protection of foodstuffs and food premises although outside general survey work has continued. It has been the endeavour of this section to make the public rat-conscious and obtain their co-operation in keeping down rats and protecting their premises. There are still many traders who believe that they have no responsibility for keeping their premises rat free.

Plague-Rat Examination: 11,193 rats of all species, from the routine trapping, hand catching and "found dead" rats were examined and no plague found.

Table 35
Total Kill

	Total Kill			1948	1949
Rattus rattus	7446	6690
Mastomys coucha panya	4448	2291
Arvicanthis abyssinicus	9883	7670
Otomys angoniensis	290	436
Mice (all species)	3445	3934
Others	129	124
All species (by Railway administration)				5764	4557
Total known killed	31406	25702
Poisoned/gassed, estimate.	17206	7863
TOTAL	48612	33565

Table 36
Trapping in Native Locations

	Rooms Trapped.	Houses Trapped.	Rooms of Houses Infested.	Index.	Trapping days.	Rattus Rattus.	Mice. Others.		Total.
Shauri Moyo	249	—	178	71.5	39	60	1006	6	1072
Pumwani	—	243	190	78.0	69	347	413	—	760
Kaloleni	483	—	173	35.7	60	57	325	1	383
Marulani	1440	—	361	25.7	51	447	263	3	713
Ziwani)									
Kariakor)	791	—	75	9.4	36	143	157	—	302
									<hr/>
									3239

Commercial Area

Premises trapped 1206; Infested 552; Index 45.7% : Trapping days 148 :

Rattus.	Mice.	Others.	Total.
1331	569	1	1901

Poisoning : Prebaiting for 4 or 5 days is always carried out. Pre-baits laid 52,628 and Poison baits 13,317. No figure of actual kills can be made and few bodies are ever found.

Gassing : 241 Warrens were treated. These exist along the banks of the Nairobi river which flows through the centre of the town and commercial and African location area. Six houses were treated by gas. The total estimated kill by gas and poisoning is calculated as 7863.

Hand Catching : This method is still profitable and as will be seen from the figures, the kill by this method accounted for 14,284 rats, nearly half the total kill for the year. As the year has been extremely dry only 20.06 inches of rain, the field rodents have decreased in numbers, particularly *Mastomys*, vegetation coverage being scanty and food supplies naturally very short. Many areas where *Mastomys* could usually be found have apparently been completely cleared and even *Rattus rattus* has not taken up the areas evacuated by *Mastomys*. *Arvicanthis* has suffered as the grasslands have been particularly thin during the year.

Table 37
Rats Trapped etc.

Species.	Areas.									
	Kairiakor.	Pumwani.	Shauri Moyo.	Kaloleni.	Marulani.	Abattoir.	Swamp.	Ngara — Pumwani.	Other Areas.	Total.
<i>Rattus rattus</i> ...	204	553	319	26	10	467	832	40	482	2933
<i>Mastomys coucha panya</i>	207	179	424	51	62	86	941	135	90	2175
<i>Arvicanthis abyssinicus</i>	412	361	825	1129	899	328	1808	841	1044	7647
<i>Atomys angoniensis</i> ...	—	1	7	—	8	1	379	23	14	434
Mice ...	210	7	200	48	15	58	300	43	122	1003
Others ...	—	9	20	9	—	1	30	7	16	92
Totals ...	1033	1110	1795	1263	995	941	4290	1089	1758	14284

Private and Special Work : In July four rat men were sent to the Ruiru Dam construction labour lines and killed 156 *Rattus rattus*, and four men were sent to the Sasumua Dam construction labour camp in August and killed 206 rats, 177 of which were *Rattus rattus*. The lines were new, built in cleared virgin forest, and the rats had moved over some two miles of forest land from the nearest farms to infest the camp.

Private premises dealt with numbered 91, with 1372 rats and mice caught, payment for this work amounting to Shs. 1,038/-.

Flea Examination : The index remained very low throughout the year. 8818 live rats were examined of all species being a general sample of all species caught and these gave a total, all-species, flea index of .226.

Table 38
Flea Examinations

	<i>X.braziliensis</i>	<i>X.cheopsis</i>	<i>D.lypusus</i>	<i>C.cabirus</i>	<i>Others</i>	<i>Total</i>
<i>Rattus rattus</i> ...	160	339	91	27	149	766
<i>Mastomys coucha panya</i>	19	37	83	16	5	160
<i>Arvicanthus abyssinicus</i>	46	423	298	135	18	920
<i>Others</i> ...	8	23	106	29	2	168
Total ...	233	822	578	207	174	2014

Vermin : Modern insecticides, gammexane and DDT., are being freely used to keep down household vermin and 1283 rooms were treated during the year and charges made to the public for treatment amounted to Shs. 2,479/38.

In the majority of cases bedbugs were the vermin dealt with in African houses. Asian premises:- two for bedbugs, and nine for cockroach infestations. European premises :- fourteen for cockroaches, six for flea, and fifteen for bedbugs, (including African servant quarters), and six for ticks (*Rhipicephalus*). Tick infestations can now readily be treated with gammexane. In the past considerable difficulty was experienced in eliminating this pest. Fly spraying was carried out in various parts of the town.

Disinfections after Infectious Diseases were carried out in 49 rooms.

Laboratory : In addition to the usual work on *B.pestis*, mosquito and flea examinations and etc., the work in the laboratory increased very considerably during the year with much material from the African Child Welfare Clinics, African Maternity Hospital and Asian Clinics. Routine blood slides for parasites, and counts, with stool and urine examinations for helminth ova, etc., were dealt with as follows :—

Bloodslides (Parasites) 3966, with 983 positive for malaria (27%), *Microfilaria perstans* 4, Total 3703.

In many cases differential counts were made.

Stools, examined 1300 — with ova, cysts, etc., 458 or 35.2%. *Ascaris* 232, *Taenia* 57, *Ankylostoma* 54, *S.mansoni* 9, *Strongyloides* 4, *Trichuris* 23, *Oxyuris* 2, *Giardia* 1, *E. histolytica* 5, *E. Coli* 71.

Urines for ova and routine tests 7.

Sputums 9, Counts 20.

Smears for G.C., and D. Ground 5643, Positive G.C. 308.

THE AFRICAN MATERNITY HOSPITAL

General. There has been a small increase in admission since last year, and in live births. There has been a definite decrease in the maternal deaths, six occurring in the first part of the year. It is encouraging to note that there has been a welcome decrease in the number of cases arriving already far advanced in obstructed labour, and beyond effective help. Four such cases only were admitted during the year, one recovering after a still-birth and three being already past help on admission.

Clinic. There appears to be little relation between clinic attendance and distance. The most regular attendances can be claimed by Kabete district, but women known to live as far away as Karatina, Njoro and Naivasha, attend the clinic fairly regularly, while others giving local addresses make their first appearance when in labour.

From the point of view of the tribes, the Luo are the most regular; so far the Masai only come when in serious need.

We cannot hope for a serious reduction in still-births or infant deaths, until the African alters his ideas as to the functions of the Clinic. At present the majority appear to think that the mere possession of a pink card is a guarantee of a place at the hospital when the urgent need for action arises, and also a guarantee of a live child, even if their wives only attend once in the very early days of her pregnancy. Often no effort is made to carry our instructions, to attend the V.D. Clinics regularly if that is advised, or to obey the simple instructions in hygiene given by the nurses. While a small proportion do attend regularly and do endeavour to follow advice, by far the larger number attend once to get a pink card and never attend again until labour commences. The husband, however, still appears to think that he has a right to complain if the pregnancy does not have a successful termination.

Again, quite 50% of registered cases never reappear for delivery.

It is suggested that, to make the Ante-Natal Clinic really useful, a small charge, say Sh. 1/-, would have a definite effect on regular attendance, and would only cut those who register frivolously.

In-patients. It is still impossible to cope with abortions under six months as in-patients. This is bad for the practice of the hospital and makes a serious gap in the training of the midwives. There is always a high proportion of premature births due to a variety of causes, lack of proper attendance at the V.D. Clinic being one of them.

Complicated Cases. Albuminuria and oedema are frequent, mostly among the Luo tribe, but do not lead to hypertension and eclampsia.

This latter occurs but seldom in the practice of the hospital, such cases as we have seen having been in the Kikuyu people. Three cases were treated during the year, two being post partum and fatal. Vomiting of pregnancy has never been seen.

Ante-partum haemorrhage due to early detachment of the placenta is fairly common. Fortunately, African women rally surprisingly quickly from acute haemorrhage, though their haemoglobin during pregnancy is poor, 10 to 12 grams being a good average level. Much could be done to correct the milder forms of malnutrition.

Obstructed Labour. Lesser degrees of disproportion do not cause serious trouble as a rule; due to the greater expulsive forces. Among the **Kikuyu**, as far as our observation of the hospital goes, it would appear that the most frequent difficulty with this tribe is a prominent sacral promontary passing backwards to a sharp corner and then downwards with the natural concavity of the sacrum ironed out so that the coccyx is further back than is normal. Thus a small outlet, the passage between the ischial tuberosities, is compensated for allowing the passage of the head further back than is normal in the natal passage. As regards the practice of circumcision, this necessitates the midwife being taught to perform a vertical cut forward through the dense scar present from the mons veneris to the vestibule, and in primipara one and possibly two episiotomies. The dense scarring, without skilled assistance, causes deep tears through the perineum, and from time to time, loss of the anal sphincter. But by far the most serious disability the "back carrying" tribes have to contend with is the pushing forward of the sacral promontary, and last lumbar vertebra with the flattening of the concavity of the sacrum, making the descent of the head by asynclitism almost impossible, and, the application of high forceps exceedingly difficult.

