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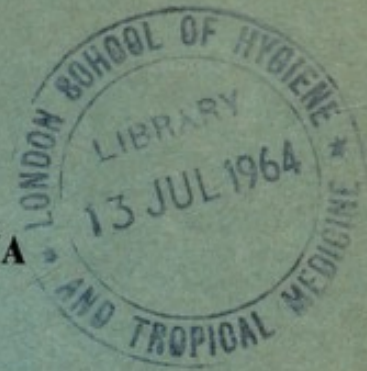
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GOVERNMENT OF KENYA



**MINISTRY OF HEALTH
AND HOUSING
ANNUAL REPORT
1962**

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MINISTRY OF HEALTH AND HOUSING ANNUAL REPORT, 1962

INTRODUCTION

The medical and health services of Kenya have been developed during the past sixty years against a background of limited financial resources and a shortage of trained personnel. In addition to these two factors there has been a continuing requirement for expansion of the services caused by the steady growth of population and the ever-increasing public demand for a better quality of service.

Improvement in the health of a nation is a fundamental prerequisite of any improvement in the economic status of a nation. It is the responsibility of medical and health services to improve the health of the population so that economic resources can be satisfactorily developed; the Report of the International Bank for Reconstruction and Development recognizes this when it states: "Expenditures on health that improve the productive capacity of the population, like those on education, may be viewed as investments, although the returns from them are not easy to calculate or to realize."

It is, therefore, apparent that the problem is not *what* to do but *how* to do it in the face of limitations in the supply of men and money. It is quite certain, however, that the development of an appropriately designed and balanced health service requires careful long-term planning; this planning must not be subject to either political or economic expediency.

A long-term plan for Kenya was in fact set forth in the report of the Development Committee (commonly referred to as the Troughton Report) in 1946, and this plan has, with minor modifications, been followed through the years. The Troughton Report stated "once it (Government responsibility for health services) is accepted there can be no question but that for efficiency and economy of operation all sections of the health service should be co-ordinated into a single whole". Thus, the indivisibility of health was recognized; this point was emphasized later in the report in the statement that "fundamental division of the service lies between personal and non-personal services and eventually, to ensure economy and efficiency of operation, the whole of the personal services, preventive and curative, should constitute a single organization under the direction of the Central Government".

It should be the aim of any future Government of Kenya to preserve this integrated structure of the health service which has been created so carefully and painstakingly over the past years.

Further on the report stated "that from a development point of view the most substantial dividends are yielded by a concentration of resources on preventive rather than on curative medical services" and recommended the following priorities:—

- (1) The provision of health centres.
- (2) The expansion of training establishments.
- (3) The improvement of existing hospitals.
- (4) An increase in the number of hospital beds.

These recommendations have been faithfully followed throughout the years. Today we have some 140 health centres and 20 health sub-centres (as against nil in 1946) of such a standard that a visiting World Health Organization consultant

stated "There is no doubt that the Health Centre Scheme as it is developed in Kenya is a major contribution to the solution of some extremely difficult problems in health service provision in less developed countries".

Medical training facilities have also been expanded enormously both in quantity and quality until today many of the training courses (such as those for nurses, health inspectors and radiographers) have been recognized by the equivalent United Kingdom bodies.

The expansion of hospital facilities has been less dramatic; in 1946 there were just over 3,000 general hospital beds for Africans, the equivalent of 0.9 beds per 1,000 population. Today there is a total of 6,424 Government hospital beds and 3,944 private and mission hospital beds, a ratio of 1.3 beds per 1,000 population. This increase has been achieved despite a growth of population from 5.4 million in 1948 to 8.67 million in 1962.

The Troughton Report devoted a special section to nutrition and recognized that grave malnutrition existed; it recommended the creation of a Nutrition Board and a Nutrition Survey. These recommendations have been implemented by the establishment of the National Advisory Council on Nutrition and the institution of a Nutritional Survey by a World Health Organization expert team.