Luo women do not appear to suffer from the same amount of disproportion as the Kikuyu. Out of 42 Caesars done in 1949 one only was performed on a Jaluo woman. Their labours are difficult to manage, possibly largely on account of their difficulty with the language, and their consequent nervousness. The rare cases needing interference have been due to a small outlet to the pelvis, with no backward displacement of the coccyx, as in the Kikuyu and "back carrying" tribes.

There is yet another practice among Kenya tribes which leads to serious trouble and definite danger to the child during labour. The African woman will not relax during the first stage, and unless she is watched carefully and often helped by sedatives, the consequent oedema of the cervix is a serious and puzzling complication.

The African woman frequently comes into hospital having previously taken "native dawa" which apparently has a very deleterious effect on the child and appears to provoke tonic contraction of the uterus.

Table 49**Trainees.**

In training until June 1949	...	...	...	39
In training until December 1949	...	...	...	36
In June seven girls passed their certificate examination and are now in posts. In December nine passed.				
Admission : Resident	...	...	1,483	
Non-Resident	...	...	1,139	
				Total 2,622.
Patients' Days	...	...	13,595	
Average length of stay in hospital	...	...	...	5.18 days
Babies' Days	...	...	11,719	
Av. length of stay after normal delivery	...	...	...	4.1 days
Motherless Babies' Days	...	...	277	

Table 50
African Midwives Under Training

In January	...	...	...	...	...	39
In July	...	...	...	...	...	36

Table 51
Clinics

Ante-Natal :

Number held — 203.				
New Cases :	Resident	...	2,085	
	Non-Resident	...	2,787	Total 4,872
Repeats :	Resident	...	2,447	
	Non-Resident	...	3,798	Total 6,245

Post-Natal :

Number held — 47.				
	Resident	...	415	
	Non-Resident	...	237	Total 652

Table 52
Admissions, by Districts

Nairobi	...	1,483	Isiolo	...	1
Kabete	...	501	Kinangop	...	2
Ngong	...	42	Dagoreti	...	19
Nyeri	...	16	Dandora	...	9
Kiambu	...	88	Ol'Kalou	...	1
Kijabe	...	1	Njoro	...	1
Machakos	...	24	Makuyu	...	1
Kikuyu	...	30	Mangu	...	24
Limuru	...	68	Thika	...	55
Kahawa	...	22	Ruiru	...	25
Mbagathi	...	3	Athi River	...	33
Juja	...	1	Langata	...	15
Konza	...	1	Makindu	...	33
Ruaraka	...	27	Kitui	...	1
Fort Hall	...	67	Uplands	...	16
Mombasa	...	6	Embu	...	1
Kisumu	...	3	Gilgil	...	1
Karen	...	5	Eldoret	...	1
Karura	...	9	Naivasha	...	2
Magadi	...	8	Karatina	...	2

Table 53
Admissions, by Tribes

			Thro' Clinic	Direct	Total
Kikuyu	...	...	1,192	369	1,561
Jaluo	...	...	437	69	506
Other Tribes	...	...	432	123	555
					<hr/> 2,622

			Thro' Clinic	Direct	Total
Births	...	...	1,655	426	2,081
Still Births	...	...	112	44	156

Table 54
Operations

			Thro' Clinic	Direct	Total.
Caesars	...	...	29	13	42
Forceps	...	...	21	4	25
Version (external)	...	...	13	3	16
Currettage	...	...	4	7	11
Evacuation	...	...	1	1	2
Perineorrhaphy	...	...	7	3	10
Craniotomy	...	...	2	4	6
Surgical Induction	...	...	3	1	7
Laparotomy	...	...	0	1	1
Resuture	...	...	1	0	1
Decapitation	...	...	1	1	2
Placenta Praevia	...	...	1	0	1
Extended Breech	...	...	1	0	1
Drainage	...	...	1	0	1
Repair of Ruptured Uterus	...	...	1	0	1
Manual Removal of Placenta	...	...	1	0	1
Examination under anaesthetic	...	...	1	0	1

Table 55
Analysis of Births

			Thro' Clinic	Direct	Total
Born before arrival	...	...	67	40	107
Normal Live Births	...	...	1,487	360	1,847
Malpresentations	...	...	129	54	183
Twins Born	...	...	36	12	48
Triplets Born	...	...	3	0	3
Total Live Births	...	...	1,655	426	2,081
Infant Deaths	...	...	92	48	140
Stillbirths	...	...	112	44	156
Maternal Deaths	...	...	3	6	9
Average weight of Babies born during the year — 6 lbs. 10½ ozs.					

Table 56
Causes of Maternal Deaths

	Thro' Clinic	Direct	Total
Obstetric Shock	1	0	1
Eclampsia	1	1	2
Embolism	1	0	1
Extreme Exhaustion	0	1	1
Acute Yellow Atrophy	0	1	1
Ruptured Uterus	0	2	2
	<hr/> 3	<hr/> 5	<hr/> 8

Table 57
Causes of Stillbirths

	Thro' Clinic	Direct	Total
Accidental Haemorrhage	3	1	4
B.B.A. Breech	1	0	1
B.B.A.	1	1	2
Unknown Causes	1	0	1
Internal Asphyxia	24	3	27
Toxaemia	1	0	1
Obstructed Labour	2	2	4
Difficult Breech	1	0	1
Prolapsed Cord	7	6	13
Hydrocephalus	2	1	3
Prematurity	8	6	14
Anencephaly	3	1	4
Half Born on Admission	1	0	1
Erythroblastosis	1	0	1
Hydramnios	1	0	1
Multiple Presentation	1	0	1
Maternal Advanced Anaemia	1	0	1
Impacted Brow	1	0	1
Maternal Pneumonia	0	1	1
Cord round neck	1	0	1
Craniotomy	0	1	1
Knot in Cord	2	0	2
Shoulder Presentation	0	1	1
Placenta Praevia	0	1	1
Macrocytic Anaemia	1	0	1
Macerated Foetus	19	9	28
Congenital Syphilis	15	4	19
Birth Injuries	13	6	19
Monstrosity	1	0	1
	<hr/> 112	<hr/> 44	<hr/> 156
Totals	<hr/> 112	<hr/> 44	<hr/> 156

Table 58
Causes of Infant Deaths

				Thro' Clinic	Direct	Total
Prematurity	...	...	...	44	36	80
Congenital Syphilis	...	...	...	12	4	16
Atelectasis	...	...	...	7	2	9
Toxaemia	...	...	...	1	0	1
Gastro-enteritis	...	...	...	2	1	3
Cerebral Haemorrhage	...	...	...	11	2	13
Marasmus	...	...	...	6	0	6
Pneumonia	...	...	...	1	0	1
Spina Bifida	...	...	...	1	0	1
Hydramnios	...	...	...	1	0	1
Hydrocephalus	...	...	...	1	0	1
Jaundice	...	...	...	1	0	1
Placenta Praevia	...	...	...	1	0	1
Asphyxia	...	...	...	1	0	1
Purpura	...	...	...	1	0	1
Shoulder Presentation	...	...	...	0	1	1
Septicaemia	...	...	...	0	1	1
Birth Injuries	...	...	...	1	0	1
T.B.	...	...	...	0	1	1
Totals				92	48	140

PARKLANDS DAY NURSERY

Parklands Day Nursery had a busy year. Miss Watson and Staff worked well together and the children showed a marked improvement in health. Mrs. MacLeod-Young left in January to join her husband in Nyeri; Mrs. Pelling joined the staff in February.

Mrs. Salmon supervised in the kitchen and attended to the meals which were enjoyed by the children. Mrs. Hill had care of the under 4½ years, teaching them nursery rhymes and supervising their play. The 4½—6 years had one hour kindergarten work every day. Mrs. Pelling worked hard to prepare the 5 year olds for school. The main difficulty is to keep their attention, almost impossible with many children though others are eager to learn, especially if interest is taken by parents at home. All children had physical exercises every morning, outside, or in the banda, which they enjoyed showing great enthusiasm. The general work of the children and Nursery was shared by all the Staff.

In June the Staff held a sundowner dance in aid of the Polio Research Fund and realised the sum of £52. The Pageant was supported by a float "The Old Woman who lived in a Shoe" which was built and organised by Mr. Grant, parent of one of the children. The float won 1st prize for best children's float.

A dance was held in December for funds for the childrens Christmas party. It was well supported and ensured a successful party. Mr. Beechy made an excellent Father Christmas, arriving and leaving by Miss Watson's chimney !

The Nursery was well attended throughout the year. By December there were 173 names on the waiting list. The average daily attendances were — Full Day 40, Mornings 11, Casuals 6.

The health of the children attending the Nursery was good. Colds and tonsilitis being the highest cause of absence. There were three cases of chicken-pox in January; one ringworm in February; 15 cases of whooping-cough from January to July; two cases of conjunctivitis in November.

On admission to the Nursery all children have a medical examination which is repeated every six months.

EUROPEAN CHILD WELFARE

Staff. Dr. Philippa Gaffikin carried out the duties of Medical Officer throughout the year, and Miss Watson, Matron in charge of Parklands Day Nursery, acted as Clinic Sister.

Buildings. The Parklands Clinic continued to be held throughout the year in the Matron's office of the Day Nursery — hopes of a separate Clinic Room did not materialise. Up to the end of April sessions continued to be held at the Lady Northey Home as in 1948, but attendances dwindled as Parklands became better known.

Clinic Activities. A weekly session for advice on the care and well-being of infants and children under five was held on Wednesday evenings through the year — nominally from 4.00 p.m. to 5.30 p.m. in practice averaging 3.30 p.m. to 6.30 p.m. Vaccination and inoculations were also carried out as necessary — free in the case of vaccination and T.A.B., and a nominal charge (just sufficient to cover the cost) in the case of Diphtheria and Whooping-cough anatoxin. The sessions at the Lady Northey Home (Wednesday afternoons from 2.00 p.m. to 4.00 p.m.) became even more completely "inoculation sessions only" than had been the case in 1948, and even on that basis attendance became so small that at the end of April it was decided that there was no good reason to continue them further.

By the second half of June attendances at Parklands were so numerous that the sessions became unduly lengthy, and it was felt worth while to introduce a separate shorter period devoted to the toddlers attending the Day Nursery, so that their well-being could be supervised without holding up the main Clinics. From June 21st, a Day Clinic was started on Tuesday from 4.00 p.m. to 5.00 p.m. which continued for the rest of the year. Even with this relief the Wednesday Clinic continued crowded and lengthy. Endeavour has been made to introduce the idea that babies who are doing well and gaining weight do not really need to be shown to the doctor every week, but it gained ground only slowly — the mothers apparently felt that they were being "done out of" some part of the Clinic's services!

The attached tables give attendances, vaccinations and inoculations for 1949, and comparative figures since 1947 when European Child Welfare was begun.

Table 59
Attendances

	Lady Northey Home	Parklands
Clinics held	15	72 (including 20 Nursery Clinics)
Attendances		
(Advice, weighing, etc.) ...	nil	809
Vaccination	17	73
T.A.B.	8	144
Diphtheria anatoxin	28	175
Other inoculations	10	62

Table 60
Comparative Attendances, 1947—1949

				1947	1948	1949
Advice, weighing etc.	...	...	...	16	160	809
Vaccinations	...	...	...	31	98	90
T.A.B.	...	...	...	20	65	152
Diphtheria anatoxin	...	...	...	14	307	203
Other inoculations	...	...	...	nil	1	72

ASIAN MATERNITY AND CHILD WELFARE

1949 has been both an encouraging and a disappointing year for Asian Maternity and Child Welfare — encouraging in that plans and improvements long envisaged were at last achieved or at least begun; disappointing because despite all efforts the infant and child mortality rates are still very high.

Buildings. The work of the Department has been carried on in the same three buildings as in 1948. Ngara Road Clinic has been improved by the addition of a lavatory and a store. Pangani the little "temporary" hut, being a year older is that much more decrepit. However, the long-looked-for new building seems to be a little nearer, for Victoria Street Clinic has now been built and is almost completed, and the replacement of Pangani thereby moves a step higher on the building list. Sandiford Road Clinic continues adequate for the district it serves — an area limited by its own unfortunate geographical situation, an Asian residential island surrounded by Railway workshops, commercial area and African location.

Staff. Dr. Philippa Gaffikin continued as Medical Officer throughout the year.

Health Visitors. Miss Priscilla Benjamin was in charge of Ngara Road Clinic, and in addition carried out the duties of Supervisor of Asian Health Visitors, Midwives and Dais. She also gave a great deal of time and energy to the inauguration and carrying on of the Health Visitors' Training Course. An increased establishment is envisaged for 1950, whereby an additional Health Visitor will take over the routine work of Ngara Road Clinic and free Miss Benjamin for increased supervisory duties and continued teaching.

Mrs. Savitri Chaddah remained in charge of Pangani Clinic throughout the year.

Miss Elizabeth de Mello was in charge of Sandiford Road Clinic until the end of July, when she was transferred to work the Victoria Street area from Ngara Road Clinic.

Mrs. Ricardinha Pachecos joined the staff in March to cover the Victoria Street area in preparation for opening that clinic. She took over Sandiford Road Clinic at the end of July and remained there until the end of the year.

Health Assistants — Ngara Road Clinic

Miss Kursheed Ramzan throughout the year.

Miss Kaushalya Sood till the end of June, when she left to be married.

Miss Hanifa Ali Ahmed from July to the end of September, when she left to be married.

Mrs. Swaran Kaur Pallan, from October to the end of the year.

Pangani Clinic

Miss Vimla Sood throughout the year.

Sandiford Road Clinic

Miss Tirlochan Kaur Naru, until the end of March when she went to India with her parents.

Miss Zekia Akhtar, from April to the end of July.

Miss Narinder Kaur Surat Singh, from August to the end of the year.

Student Health Visitors. The inauguration of a scheme whereby Indian women may be trained as Health Visitors here in Nairobi has been the most satisfying achievement of the year. The idea was mooted many years ago, but constantly shelved or postponed. Increasing expansion in the Department brought the matter up again with some urgency. Previous delays had been largely due to waiting for the formation of a Nursing Council, which could act as an over-all Authority to oversee such training. The Nursing Council was constituted at the beginning of 1949 — though it has not yet been brought into active existence. However, it seemed worth while to go forward with the training scheme, with hope of ultimate Government recognition, and a syllabus for a year's course was drawn up, with the kind co-operation of the Director of Medical Services. The production of concrete proposals brought most welcome approval, and Government has agreed to grant Colony-wide recognition to the Course and Certificate. The first group of students commenced their first term in May, 1949, namely :—

Miss E. de Mello, S.R.N., S.C.M.

Mrs. R. Pachecos, S.R.N.

Miss Kanaklata Inamdar.

Mrs. Narinder Kaur Nayer.

Mrs. Sakkar Paroo.

Mrs. Ruth Sercar.

The first two are already members of the staff, and by dint of much hard work they have combined their training with their Clinic duties. Mrs. Sercar had to withdraw from the Course at the end of the first term owing to pregnancy; the remaining five completed their second term just before Christmas.

It was impossible to avoid a certain amount of reduction in the number of public Clinic sessions in order to fit in lectures, demonstrations and practical instruction to the students. It is felt that this will be repaid many times over in ultimate gain to the public. The syllabus undertaken comprises systematic lectures in

Anatomy and Physiology

Sanitation and Hygiene

Public Health Administration, Sanitary Laws and Vital Statistics.

Communicable Disease

Ante-natal Supervision

Midwifery part 1.
 Child Welfare
 Elementary Child Psychology
 Dietetics and Domestic Service
 Elementary Economics and Social Problems

together with practical instruction in all aspects of a Health Visitor's work and visits to relevant places of interest such as a model dairy and a waterworks. Improvisation and experiment have been the keynote, for this is the first training of its kind to be attempted in the Colony, but the effort has been helped on its way (even to achieving a dissection of the human cadaver) by much kindness and co-operation wherever help was sought.

Clinic Activities :

Ante-natal Clinics. Weekly ante-natal sessions have been held at all three centres, the pattern of work done following the lines laid down last year. Attendance by appointment enabled some reduction to be made in the overcrowding of individual sessions, but that was counter-balanced by the necessity to cut out two afternoon ante-natal sessions to make room for training, and waiting-room space frequently proved inadequate. The Clinic sessions were also used as teaching sessions for the Student Health Visitors, and the co-operation of the patients was promptly forthcoming; the Indian community clearly understood that the training scheme would be to their ultimate benefit.

It is pleasant to record that there were no maternal deaths during the year. Of abnormalities detected amongst pregnant women the chief were anaemia and albuminuria. Anaemia of pregnancy was prevalent independently of parity; incidence is shown in the accompanying table. It is not considered of real value to divide the cases into vegetarian and non-vegetarian, as questions about diet (in connection with both antenatal work and the feeding of children) reveal the interesting fact that vegetarianism in Nairobi is seldom strictly adhered to. Seventy-five cases of albuminuria were noted, of which twelve were sufficiently severe to warrant immediate admission to the Indian Maternity Hospital. Two of these subsequently developed frank eclampsia, in one case complicated by a mild degree of Yellow Atrophy, but both survived.

Routine investigations for venereal disease were made whenever history or symptoms indicated, but no case was detected in the course of the year.

Cases where there was a suggestion of pelvic disproportion were referred to their family practitioner and advised to be confined in hospital.

Child Welfare Clinics. A weekly Child Welfare session was held at each Clinic through the year, and these were well attended; indeed at Pangani they became so busy as to necessitate "borrowing" a second Health Assistant. They were also used as teaching sessions for the students, and here again, there was ready co-operation from the mothers.

Continued effort was made to keep in touch with the toddlers, the section of the child population most liable to be overlooked. This has not been easy, for a hard-worked mother will make an effort at Clinic attendance with a new baby but is apt to find it too great a burden to collect all her under-fives (possibly five children, as an annual baby is not unusual in Indian families!) and take them all to a Clinic. The problem was partly tackled by an extra effort in home visiting and will be referred to again later.

All the Clinics are now conducted on the British pattern, namely as wholly advisory and educational centres; Treatments have been reduced to a negligible minimum, a dose of aperient to a pregnant woman or some gentian violet on a child's spots; anything beyond this is referred to the patient's family doctor. This principle is fully accepted in the Ngara Road and Pangani areas, and the fact that those Clinics are very well attended is evidence that they fill a very real need. There is some opposition still to the "Advice only" principle in the Sandiford Road area, where it is taking a long time to overcome the precedent of former years when the Clinic was run as a dispensary.