Many diseases which once ravaged Kenya such as cholera, plague, relapsing fever, typhus and onchocerciasis have now almost vanished from the scene. Other diseases, notably yaws, show signs of potential suicide as a result of the great anti-yaws campaigns of the 1920s, the use of antibiotic drugs since the Second World War and the steady advance of personal and environmental hygiene. The virtual disappearance of relapsing fever is due to the improvement in home living conditions rather than to any specific measures. Similarly, the steady reduction in the number of reported cases of enteric diseases reflects the improvements achieved in environmental conditions such as housing, water and sanitation.

With rising standards of living reflected in a falling infant mortality rate, the endemicity of many diseases is giving way to epidemicity; poliomyelitis is an example of this phenomenon. Diseases new to Kenya such as kala-azar have appeared in epidemic form in recent years.

There still remains a formidable list of diseases to be combated; insect-borne diseases such as malaria and sleeping sickness; contagious diseases such as leprosy and trachoma; infectious diseases such as tuberculosis; occupational diseases such as cutaneous anthrax; parasitic diseases such as hookworm, roundworm and tapeworm and the common alimentary and respiratory diseases of childhood such as the dysenteries, measles, whooping-cough, broncho-pneumonia, etc. The underlying detriments of all these diseases are poverty, ignorance, malnutrition and under-nutrition. Our weapons in combating them are health education, improvements in environmental hygiene, vaccines, chemoprophylactic drugs and residual insecticides.

Such complexity of needs and wants can be met only by continuing to develop the health services on a broad base, by projecting services into the homes and by remembering that a national health service cannot be more efficient than its smallest component unit.

Health is not the mere absence of disease and infirmity but is a state of complete physical, mental and social well-being.

Although much has been done in the past still more remains to be done in the future. The prospects for the immediate future are not of further development but of reconstruction to meet changing political and economic needs while yet preserving the principle of "the indivisibility of health".

REPORTS FROM PROVINCIAL MEDICAL OFFICERS

(a) Central Province, 1962

This has been a year of maintaining existing standards rather than expansion. There have been no major hospital building projects, although minor alterations and improvements have been made in a number of places. Local authorities, striving to improve the health services in their districts, have not had their task lightened by the pegging of the Public Health Grant, however, with careful budgeting and supervision from the Medical Officers of Health and the District Council staff, they have, on the whole, maintained their standards with only minor restrictions towards the end of the financial year.

A Health Centre was finished at Lare in Meru District and the Karuri National Reference Health Centre was nearing completion at the end of the year. In Embu building was commenced on two new Health Centres at Runyenjes and Baricho.

A Clinical Assistants Course planned to last one year and up-grade hospital assistants selected from various District Hospitals was started at the Provincial Hospital at Nyeri, the teaching being undertaken by the Provincial Medical Officer, Provincial Physician and Provincial Surgeon. The students actively participated in the clinical work in this busy General Hospital.

Staff of the Medical Department registered and examined every blind person in the Province during the year and operations for cataracts and entropion were organized on a more ambitious scale than heretofore. In this respect particular note should be made of the operations performed by Dr. G. A. Parsons, now transferred to the King George VI Hospital. A report as to the causes and incidence of blindness is being prepared. A pilot attempt to deal with the problem of the incurable cases was made in Embu District. A welfare committee for the blind was formed and started work coping with the social problems of these handicapped people. Every blind child in the district was admitted to a residential school for the blind with the exception of one whose parents refused. It is intended to use this scheme as a pattern for other districts.

In an attempt to prevent the expected upsurge of poliomyelitis cases towards the end of the year, an oral vaccination campaign was organized during which over 320,000 doses of vaccine were given. All local authorities agreed to stock booster doses to be available in their districts on repayment.

Nearly 700,000 smallpox vaccinations were performed during the year. Particular attention being paid to the number necessary in each district in order to ensure a three-year vaccination rate of over 80 per cent. This was achieved by everybody and greatly exceeded by Fort Hall and Nyeri, who attained practically 100 per cent three-year cover.

A start has been made in training B.C.G. teams for each district in order to effect our proposals to vaccinate every schoolchild against tuberculosis in the next three years.

The Kabere Water Scheme in Embu District was completed and opened. General opinion is greatly in favour of schemes such as this and the Zaina, which have proved so successful, but the most efficacious way of recovering the money necessary to repay the loans for such schemes caused much discussion.

The Mwea-Tebere Irrigation Scheme has continued to be a success financially and agriculturally, and medically has raised far fewer problems than was originally anticipated. Bilharzia appears to be absent in spite of careful checking, and malaria has presented no real problem.

Various Settlement Schemes were started during the year. Although presenting no special technical problems, proper supervision of the hygiene and sanitation for the settlers was made difficult by lack of money to pay staff to do the work. The difficulty was overcome by borrowing staff from adjacent African District Council areas, and in the case of Maragua, working Nairobi County Council and Fort Hall District Council staff together as one unit.

Mention must be made of the routine medical and health work carried out in the hospitals and districts throughout the Province by staff of all grades. Often under difficult conditions these men and women have, as in many years past, continued looking after sick people and carrying out unglamorous routine preventive duties. This unpublicized work, the backbone of our services, performed by unassuming staff who on the whole have been tremendously hard-working, is deserving of the highest praise.

(b) Coast Province, 1962

The introduction of the Clinical Assistants Course at the Coast Province General Hospital met with wide acclaim, particularly as it raised the promotion prospects of our hospital assistants and has thus given them a much needed boost. Competition for the eight places available was keen and the selection committee had a most difficult time trying to decide between the merits of the older well-tried, though perhaps not quite so "teachable" hospital assistants and those of the younger, but possibly more intellectually eligible, group. Time will tell whether this choice was in fact academically a wise one.

A small outbreak of poliomyelitis occurred mainly in Mombasa Municipality and Kilifi District and was maximal during the months of February, March, and April; the epidemic was confined to Africans in the very early age groups and was unusual in that both Types I and II of the virus were incriminated. Some three months previous to this epidemic Kwale District had staged a disappointingly attended Type I poliomyelitis campaign during which 13,581 vaccinations were performed in the proportion of 4,313 adults, 3,675 under fifteen years of age and 5,593 children under five years of age. This made no apparent difference to the subsequent epidemic though, to be sure, it would be extremely difficult to draw any firm conclusions one way or the other.

During and after the epidemic a trivalent vaccination campaign was held in which Mombasa, Kilifi and Kwale took part, but the public response to this was again very disappointing in all districts. Various reasons were given for failure of the campaign to catch the public eye and besides the usual one of the individual not being able to find enough money to pay for it, there was the interesting observation that the general public in the reserves had little or no knowledge of poliomyelitis as it occurred infrequently and in such small numbers; and that only in the face of a large epidemic would the public feel duty bound to seek the protection of the vaccine. This conclusion was drawn despite the fact that a preliminary health propaganda campaign had taken place. The consensus of opinion amongst health workers was that you could not educate a people about the disease and the benefits which modern protective measures could bring if the people themselves were little aware that such a disease existed.

Famine relief continued throughout the year in the districts of Kwale, Kilifi and Taita. Much praise has been given to the milk clubs which were started in Taita District to which any child can go for a glass of famine relief milk. These clubs have served as a very useful entrée for the health visitor to introduce her other activities such as triple vaccine, smallpox vaccination, health education and other aspects of child welfare work.

UNICEF/WHO Programme.—Schemes had been drawn up and materials received for projects in Kwale, Kilifi and Tana River Districts. Progress in all areas has, to say the least, been extremely disappointing.

In the Tana River area, flood damage and financial stringency seriously interfered with the Well construction programme and it was not until August that any material progress was made. Three wells have already been completed and fitted with pumps and it is hoped to have twenty or more in full operational use before the commencement of the long rains in 1963.

Progress in Kwale has been necessarily slow due to delay in the delivery of UNICEF/WHO materials. Only cement, piping and one windmill pump have so far arrived and constructional work has, therefore, been confined to lining and improvements to existing wells.

Kilifi African District Council finally decided in December that they would be unable to meet their financial commitments for the environmental sanitation programme and the reallocation of cement and other materials is therefore under consideration. A start has been made on the Ganze Scheme where the pipeline has been laid and the foundations for the pump house and storage tanks completed. No progress has been made with other aspects of the Kilifi programme.