Home Visiting. Though the least spectacular, home visiting is the most important part of the Maternity and Child Welfare Service, and it pays the biggest dividends in the end; practical on-the-spot advice in a woman's own home makes a deeper impression than anything she hears outside. Despite all additional commitments, the level of home visiting was fully maintained. A limit was laid down to the number of visits which a Health Visitor should perform in a given time — the emphasis on quality rather than quantity — in the hope that by making the individual visit longer and more detailed a deeper impression might be made. Despite this declared intention and the fact that two of the Health Visitors are also Students, the total number of visits paid was greater than last year.

Inoculations. An "inoculation drive" was directed against typhoid, aided by a number of cases of the disease which provided ready-made propaganda. Immunisation against diphtheria and whooping-cough continued, but the initial rush had spent itself in the early months of the year. Vaccinations showed an increase over 1948, and it is noticeable that mothers now ask for their children to be vaccinated instead of waiting for it to be suggested to them.

Educational Activities. Ante-natal and post-natal exercise classes — the latter decidedly popular by reason of their effect on the figure — were carried on at all centres. Courses in the making of layettes, in needlecraft, in cookery (especially the preparation of suitable solids for weaning), in housecraft, in First Aid and Home Nursing, were all provided at the centres during the year. The Education Department forwarded its syllabus of Hygiene and Home Nursing for senior grades in the Indian Girls Schools, with a request for comments and advice. Students from the Government Teachers' Training College, and senior pupils of the Government Indian Girls' School, visited the Clinics for demonstrations in Child Welfare.

General Practitioners. Co-operation with the Indian medical practitioners continued on the same pleasant basis as last year. 373 cases — almost entirely gynaecological — were referred for examination and opinion.

Midwives and Dais. With one or two notable and admirable exceptions, co-operation with the midwives has not been satisfactory. The notification of births has been persistently unsatisfactory throughout the year, and the Municipal Bye-laws as they stand at present do not provide any means of compelling either proper keeping of records or proper notification. The duty of notification is laid on "any person attending" the birth, and though by custom the duty devolves on the midwife or Dai, such person could always say if questioned "oh, I thought the father had notified it" etc. The further objection has been raised that if a midwife notifies cases the Inland Revenue will thereby know how many cases she has conducted, and on which she may be made to pay income tax!

The coming into existence of a Nursing Council will make possible the compulsory registration of persons practising as nurses, midwives, etc., and such registration will be conditional on the maintenance of good standards of hygiene, professional efficiency, adequate keeping of records etc., with inspection by the Supervisor of Midwives with adequate legal backing.

An innovation which would be of real value for the well-being of Asian mothers in Nairobi would be refresher courses for midwives. This Department would gladly co-operate, but without some means of compelling midwives to attend such a course its value would be problematical.

Training of Dais. Training courses for Dais continued during the year, and the final group of six Dais was examined in October; all were found satisfactory. There are now no untrained Dais practising in Nairobi with the exception of one aged 80 who seemed too old to undergo training. Since the last training course ended weekly "refresher" lectures have been given to the Dais.

General Observations. The still-birth and infant mortality rates, and the deaths among children under 5 years, are all still distressingly high. A number of factors combine to produce this unsatisfactory situation, of which a few are considered below.

(a) **Overcrowding.** New homes for Asian families are mainly being put up in the form of individual houses each on its own plot, which is a slow form of building and one which scatters the population and produces transport problems. As it is economically necessary for Asians to live near their work since the majority cannot afford a car, (and there are enough cars in Nairobi as it is), a better form of accommodation would be blocks of flats. Such flats should be built foursquare around a court, which could then be fenced in and provide a playground for toddlers.

(b) **Inadequate Play Space for Children.** The provision of toddlers' playgrounds would do a great deal to relieve the daytime overcrowding.

Nothing elaborate is required, merely open spaces fenced and declared playgrounds, with a few simple toys if possible such as seesaws. No supervision would be necessary as the Indian toddler is amply blest in the matter of older brothers and sisters. Such playgrounds would be safe places to which toddlers could be despatched, under the case of the elder children, a way from traffic and much cleaner than the backyards in which they play at present; and their absence would give the mother a chance to get on with cleaning the house, cooking nourishing meals and looking after the baby.

(c) **Unduly Rapid Child-bearing.** The answer to this problem is contraception. Not to limit the total number of children — that is for the parents to decide — but to space them out. A satisfactory spacing is a birth every two and a half years, and on this scale an Asian woman can achieve ten children. Furthermore, these ten have a decent chance of life and health, and the mother a chance of retaining her own health. There are indications that the moment is ripe for a propaganda campaign on these lines; the little that has been done in the Clinics has met with some success.

(d) **Excessive Rents.** Rent is taking too big a slice out of family pay packets, with the result that a man cannot afford both the basic necessities *and* adequate space for his family. More vigorous rent control, firmly enforced, and a few really heavy sentences for those convicted of extorting key money, would do a lot of good.

Mortality and Morbidity. There was no serious outbreak of epidemic disease during 1949, but the incidence of whooping cough came near to assuming epidemic proportions. In the long dry spell there was an increase in infantile gastro-enteritis, and there were a few sporadic cases of anterior poliomyelitis. Known still-births numbered 71, a considerable rise over last year, and their causes are appended in a table. Causes of death of Asian children under five years are set out in table 68. The influence of gastro-enteritis, prematurity and congenital debility — the chief “infant-killers” in any overcrowded community — is most striking.

Table 61

Attendances

Antenatal Clinics				Clinics Held	Attendances
Ngara Road	...	...	...	68	2184
Pangani	...	...	...	50	1873
Sandiford Road	...	...	...	48	503
Child Welfare					
Ngara Road	...	...	...	60	4399
Pangani	...	...	...	51	3448
Sandiford Road	...	...	...	48	1157

Table 62

Home Visits Paid

	Health Visitor	Health Assistant	Total
Ngara Road ...	2296	1596	3892
Pangani ...	2592	2269	4861
Sandiford Road	1041	838	1879

Table 63

Comparative Figures — 5 year period 1945—49

	1945	1946	1947	1948	1949
Ante-natal Clinics ...	3249	3560	4021	6715	4560
New Registrations ...	839	1074	1032	1504	1410
Child Welfare Clinics ...	6000	7661	8311	9691	9004
New Registrations : Infants 0 — 1 year ...				1101	1103
Toddlers 1 — 5 years ...				862	1138
Home Visits ...				9977	10632

Table 64

Inoculations and Vaccinations

	Ngara Road	Pangani	Sandiford Rd.	Total
Vaccinations ...	341	322	111	774
T.A.B. ...	2115	1262	889	4266
Diphtheria Anatoxin	67	79	34	182
Other ...	—	41	5	46

Table 65

Minor Treatments

Ngara Road ...	...	...	...	388
Pangani ...	...	...	...	259
Sandiford Road	...	...	...	307

Table 66

Anaemia of Pregnancy

Total number of new antenatal cases during 1949	=	1410)
Total number of cases found suffering from anaemia	=	732) = 51%
Primiparae ...	...	316)
Multiparae ...	...	416) = 732

Table 67**Causes of Stillbirths**

Birth injury	...	...	...	...	3
Prematurity	...	...	...	...	11
Pre-natal causes	...	...	...	...	2
Macerated foetus	...	...	...	...	5
Syphilis	...	...	...	...	1
Causes not known	...	...	...	...	49
					<hr/> 71 <hr/>

Table 68**Causes of Death (Asian Children under 5 years)**

					Under 1 year	1 - 5 years
Gastro-enteritis	...	...	...	...	30	4
Pneumonia	...	...	...	...	26	6
Prematurity	...	...	...	...	23	—
Congenital Debility	...	...	...	...	10	—
Birth Injury	...	...	...	...	9	—
Pyloric Stenosis	...	...	...	...	1	—
Marasmus	...	...	...	...	2	—
Convulsions	...	...	...	...	1	—
Jaundice	...	...	...	...	1	1
Diphtheria	...	...	...	...	1	—
Burns and shock	...	...	...	...	1	1
Subacute nephritis	...	...	...	...	1	—
Generalised dermatitis	...	...	...	...	1	—
Meningocele and spina bifida	...	...	...	...	1	—
Cerebral malaria	...	...	...	...	1	1
Fractured skull	...	...	...	...	—	1
Anaemia	...	...	...	...	—	3
Tuberculosis	...	...	...	...	—	1
Chronic Fever	...	...	...	...	—	1
Malaria	...	...	...	...	—	2
Tetanus	...	...	...	...	—	1
Drowning	...	...	...	...	—	1
					<hr/> 114 <hr/>	<hr/> 24 <hr/>

Table 69**Births Notified to the Asian Clinics ... 2673**

In the opinion of Miss Benjamin, who is in close touch with the Asian community, a further 250—300 births occurred during 1949, and were not notified.

$$2673 \text{ plus } 250 = 2923$$

$$\text{Deaths under 1 year (including S.B.)} = 185$$

$$\text{Infant Mortality Rate} = 63.$$

AFRICAN CHILD WELFARE

European Staff

Mrs. Dugmore, Supervisor of Health Visitors, was on overseas leave from January 21st to July 29th, during which time Mrs. Gibb acted as supervisor. Mrs. Brooks returned from overseas leave on 2nd February.

Mrs. Bull was temporary Health Visitor from 1st January to 12th April, when she resigned to go to England.

Miss Marsh was temporary Health Visitor from 1st May to 11th August.

Mrs. Adams was temporary Health Visitor from 1st November to 31st December.

Miss Lorimer. The Department was unfortunate in losing the services of Miss Lorimer, who resigned to take further training in England and left on 5th November. Her work was of a high standard and she was liked and appreciated by the mothers and children who attended her clinics.

Mrs. Davis proceeded on overseas leave on 22nd August, and in her place we welcomed Mrs. Pickwell to the permanent staff of the African Child Welfare.

There was a lot of sickness during the year, mostly of short duration, but Miss Lorimer had jaundice. In all 84 sick days were lost.

African Staff

The position of the Grade 1 assistants is still not satisfactory, as neither Rhoda nor Delina have been put on the permanent staff, due to delay in confirming the establishments.

The Medical Officer and the Health Visitors are realising more and more that the future of this work depends on building up an experienced staff of Grade 1 assistants. The standard of the Grade 2 assistants is rising and we were fortunate in obtaining two trained nurses of many years' hospital experience, although they are not certified.

Due to sickness 142 days were lost, of which Timini was off for 56, undergoing a major abdominal operation, and Emma was off for 27, suffering from anaemia of undiagnosed origin.

Leave without pay was granted as follows :—

265 days for maternity leave, and 31 days for domestic reasons.

Review of Activities

The work proceeded at the usual high level until June, when charging for medicines given at the clinics was instituted. The charge was based upon the wholesale cost of drugs in Nairobi until November, when the principle was changed to charging 1/- per calendar month for

an adult and 50 cts. per calendar month for a child. The total money collected from 6th June to 31st December was Shs. 2,922/70. The earlier method produced much hardship and it was shown how little the parents understand about a low health standard. In acute and painful illnesses, which disturbed father's sleep, there was rarely any delay in producing the necessary money, but where the woman or child were too ill and weak to make a fuss, money for even acute malaria was refused, and the purchase of anthelmintic medicines, skin applications and tonics was reduced to a minimum. It is this low standard of health and the presence of illness in the majority of cases, which makes it necessary to have a dispensary service in conjunction with welfare work in Africa, in contrast to similar work in England, where almost no treatment was given before the institution of the National Health Service. Unfortunately, the charging for medicines was used by some mothers as an excuse for not attending for supervision and advice and the popular argument was "We have no money for medicine, therefore if I come to be examined and am ill I cannot obtain treatment. If I am not ill then the examination is unnecessary."

In contrast to those described above were the few mothers, who obtained money repeatedly to help a sick child, but, one felt that this money should have been going into the diet for the whole family instead of being used to treat one member. The second method of charging causes much less hardship, though there are still untreated cases in all clinics.

Food is a great problem for the African and a suitable diet for the toddler stage is probably the most difficult.

In September an experiment was attempted in the Municipal Clinics to use wheat bran uji as a food in the 8 months to the 18 months age group. Unfortunately, there was no group of children whose entire diet could be supervised, and, as the quantities drunk at the clinics were too small to be of value the experiment was discontinued.

At the African Industries Show held in the Kaloleni Social Hall in October the African Child Welfare Department arranged a stall where they demonstrated an aspect of infant and family feeding by charts and photographs and by the actual food cooked for a family for four during twenty-four hours, also stating costs. It was striking to note the number of men who took an interest in this subject.

Ante-natal Clinics

The total attendances at the five clinics have increased by 201 compared with 1948.

It is difficult to get the women to attend for V.D. treatment when this is necessary, and many patients will not even discuss the matter because payment is necessary.

Gynaecological Clinic

These clinics were held in Kaloleni Child Welfare Clinic throughout

the year. They were conducted by Dr. Craig and Dr. Mark on alternate Mondays.

No. of Clinics held	...	...	...	47
New cases	...	...	...	307
Re-attendances	...	...	...	421
Total attendances	...	...	...	<hr/>728 <hr/>

All new cases were from Municipal areas, but some of the re-attendances were follow-up cases from the reserves.

Table 70

Tribes					
Kikuyu	...	...	...	...	139
Meru	...	...	...	...	2
Mkamba	...	..	...	...	68
Masai	...	...	...	...	1
Jaluo	...	...	...	...	49
Mnyore	...	...	...	...	2
Maragoli	...	...	...	...	10
Manyala	...	...	...	...	1
Kisii	...	...	...	...	1
Samia	...	...	...	...	1
Nandi	...	...	...	...	2
Teita	...	...	...	...	2
Buganda	...	...	...	...	7
Mgisu	...	...	...	...	2
Sudani	...	...	...	...	3
Arab	...	...	...	...	1
Nubian	...	...	...	...	2
Somali	...	...	...	...	1
Tanganyika	...	...	...	...	5
Mutende	...	...	...	...	3
Rabai	...	...	...	...	1
Ndigo	...	...	...	...	2
Mukerewa	...	...	...	...	1
Madagascar	...	...	...	...	1
				<hr/> Total	<hr/> 307 <hr/>

Table 71

Referred By :

V.D. Clinic	...	...	...	28
African Maternity Hospital	...	...	...	18
African Child Welfare	...	...	...	242
General Dispensary	...	...	...	12
Other Doctors	...	...	...	6
Employer	...	...	...	1
Total				307

Disposal :

Referred to V.D. Clinic	...	...	51
" " African Maternity Hospital			3
" " General Dispensary	...		3
		Total	57

Surgical Cases :

Operations performed	...	...	70
Operations refused	...	...	96
			<hr/>
Total advised			166

Laboratory Specimens Examined (including post-coital tests) :

Male	...	...	...	82
Female	...	...	...	41
Total				123

Investigation at Group Hospital : 2. (The smallness of this number is due to the cases being sent direct to the hospital when examined, before being referred to the Gynae. Clinic).

Treated at Clinics :

Cervical erosions cauterised	...	...	31
Insufflation of tubes	...	...	27
Medicines administered			
(sulphonamides, hormones ,etc.)	...	...	15
Advice	...	...	10
83			

Treated at V.D. Clinic :

Douching (1 to 6 weeks)	...	...	46
For investigation, etc.	...	...	5

(Again a small number due to cases being investigated before being referred to the Gynae. Clinic.)

Owing to the large numbers of women who come to the clinics in the hope of being examined, but who are not eligible due to the ruling that only those who live within the Municipality may attend, representation was made to the surgical department of the Group Hospital, through Dr. Craig, and as a result opportunity may be made for gynaecological cases to be seen as out-patients at the General Dispensary.

The Gynaecological Clinic affords one avenue of approach to the husbands and the Health Visitor at Makongeni devotes special lunch hours when men may come to discuss their family problems and be advised. Superficially many of the men seem to be selfish, in that they are well dressed though their children may have no warm clothes, that they eat the meat though their children eat uji and ugali, but they are interested to learn the correct ways of living to become healthy and to live according to the accepted rules of hygiene. It is well to remember that each man taught, who carries out the instruction, is an example to his neighbours, and is probably the best form which propaganda can take.

Child Welfare Clinics

The Baby Show was held on the 25th November, in the Kaloleni Social Hall, when Dr. P. G. Preston, M.R.C.O.G., and Miss K. Foord, matron of the African Maternity Hospital, Pumwani, judged the groups of three children sent from each clinic. The preliminary group judging had been done on 22nd November, in each clinic, by Drs. Graham-Johnstone and M. A. Williams and Miss Benjamin and Miss Rees. The Coleman Cup was awarded to Kaloleni Clinic and presented to the Health Visitor in charge by Councillor (Mrs.) Rayner. After the presentation of Cup and Prizes a tea-party and entertainment were given for the invited mothers and children of the clinics and all appeared to enjoy it. However, the Health Visitors and African assistants are unanimous in the opinion that the parents do not like having their children undressed and examined and many refuse to enter their children on the most transparent excuses. They feel that the mothers would prefer to have a small Christmas Party in each Clinic, with a grant of sweets from Council and by each clinic staff's individual efforts collect small gifts for the children.

Compared with 1948, total I.W. attendances decreased by	3,172
New cases 0 to 1 year attendances decreased by ...	787
New Cases 1 to 5 years attendances decreased by ...	192

Two factors involved in this were the fall in numbers after the institution of payment for medicines, and the increase in supervision in the Railway housing estate, which has reduced greatly the number of women and children who try to live there without permission and against the housing regulations. Also, the Health Visitors and assistants are being more strict about those attending who are not eligible under Council's policy.

Dispensary attendances have decreased by 10,060.

This is an unsatisfactory figure to consider, and since November has been classified under new cases and repeat attendances, but these are not available for the whole of 1949.

In the opinion of the Medical Officer this decrease can be attributed entirely to charging for drugs.

Home visits have decreased by 1,701, but this is accounted for by staff sickness and increase in clerical work.

It would appear that, except for the hiatus from June to October, most of the clinics have reached saturation point and anxiety is felt about the future. Not only are more mothers and children wanting to attend from the existing housing estates, but many new housing schemes are developing. It is essential that more Grade 1 assistants should be obtained and trained in readiness, so that a Health Visitor could supervise two clinics, where the Africans are in charge.

Medical examination of Nursery School children has continued throughout the year, and in this age group (3 to 7 years) the shortage of food and the deficient diet become sadly apparent.

Medical Aspects

There has been no major epidemic, but measles, chickenpox and whooping-cough have continued intermittently throughout the year, the first mentioned being complicated by broncho-pneumonia in several cases. Respiratory tract and middle ear infections, conjunctivitis, gastro-enteritis, and dysentery (with two proven cases of amoebic dysentery) occurred in numbers all the time.

The condition of the children returning from the Reserve is very poor; from the Kisumu districts they are debilitated with malaria, anaemia and septic scabies, and from Kikuyu and Mkamba suffering with helminthic infections, anaemia, malaria, kwashiorkor, T.B. and malnutrition.