In the sphere of water supplies, the hope of bringing the Gede pipeline south of Mida Creek as far as the Kilifi Crown Land Development Scheme did not, unfortunately, materialize owing to shortage of funds. This is an obvious development for the area for the future to which it is hoped WHO/FAO mission to Kenya in early 1963 will give due consideration.

The Mariakani Milk Scheme new premises were completed in December, the official opening by the Deputy Governor being scheduled for 8th February, 1963. The disposal of milk wastes from the factory presents serious problems. The Ministry of Works are at present contemplating the treatment of these wastes by means of brush aeration in a circular oxidation ditch, American practice having shown that the discharge of milk wastes to sewage stabilization ponds leads to a breakdown in treatment. The results of these pilot plant studies are awaited with considerable interest.

(c) Northern Frontier Districts, 1962

The most notable advance in Public Health Services in this area (consisting of the Administrative districts of Wajir, Moyale, Mandera, Garissa, Isiolo and Marsabit) has been the establishment of African District Councils. The Councils have taken over the Mobile Health Units, previously run under the African Trust Fund. They showed keen interest in developing additional services, and as money appeared to be plentiful, their enthusiasm required some direction in order to obtain the best advantage from the money available.

In Wajir plans were drawn up for a Maternity Unit to be attached to the hospital and a trial static dispensary at El Ber which it is intended to develop later into a Health Sub-Centre.

In Mandera financial provisions have been made for the African District Council to take full control of El Wak dispensary and for building a dispensary at Rhamu which is also scheduled for development into a Health Sub-Centre.

Isiolo African District Council has plans for a Health Sub-Centre at Garba Tulla and have made provision for a Mobile Health Unit, as have Moyale and Garissa Councils.

The major public health affliction during the year has been a malaria epidemic following the abnormally heavy rains at the end of last year. Wajir District and the non-riverine areas of Garissa District have been worst affected and the epidemiological course has been that of epidemic malaria in a non-immune population. It was impracticable to impose preventive measures and to combat the epidemic reliance had to be placed on the free issue of curative doses of Chloroquine as widely as possible. A total of 205,000 tablets of Chloroquine were issued in Wajir and Garissa Districts alone.

As might be expected attendances at hospitals increased in all districts, but was particularly marked at Wajir, where there was a 70 per cent increase over last year's figure. The additional work was felt most at Garissa where the hospital remained in its temporary shop-house building throughout the year. Work on the new Garissa hospital started in October and the roof was being laid at the end of the year.

The publication of the Census returns at the end of the year added a final shock of public health interest, for the population of these districts (388,000) has increased nearly threefold since the last Census in 1948.

(d) Nyanza Province

It is considered that the starting of a Clinical Assistants' Course in Kisumu in 1962 was an important step forward in improving the medical and public health service in the Province. The Clinical Assistants' Course did, in fact, have the effect of raising the morale of hospital assistants—now they have something to look forward to, i.e. promotion with better pay. This, it is hoped, will stop hospital assistants from leaving the Medical Department for other employment. In addition, of course, a year's training in clinical medicine and public health will considerably improve the efficiency of a hospital assistant.

The raised level of Lake Victoria continues to cause anxiety as it affects public health from several aspects:—

- (1) Certain areas, e.g. parts of West Kano in Central Nyanza, are completely under water, causing people to evacuate their homes and *shambas* and crowd into adjacent areas; the food grown in the latter areas being insufficient to maintain both the original inhabitants and the evacuees, the result is a food shortage near the flooded areas.
- (2) Apart from the completely flooded parts, there are other areas which are partially flooded, causing an increased hazard to health from pollution of water supplies, exposure, etc.
- (3) In certain places, e.g. swampy areas in Bunyala, Kisumu, etc., the water has edged nearer human habitation causing an increased contact between mosquitoes and men.

This year a determined effort was made to improve control of leprosy in the Province, and especially in Central Nyanza, under the supervision of the Deputy Provincial Medical Officer. Medico-social workers have been employed by local authorities; these workers are first sent to Itesio for training and afterwards posted to locations with the object of holding regular clinics and chasing up defaulters. Leprosy Registers also have been brought up to date. All this has resulted in patients attending more regularly and in some areas people have built mud and wattle huts in which the clinics are held. The Provincial Information Department has helped by producing a colour film strip on leprosy; this film has been shown all over the Province and there is no doubt that it has resulted in the general population taking more interest in leprosy.