Laboratory Tests

No. of Kahn specimens taken	...	1,313	positive	...	188
„ „ Cervical smears taken	...	1,027	„	...	--
„ „ Blood slides for malaria	...	3,846	„	...	882
„ „ Stools examined	...	1,292	„	...	369

Vaccinations : 1,258.

T.A.B. Inoculations : 2,965.

A factor militating against the protection of a higher number is that the children are not really well enough, and many disappear to the reserves at the appropriate age group. Also, pressure of other work is allowed to have priority, and it may be that sufficient emphasis is not being given to this measure of prophylaxis.

All Health Visitors report the inadequacy of the housing and the particularly poor condition of the dwellings at Marura, P.W.D. Camp and Pumwani. They emphasize the need for improvement in the management of sanitary arrangements, refuse containers and disposal, and the cleaning of drains.

The need is felt for something more effective and extensive to be undertaken to deal with bug infestation at Muthuruwa.

Kaloleni still has long periods with a seriously inadequate water supply.

District Midwives

Normal Deliveries :	181.	Ziwani	65
		Makongeni	93
		Kaloleni	23
Post-natal Examinations :	105.	Ziwani	39
		Makongeni	61
		Kaloleni	5

Abnormalities :

Ziwani : 1 S.B. twin delivered. 1st macerated.

1 normal delivery of very large baby. Died at 6 hours, probably cerebral haemorrhage.

1 normal delivery, died at 1½ hours, probably cerebral haemorrhage.

1 primary uterine inertia to African Maternity Hospital.

1 P.P.H. to African Maternity Hospital.

Makongeni : 1 premature breech twins — 1st died in a few mins. 2nd lived; wt. 3½ lbs.

Kaloleni : 1 impacted brow at African Maternity Hospital.

1 premature B.B.A. Baby died on 3rd day.

Personnel : Ziwani — Mrs. Ruth Elikana.

Makongeni — Mrs. Sarah Charles.

Kaloleni — Mrs. Helen Alexander Jan. 1st to Mar. 4th.
Mrs. Naomi William from Mar. 5th to
Apr. 5th and again from Oct. 15th to
Dec. 31st.

The Kaloleni Clinic is now fully equipped except for a very much needed telephone. As seen from the table attached it is supplying service to a large number of women and children.

There have been already many enquiries to register at the existing clinics from Military Camps, Ruben's Camp and even the West Aerodrome, and Bahati, but these have had to be refused as visiting is impossible, there being no staff available.

It is hoped that the Railway will be able to complete the small alterations required at Muthuruwa to facilitate work in this building, and that they will be able to expedite the building of the new Nursery School at Kakongeni so that the Clinic may have the use of its waiting room again. The rooms at Makongeni are much too small to deal in comfort with the large numbers attending.

In June there were three burglaries in Kaloleni Clinic and three in the Supervisor's office at Kariokor. The lost goods and equipment were replaced and extra precautions taken by reinforcing a small store room in the office and having night watchmen at both clinics.

Films have been shown weekly by Mr. Beechey throughout the year, alternating between Kariokor and Kaloleni. Often it has been difficult to get sufficiently simple films for teaching, but those shown have been appreciated very much by the women and children.

VENEREAL DISEASES

The practice, started in July this year, of charging for treatment to women who could not produce evidence of residence within the Municipality, has had a definite effect on attendance.

As already shown, the average number of consultations per clinic dropped from 97 per day during the first six months of the year, to 79 per day during the second six months. In addition, the number of cases seen each month declined from an average of 805 per month in the first half of the year, to an average of 732 per month in the second half; the last month, December, showing only 703 cases dealt with.

The chief decrease in attendance was among syphilitic patients, who received an average of nine injections each, as against an average of 10.5 injections each in 1948. The total attendance of patients with syphilis was 13,432, almost 10% less than in 1948.

It is a serious matter to the remainder of the community if people with syphilis are not adequately treated. Untreated acute syphilis remains infectious for months; and even when healing has occurred, the case may relapse into an infectious condition again. Numerous persons can be infected by one case, and infected infants born from such parents.

During the past eight years, the emphasis at the Clinic, has been on educating African women to attend the Clinic regularly until their treatment has been completed. When in July 1949, money had to be asked for, unless evidence of residence in Nairobi was available, many syphilitic women, who had attended regularly every week up to that time, ceased to attend. It is possible that this demand was made the excuse for not attending, but when dealing with an infectious communicable disease, no possible loophole should be given to patients for non-attendance.

The course of treatment for syphilis is long, varying from 26 weeks to 58 weeks, and it is not surprising that undisciplined people like Africans are difficult to train into the routine of attending for a weekly injection for 6 to 12 months. In spite of this, some 80 women completed their courses of treatment in 1949, out of 1,452, or about five percent.

A lamentable number of women still default in their treatment however as the following figures show :—

80 women (5%) completed treatment.

139 women (10%) defaulted after 1 visit, 43% of them still openly infectious.

187 women (13%) defaulted after 2 visits, 16% of them still openly infectious.

Fourteen cases of lapsed infectious syphilis re-appeared during the year. In all cases the patient had defaulted in treatment on occasions varying from two months to two years previously.

The number of all cases of syphilis 1,452, seen during the year was almost the same as in 1948 (1449) but there was the striking increase of 22% in the number of cases of acute syphilis seen. This increase indicates that there is a big focus of infection in the African population, with numerous fresh infections occurring.

When considering the cases of gonorrhoea, there was an alarming increase in the number of cases, namely a 74% increase on the number seen in 1948. The figures for the two years were 571 cases in 1948, and 993 cases in 1949.

In a number of these cases, the woman was not eligible for free treatment and had no money, and therefore could have no treatment.

There were 95 women who had more than one attack of gonorrhoea during the year. The actual number of attacks was 230, one woman having had 7 attacks! Six of these 95 women admitted that they were prostitutes, and they had clinical signs of an attack on an average of one every four weeks. The six prostitutes were treated for a total of 20 attacks during the year.

The remaining cases of reinfection, had intervals of from 8 days to 5 months, between attacks. In 41 of these cases, the woman had been cured of one attack, before becoming reinfected. In 93 cases, the woman became reinfected before being discharged, cured. In eight cases, the woman had defaulted before cure during the first attack, returning some weeks later with another attack. Eight women had reinfections on returning to the Clinic, after the birth of a baby; the return visit being made from two to seven weeks after the baby's birth.

When considering the treatment of gonorrhoea, it is obvious that women will become reinfected unless their husbands are treated at the same time. Several cases had more than one attack until the husbands had been persuaded to attend the I.D.H. for examination and treatment. To secure this co-operation, every infectious woman is given a card for her husband to take to the I.D.H., stating from what she is suffering. The I.D.H. writes the results of their investigations on the back of our card, and the treatment given, and the man is told to give the card to his wife to bring back to us. This is very valuable co-operation, and a number of cards are brought back.

Ayahs. During the year only 49 ayahs were referred to the Clinic for examination. Of this number 43% were infected with V.D. It is regrettable that more women are not alive to the dangers of employing to look after their children, women, who may be suffering from infectious V.D.

Table 73

Work at Pumwani V.D. Clinic

1. Attendances :

Number of consultations	...	...	...	...	22,366
Number of treatments	...	...	...	...	7,896
Number of clinics 253; average per clinic 88.					
Decrease on 1948 average attendance 8 per clinic.					

The decrease in attendance was marked from July onwards, when charges were made for treatment to women who could not produce evidence of residence in Nairobi. A comparison of the figures for the two halves of 1949 follows :—

January to June 1949				July to December 1949			
Attendance	...	...	12,266	Attendance	...	...	10,099
Number of clinics	...	...	126	Number of clinics	...	...	127
Average per clinic	...	...	97	Average per clinic	...	...	79

The average attendance per clinic throughout 1948 was 96 per clinic.

2. Consultations :

					Increase or decrease on 1948
By patients with Syphilis	...	...	...	13,432	— 9.8%
By patients with Gonorrhoea	...	...	...	4,381	+ 60%
By patients with Yaws	...	...	...	76	
Total by patients with V.D.	...	...	...	17,889	+ 0.8%
By other patients	...	...	...	4,476	
Total consultations	...	...	...	22,365	— 8%

While in 1948, only 73% of the total consultations were made by patients with V.D., it was satisfactory that 80% of the total in 1949 were made by patients with V.D.

3. Analysis of Cases :

			1949	1948	Increase or decrease on 1948
Primary Syphilis	...	...	163	246	
Secondary Syphilis	...	...	565	349	
Total Acute Syphilis	...	...	728	595	+ 22%
Latent Syphilis	...	...	531	637	
Tertiary Syphilis	...	...	5	22	
Congenital Syphilis	...	...	188	195	
Total Syphilis	...	...	1,452	1,449	
Gonorrhoea	...	...	993	571	
Yaws	...	...	12	25	
Soft Sore	...	...	1	—	
Total V.D.	...	...	2,458	2,045	+ 19%
Other cases	...	...	1,746	2,777	
Total Cases	...	...	4,204	4,822	— 13%

The number of actual cases dealt with each month was as follows :—

January	...	...	...	814
February	...	...	...	817
March	...	...	...	724
April	...	...	...	796
May	...	...	...	830
June	...	...	...	852
July	...	...	...	899
August	...	...	...	731
September	...	...	...	669
October	...	...	...	658
November	...	...	...	739
December	...	...	...	703

4. Injections Given :

Intravenous injections	...	...	6,842	+ 9.6%
Intramuscular injections				
Bismuth and Acetylarson	...	...	6,151	— 38%
Penicillin	...	...	930	+ 43%
Total :			13,923	— 12%

5. Specimens Taken for Laboratory Tests :

(a) Specimens for Kahn test :	Positive :	Doubtful :	Negative :
5,804	1,505	641	3,658

(b) Smears for Gonococcal examination :

Smears from Urethra	5,923	Number positive	60
" " Cervix	5,694	" "	225
" " Vagina	118	" "	27
" " Eye	141	" "	11
" " Ear	1	" "	—

Total number of smears taken :	11,877	Total positive	323
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(c) Specimens of Cerebro-spinal fluid :

Number taken ...	19.	Number negative ...	19.
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6. Home Visits to V.D. Patients :

The number of visits paid to these patients was 2,202.