(e) Rift Valley Province and Turkana District, 1962

The year 1962 was one in which hospital services were maintained at their previous level, whereas many local health authorities, due to poor collection rates, had to cut back on services previously provided. However, there was some progress during the year which will be recorded below.

Health Centres.—In Uasin Gishu two Health Sub-Centres at Soy and Moiben were built by the Central Government and then taken over by the Uasin Gishu County Council, who became a Local Health Authority during the year.

In Trans Nzoia four Health Sub-Centres were built by Central Government at Saboti, Endebess, Ndalat and Nzoia, and were run by Central Government who remained the Local Health Authority during the year.

The only African District Council who could afford to extend its services was Nandi, and at Kemeloi half a Simohnn Health Centre was almost completed by the end of the year.

Environmental Sanitation.—Despite their lack of funds, all Local Health Authorities made some improvement in markets and trading centres by the provision of water supplies and latrines. For example, in West Pokot District a water supply was installed at the trading centre in Makutano and in Nandi District water was laid on to Sangalo Market. Protection of springs, pegging-out of plots and latrines, and provision of latrines to schools proceeded in all districts.

In two districts UNICEF provided money for more ambitious water schemes. In Baringo District the scheme has only just started, and the first water supply at Tenges is almost complete. In Elgeyo-Marakwet District the following water works have been completed: at Muskut and Sangurur both gravity schemes are working well and the two hydraulic rams, one at Chesoi and one at Kaptenda are in use. A hand-pump was installed at Kapteren, and an old wind-pump is now working at Yokot. Piping and tanks have been completed at Singore, Bugar, Chebura and Kamsowor, but the UNICEF pumps have not yet arrived. Seven further springs were protected, using UNICEF materials.

Training.—The most outstanding event during the year was the qualification of the first four clinical assistants who had trained for a year in medicine, surgery and public health at Nakuru. The fifth candidate failed the examination and is resitting in 1963. The clinical assistants have already proved themselves of great assistance to medical officers in running hospitals in their absence and carrying out emergency operations.

Nakuru is the only hospital in the Province for training Enrolled Nurses. Three males only qualified during the year. At the end of the year there were 26 males and 16 females in training. Due to the low standard of education in many districts of this Province we still have to take a considerable number of males for training.

Hospital Buildings.—During the year the first Provincial mental ward was opened in Nakuru and is proving very successful. A start was made on the new X-ray department. A mortuary was built at Naivasha Hospital. The only other building to take place at Government hospitals was the provision of more staff housing at Nakuru, Thomson's Falls, Eldoret, Kapsabet, Kitale, Tambach and Kabarnet.

Settlement Schemes.—Settlement of the indigenous peoples in areas previously referred to as the "White Highlands" has gone rapidly ahead during the year and settlement schemes have developed chiefly along the perimeter of the Province with proposed extensions planned for future years of greater depth from the perimeter.

The schemes are of varying character ranging from the largest holdings classed as "Assistant Owners' Schemes" where existing farms are taken over by new owners, and the character is little changed to the "Peasant Farmers' Schemes", which are subdivisions of original farms and are of approximately a seven-acre economy holding. There are various classes of schemes within these limits. In addition to actual settlement schemes at least two "transit farms" have been established. These are run as original farms and used as indicated by their title for families in transit to the settlement areas.

Public health work in connexion with these schemes has been geared to the changing circumstances, and it has been necessary to adjust staff commitments on priorities of purpose. Due to many of the staff being away on training courses, it has been necessary to make many transfers and at the date of this report arrangements are well in hand to ensure a health assistant to each of the settlement areas. Co-ordination of the work of staffs engaged both by Central Government and Local Government has been necessary and co-operation by Local Government officers in these schemes has been readily forthcoming and is deeply appreciated.

Preventive Medicine.—Two main campaigns were carried out in the Province during the year, one a smallpox vaccination campaign to try and bring about an 80 per cent vaccination rate and, secondly, an oral spray vaccination campaign using Sabin vaccine of Types I, II and III against poliomyelitis.