The patient was contacted on 1,231 visits; and there were 375 return visits to the Clinic after the patient had been contacted, giving a percentage of 30% return visits after being contacted.

7. Women Prisoners from the Jail :

Only two prisoners were sent to the V.D. Clinic for examination, and both were found to be free from V.D.

8. Examination of Ayahs Referred by Their Employers :

The number referred for examination was ...	49
Those found to be negative were ...	28
Those found to be infected were ...	21 (=43%)
Suffering from syphilis ...	17
Suffering from gonorrhoea ...	2
Suffering from yaws ...	2
Total :	21

9. Examination of Pregnant Women :

The number examined were ...	1,525
Those found to be negative were ...	817
Those found to be infected were ...	708 (=40%)
Suffering from syphilis ...	343
Suffering from Gonorrhoea ...	365
Total infected :	708

10. **Analysis of Reputed Residence of Women Attending the Clinic :**

Number of patients resident in Nairobi :—

In Locations	1,621
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Not in Locations	834
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Total :	2,455
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Number resident outside Municipality ...	1,749
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Total :	4,204
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It will be seen, that 58% of the patients attending the Clinic were reputed to live within the Municipal boundaries.

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., M.B.E.

Medical Officer-in-Charge, Asian Child Welfare

Phillipa Gaffikin, M.B., Ch.B. (St. Andrews).

Medical Officer-in-Charge, Venereal Diseases Clinic

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

Medical Officer-in-Charge, Inoculation Centre

Alexander Cruikshank, M.D., Ch.B. (Aberdeen).

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. R. D. Belsare, Cert : R.S.I. (India) and Cert. Tropical Hygiene.

Mr. Mohammed Din, Cert : R.S.I. (India).

Three African Sanitary Inspectors.

Inspector of Foods.

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

Clerical Staff

Mrs. M. H. Knight (Feb. to April).

Miss L. Sutherland (May to November).

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 (until June).

Mr. A. Gocs.

Mr. E. H. Aspinall (July onwards).

Mr. Abdul Karmali.

Mr. M. I. Shah.

Rodent Officer

Mr. J. Morrill.

Clerk-Typist and Assistant

Mrs. B. K. Lawson, S.R.N.

African Vermin Overseer

Mr. James Karebe.

Laboratory Assistant

Mr. William Ongare.

Sister i/c Inoculation Centre, and Dispensary

Mrs. E. M. Sullivan, S.R.N.

African Maternity and Child Welfare Clinics**Supervisor of Health Visitors :—**

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

Health Visitors :—

Mrs. A. Gibb, S.C.M.

Mrs. J. C. Brooks, S.R.N., S.C.M.

Mrs. C. M. Davis, S.R.N., S.C.M., H.V. Cert.

Mrs. J. Rowe, S.R.N., S.C.M.

Miss J. Lorimer, S.R.N., S.C.M., H.V. Cert. (until November).

Mrs. A. Bull, S.R.N., S.C.M. (until April).

Mrs. Pickwell, S.R.N., S.C.M. (August onwards).

Miss Marsh, S.R.N., S.C.M., H.V. Cert. (May to August).

Mrs. Adams, S.R.N., S.C.M., H.V. Cert. (November onwards).

and fifteen African Clinic Assistants.

Asian Maternity and Child Welfare Clinics.**Senior Health Visitor :—**

Miss Priscilla Benjamin H.V. Grade I, (Delhi).

Health Visitors :—

Mrs. Savitri Chaddha H.V. (Lahore).

Miss E. de Mello, S.R.N., S.C.M. (Hyderabad, Deccan).

Mrs. R. Pachecos, S.R.N. (Karachi).

Health Assistants :—

Miss Kursheed Begum Ramzan.

Miss Vimla Sood.

Miss Kaushalya Sood (Jan.—June).

Miss Hanifa Ali Ahmed (July—October).

Miss. Swaran Kaur Pallan (Nov.—Dec.)

Miss Torlochan Kaur Naru (Jan.—March).

Miss Zekia Akhtar (April—August).

Miss Narinder Kaur Surat Singh (Sept.—Dec.)

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. S.C.M.

Cleansing Superintendent : Mr. R. A. McDonell, M. Inst. P.C.
Senior Foreman : Mr. T. E. Davis (on leave July onwards).
General Clerk : Miss D. M. Ewing.
Overseers : Mr. T. N. Pienaar, Conservancy, and Foreman during
Mr. Davis' leave.
Mr. A. Savy, Sweeper Service.
Mr. A. Rozaner, Scavenging.
Mr. A. Beaufond, Refuse removal, and acting
Overseer/conservancy.
Mr. P. Victorin.
Mr. M. Esparon.
Mr. L. H. Clough, Refuse Disposal.
Mr. H. Sullivan.
Mr. Horeau (until November).

		EXPENDITURE		£ s. cts.		£ s. cts.	
Administration.							
Salaries	10,552	3 81		
Salaries, African Sanitary Inspectors	646	7 23		
Provident Fund Contributions	807	6 21		
Wages, etc. Native Staff	595	19 82		
Uniforms	36	9 57		
Medical Attention — staff	45	17 50		
Locomotion	447	6 50		
Rent of Offices	1,350	0 00		
Printing Stationery and Advertising	657	8 58		
Telephones	81	15 07		
Postages	150	7 67		
Food and Drug Analysis Fees	115	7 53		
Sanitary Equipment and Samples	24	16 37		
Public Health Propaganda	99	9 49		
Passages, Staff appointments	116	4 44		
Demolition of buildings	26	13 02		
Miscellaneous	15	2 01		
Administration expenses (Propn.)	800	0 00		
Stores and Workshop expenses	170	0 00		
				16,738	14 76		
Less : Charged to Cleansing Department	400	0 00	16,338	14 76
Infectious Diseases Prevention :							
Salaries	3,754	5 51		
Provident Fund Contributions	240	17 85		
Wages etc., Native staff	5,651	17 62		
Medical Attention Staff	4	10 10		
Uniforms	234	13 26		
Rent of Stores	25	0 00		
Maintenance of buildings etc.	42	10 94		
Oil and General stores	3,371	1 80		
Transport	2,407	1 80		
Printing Stationery and Telephones	223	3 04		
Vaccination and Inoculation Expenses	212	7 06		
Hospital Fees	2,470	2 50		
Notification Fees	85	14 00		
				18,729	13 01	18,729	13 01
Venereal Diseases Treatment :							
Salaries	2,368	12 24		
Provident Fund Contributions	143	8 29		
Wages etc. Native Staff	441	18 40		
Uniforms	40	2 71		
Locomotion	11	8 45		
Repairs to buildings and furniture	23	10 66		
Medical Stores and Equipment	791	13 06		
Electricity, Water and Sanitation	15	2 75		
Printing Stationery and Advertising	40	3 10		
Miscellaneous	2	7 25	3,878	6 91
Maternity and Child Welfare :							
Parklands European Day Nursery :							

Salaries	...	...	...	...	1,359	10	56	
Provident Fund Contributions	...	...	...	...	27	2	11	
Wages etc. Native Staff	...	...	...	...	150	14	89	
Uniforms	...	...	...	...	10	13	79	
Provisions	...	...	...	...	490	3	36	
Locomotion	...	...	...	...	17	2	60	
Maintenance of buildings	...	...	...	...	75	4	26	
Maintenance of equipment	...	...	...	...	75	10	40	
Electricity and fuel	...	...	...	...	80	6	42	
Water and conservancy	...	...	...	...	27	12	80	
Printing stationery advertising and telephones	...	...	...	...	21	5	39	
Rates and Insurance	...	...	...	...	130	12	78	
Miscellaneous	...	...	...	...	2	4	50	
Reserve for renewals — buildings	...	...	...	...	75	0	00	
Loan Charges	...	...	...	...	197	7	77	2,740 11 63

European Child Welfare Clinics :

Salaries (Proportion of Medical Officer)	...	...	...	...	100	0	00	
Medical Stores	...	...	...	...	6	15	27	
Loan Charges Proportion	...	...	...	...	50	0	00	156 15 27

Asian Child Welfare Clinics :

Salaries	...	...	...	...	2,500	14	86	
Provident Fund contributions	...	...	...	...	144	4	94	
Wages etc. Native Ayahs and Drivers	...	...	...	...	87	15	79	
Uniforms	...	...	...	...	39	1	29	
Medical Attention staff	...	...	...	...	31	18	14	
Locomotion	...	...	...	...	417	9	38	
Maintenance of buildings	...	...	...	...	76	7	45	
Repairs furniture and equipment	...	...	...	...	84	8	62	
Medical Stores and Infant Food	...	...	...	...	86	10	95	
Cleaning Materials etc.	...	...	...	...	19	10	97	
Electricity and fuel	...	...	...	...	1	19	48	
Ngara Clinic — Lavatory and Store	...	...	...	...	150	14	32	
Water and Conservancy	...	...	...	...	13	5	60	
Printing and stationery, advertising and telephones	...	...	...	...	67	9	30	
Loan charges	...	...	...	...	32	14	42	3,754- 5 51