B.C.G. vaccination in schools continues in some districts as well as the use of triple vaccine.

Health assistants have advised on the building of raised fireplaces to prevent burns. Whenever there was an outbreak of typhoid or cerebro-spinal fever appropriate preventive measures were taken and health assistants held *barazas* to explain about the disease.

(f) Southern Province, 1962

The outstanding event in Southern Province during the year was the aftermath of the drought, famine and floods of 1961. The whole Province was affected but the worst hit district was Kajiado. Machakos and Kitui Districts suffered from the drought and the excessive rains which caused destruction of standing food crops and some disruption of road services. Famine relief was given to the worst hit areas of these districts towards the end of 1961, and continued for the first five months of 1962 in a gradually decreasing amount.

The two Masai districts suffered from the drought, destruction of grass by army-worm and the excessive rains. Narok District suffered losses of cattle consequent on the drought and destruction of grazing, but no large scale famine relief measures had to be undertaken.

Kajiado District experienced severe floods and these following the drought and destruction of grazing resulted in an estimated loss of half a million head of cattle. Approximately 2,000 families lost their entire herds and a smaller number had their herds so depleted that they were unable to maintain their normal way of life. Others suffered a reduction in their herds which left them impoverished

but not destitute. Towards the end of 1961 and early in 1962 some 40,000 people were receiving famine relief and this relief has continued throughout the year in a diminishing amount, but even by the end of December, 1962, 10,000 people were receiving famine relief and this will have to continue in 1963.

There has been a steady return to nearly normal state of health and nutrition of the people, but the problem of the 2,000 families who are still without cattle remains with us. Restocking of herds has been undertaken, but it will require some three to four seasons before herds can be built up to a level of providing adequate sustenance and livelihood for the Kajiado Masai.

LEGISLATION

During the year the undermentioned legislation was dealt with by the Ministry:—

(a) Ordinances

THE RADIATION ORDINANCE, 1962 (No. 18 OF 1962)

This Ordinance was passed in June.

(b) Bills

THE FOOD, DRUGS AND CHEMICAL SUBSTANCES BILL

The draft Bill was approved, subject to minor amendments, by the Central Board of Health. Further amendments proposed by the Legal Department are under examination.

THE MEDICAL AUXILIARIES BILL

The purpose of this draft legislation is to control the practice, standards and training of certain categories of medical auxiliaries and to protect them. On account of the views expressed by some of the professional bodies concerned it is now proposed that the Bill should be more limited in scope than originally intended.

THE NURSES AND MIDWIVES BILL

A working party is engaged in drafting a new Bill to protect and control nurses and midwives and to regulate their training. The question whether the Bill should also apply to health visitors is being examined.

(c) Amendments to Existing Legislation

THE MEDICAL PRACTITIONERS AND DENTISTS ORDINANCE (Cap. 253)

The final draft of amendments to this Ordinance was completed.

THE MENTAL TREATMENT ORDINANCE (Cap. 248)

Amendments to this Ordinance to bring it up to date and to remove certain anomalies are still under consideration.

(d) Subsidiary Legislation

The following subsidiary legislation was made:—

- (i) The Fund (Allowances) (Amendment) Rules, 1961.
- (ii) The Hospital Treatment Relief (Asian and Arab) (Allowances) (Amendment) Rules, 1962.
- (iii) The Hospital Treatment Relief (Asian and Arab) (Allowances) Rules, 1962.

- (iv) The Public Health (Manufacture, Preparation, Packing and Repacking of Food) (Amendment) Rules, 1962.
- (v) The Public Health (Tents and Caravan Sites) (Amendment) Rules, 1962.
- (vi) The Medical Practitioners (Election to Board) (Amendment) Rules, 1962.
- (vii) The Public Health (Importation of Meat) Rules, 1962.
- (viii) The Hospital Treatment Relief (European) (Amendment) Rules.

STATUTORY BOARDS

Medical Practitioners' and Dentists' Board

During 1962 the Board met on nine occasions. The life of the Board ended on 9th November, 1962, elections having been arranged prior to this date. As there were only three candidates and three vacancies on the Board, it appeared that an election would not be required. However, in order to save circulating all the registered medical practitioners on the Register it was found to be necessary to alter the Rules to meet this contingency.