African Child Welfare Clinics :

Salaries	...	...	...	...	4,508	1	24	
Provident Fund contributions	...	...	...	...	270	17	08	
Wages etc. Native staff	...	...	...	...	1,023	18	05	
Uniforms	...	...	...	...	107	15	22	
Medical attention — staff	...	...	...	...	45	5	00	
Locomotion	...	...	...	...	434	14	85	
Maintenance of buildings	...	...	...	...	74	11	74	
Repairs, Furniture and Equipment	...	...	...	...	182	9	86	
Medical Stores and Infant food	...	...	...	...	728	4	48	
Rent	...	...	...	...	73	11	00	
Cleaning Materials etc.	...	...	...	...	59	18	10	
Electricity and fuel	...	...	...	...	112	5	61	
Fire Insurance	...	...	...	...	1	10	63	
Water and Conservancy	...	...	...	...	19	13	60	
Printing, Statny. Advts. and Telephones	...	...	...	...	118	18	54	
Baby Show	...	...	...	...	19	2	78	
Redecorating Kariokor Clinic	...	...	...	...	46	19	22	7,827 17 00

African Maternity Hospital :

Salaries	...	...	...	...	3,857	18	16	
Locum and anasthetists	...	...	...	...	63	5	00	
Provident Fund contributions	...	...	...	...	188	10	36	
Wages etc. Household staff	...	...	...	...	489	0	23	
Wages etc. Nursing staff	...	...	...	...	938	4	76	
Uniforms	...	...	...	...	145	19	61	
Medical attention — Staff	...	...	...	...	18	0	00	
Passages — staff appointments	...	...	...	...	227	12	80	
Locomotion	...	...	...	...	406	0	00	
Provisions	...	...	...	...	1,012	4	78	
Medical Stores and Equipment	...	...	...	...	713	9	25	
Linen, cutlery and crockery	...	...	...	...	98	19	40	
Maintenance buildings	...	...	...	...	177	7	58	
Electricity and fuel	...	...	...	...	372	2	39	
Water and Sanitation	...	...	...	...	71	9	60	
Rates and Fire Insurance	...	...	...	...	135	6	25	
Cleaning materials etc.	...	...	...	...	184	7	52	
Printing, stationery, advertising and telephones	...	...	...	...	104	19	53	
Renewals Reserve Contributions	...	...	...	...	500	0	00	
Loan Charges — Interest	...	...	...	...	89	19	05	
Redemption	...	...	...	...	229	17	24	10,024 13 51

63,450 17 60

REVENUE

	£	s.	cts.	£	s.	cts.
Government Grant towards Health Services	29,000	0	00			
Sundry Receipts	134	8	75	29,134	8	75

Infectious Diseases Prevention :

Government Contribution Vaccination and Inoculation	...	...	...	450	0	00	
Vermin Destruction	...	...	...	49	8	00	
Fumigation	...	...	...	119	0	75	
Vaccination and Inoculation Fees	119	8	00	737 16 75

Venereal Diseases Treatment :

Fees	113	12	00	113 12 00
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Maternity and Child Welfare :

Parklands European Day Nursery — Fees	...						3,133 14 00
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African Maternity Hospital :

Fees	1,028	14	75	
Native Trust Fund — Grant	400	0	00	
Local Native Council — Grants	...	...	...	75	0	00	1,503 14 75
							34,623 6 25

Total Expenditure	...	...	...				63,450 17 60
Total Revenue	...	...	...				34,623 6 25
Balance Charged to Rates	...	...	...				28,827 11 35

CLEANSING DEPARTMENT

EXPENDITURE

	£	s.	cts.	£	s.	cts.
Night Soil Removal :						
Wages etc. Native Staff	3,708	13	66			
Uniforms	78	19	63			
Mechanical Vehicle Running Expenses	4,867	7	55			
Lamps and oil	115	19	13			
General Stores	332	0	12			
Buckets	116	10	66			
Water and Conservancy	76	0	00			
Maintenance of Buildings	259	1	74			
Maintenance Fund Contributions	50	0	00			
Ox Transport — Oxen Upkeep						
Repairs to Carts						
Septic Tanks and Waste Water Pits etc.	4,596	15	00			
Contribution to Sewers	2,000	0	00			
Cleansing Station :						
Wages etc. Labour	750	1	38			
Electricity and fuel	124	19	16			
Upkeep of Buildings and Pumps	173	18	66			
Water and Conservancy	4	6	40			
Renewals Reserve Contribution	175	0	00			
Ox Transport — Oxen Upkeep	92	11	94			
Repairs to ox carts.	1	8	53	94	0	47
Salaries, Allowances and other charges :						
Cleansing Supt. and staff	1,957	9	79			
Stores and Workshop expenses Propn.	100	0	00			
Administration Expenses Propn.	2,950	0	00			
Loan Charges : Interest	58	6	72			
Redemption	81	6	12	139	14	84
				22,670	18	19
Refuse Removal :						
Collection :						
Wages, etc. Native Staff	3,147	2	22			
Uniforms	262	5	30			
Mechanical Vehicles running costs	11,115	7	13			
General Stores	34	17	26			
Dust Bins	3,417	15	29			
Miscellaneous	2	17	29	17,980	4	49
Tipping :						
Wages	744	10	72			
Road resurfacing	543	0	24			
Other Charges	41	2	55	1,328	13	51
Incineration :						
Salaries	531	0	00			
Provident Fund	29	17	42			
Medical attention — staff	6	0	00			
Wages — Artizans and labourers	561	16	35			
Uniforms	36	15	14			
Maintenance and Repairs	108	14	37			
Electricity	103	11	77			

Water and Sanitation	...	...	...	75	8	80	
General Stores	...	...	...	9	1	97	
Fire and Boilers Insurance	...	...	...	16	19	73	
Assessment Rates	...	...	...	135	0	00	
Renewals Reserve Contribution	1,000	0	00	
Loan Charges Interest	82	5	50	
Redemption	274	5	00	2,970 16 05
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General Charges :							
Salaries and allowances :							
Superintendent and staff	1,631	4	82	
Stores and Workshop Expenses Propn.	75	0	00	
Administration Expenses	1,000	0	00	2,706 4 82
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Scavenging :							
Wages etc. Native Staff	7,291	6	94	
Uniforms	528	11	62	
Mechanical Vehicles running costs	736	13	77	
General Stores Brooms etc.	...	...	...	429	17	32	
Ox Transport Oxen Upkeep	...	...	...	129	6	33	
Street Orderlies							
Maintenance	252	16	56	
Renewals Reserve Contribution	50	0	00	302 16 56
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Plot cleaning	5	5	47	
Waste water receptacles	158	10	54	
Assessment Rates	33	15	00	
Miscellaneous	...	...	...	5	8	70	
Calaries, Allowances and other charges :							
Superintendent and Staff	...	...	...	1,304	19	86	
Stores and Workshops Expenses Propn.	130	0	00	
Administration Expenses — Propn.	200	0	00	11,258 12 11
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Public Conveniences :							
General :							
Wages etc. Native Staff	461	13	81	
Uniforms	28	11	93	
Stores and Disinfectant	...	...	...	37	4	77	
Maintenance of Buildings	...	...	...	28	12	12	
Water and Sanitation charges	...	...	...	1,128	13	60	
Reserve for Renewals	250	0	00	
Loan Charges :							
Interest	138	14	08	
Redemption	190	5	96	329 0 04
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Salaries, Allowances and other charges :							
Superintendent and Staff Propn.	326	4	97	
Stores and Workshop Expenses Propn.	35	0	00	
Administration Expenses	150	0	00	2,775 1 24
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Locations :							
Wages etc. Native staff	1,994	1	06	
Uniforms	117	13	30	
Stores and Disinfectants	176	19	92	
Salaries, Allowances and other charges :							
Superintendent and Staff Propn.	...	...	...	326	4	97	
Stores and Workshops Propn.	...	...	...	35	0	00	

Administration Expenses	...	...	...	150	0	00	2,799	19	25
Sweeper Services :									
Wages etc. Native staff	...	...	...	3,539	9	35			
Uniforms	...	...	...	245	15	81			
Stores and Disinfectant	...	...	...	109	9	25			
Salaries, Allowances and other charges :									
Superintendent and Staff Propn.	...	...	...	326	4	96			
Stores and Workshops Propn.	...	...	...	35	0	00			
Administration Expenses Propn.	...	...	...	150	0	00	4,405	19	37
							<hr/>		
							68,894 09 03		

REVENUE

					£	s.	cts.	£	s.	cts.
Nightsoil Removal :										
Fees and Charges :										
Nightsoil Removal	...	...	...	...	20,733	4	80			
Emptying Septic Tanks etc.	...	...	...	...	4,983	1	35	25,716	6	15
					<hr/>					
Refuse Removal :										
Sundry Charges	...	...	...	...	461	15	00			
Dust Bins	...	...	...	...	1,091	0	80			
Steam (sale of)	...	...	...	...	422	0	00	1,974	15	80
					<hr/>					
Scavenging :										
Sundry Charges	...	...	...	...				147	16	75
Public Conveniences :										
Receipts from Sweeper Services	...	...	...	...				7,748	3	25
					<hr/>					
								35,587	01	95

Total Expenditure	...	...	...				68,894	09	03
Total Revenue	...	...	...				35,587	01	95
							<hr/>		
Balance Charged to Rates	...	...	...				33,307	07	08