The Board dealt with three disciplinary cases but there were no erasures from the Register.

During the year sixty-seven medical practitioners and two dentists were registered and twenty-two medical practitioners were licensed. Corresponding figures for 1961 were sixty medical practitioners registered and twelve licensed.

During the course of the year every medical practitioner on the Register was circulated and the Register was brought completely up to date. A complete list of registered and licensed medical practitioners and registered dentists was published in a Special Issue of the Kenya Gazette, Vol. LXIV, No. 39, of 13th September, 1962. Supplements to this Gazette are now being published bimonthly.

Pharmacy and Poisons Board

The Board continued to meet quarterly and the Pharmacists' Committee to the Board also met periodically to consider the detailed work.

Inspections were carried out by the Drugs Inspectorate throughout the Colony and though breaches of the Ordinances came to light, and were dealt with, it was generally found that there was more awareness and compliance with the Ordinance.

During the year there were a further 11 additions to the Register of Pharmacists bringing it to a total of 157. In the case of authorized sellers of poisons (pharmacists) the number at the end of the year was 56. The number of wholesale dealers licensed was 33 and licences for the sale of Mining, Agricultural and Horticultural Poisons totalled 120.

ILLICIT TRAFFIC IN DRUGS

The main traffic in drugs has, as usual, been confined to *Cannabis sativa* (Indian hemp), commonly called *bhang*. Illicit cultivation of *Cannabis sativa* occurs chiefly in Nyanza Province, indeed the principal users throughout the country are Nyanza tribesmen, although it has been estimated that 50 per cent of the population of Nairobi make periodic use of the drug.

During 1962 there were 3,735 prosecutions and 5,035 lb. of *Cannabis sativa* were confiscated. Although this represents a rise of 1,256 prosecutions and 3,017 lb. confiscated over the 1961 figures the Police consider this is largely due to their increased activity.

It is considered by the Police that although *bhang* is used by criminal elements "to boost their nerves prior to perpetrating crimes", there is nothing in reports received to indicate that the use of this drug is in any way a social or criminal problem. However, the quantity of the drug confiscated at a modest estimate of Sh. 3 per ounce retail is valued at £12,084 and this can only represent a small fraction of the total production of *Cannabis sativa*.

A parathion insecticide marketed as a powder entered the illicit drug market and caused a number of fatalities. A fable appears to have arisen over this powder in that it is supposed: (1) to possess miraculous curative powers ranging over all ills; (2) to be an omnibus anthelmintic; (3) an aphrodisiac. It has been sold at kiosks, to be added to the morning cup of tea. Its import to Kenya has now been prohibited.

The Nurses' and Midwives' Council of Kenya

The year began with the election of a new Council.

With the recognition in April of H.H. The Aga Khan Platinum Jubilee Hospital, Nairobi, as a training school for Kenya Registered Nurses the number of such schools in Kenya was increased to three.

During the year 95 students began Kenya Registered Nurse training and reports indicate that applications for this training are increasing.

Both the quality and quantity of candidates should continue to improve as more schools are providing places for girls to study up to School Certificate standard.

In September Mathari Hospital, Nariobi, was granted provisional recognition as a training school for Assistant Mental Nurses.

Provisional recognition was granted in October for a group of hospitals to be known as the Kisumu Diocesan Midwifery Training School for the training of Assistant Midwives.

The number of successful candidates in the Council's 1962 examinations were:—

Kenya Registered Nurse—Final Examination	10
Kenya Registered Nurse—Preliminary Examination	57
Assistant Nurse Grade I—Final Examination	38
Assistant Nurse Grade II—Final Examination	61
Enrolled Assistant Nurse—Preliminary Examination	250
Assistant Midwife—Final Examination	57
Assistant Midwife—Preliminary Examination	30

During the year the following categories were registered or enrolled by the Council:—

Registered Nurses	145
Registered Midwives	48
Registered Sick Children's Nurses	4
Registered Fever Nurses	2
Registered Mental Nurses	1
Enrolled Nurses	9
Enrolled Midwives	6
Enrolled Assistant Nurses	9
Enrolled Assistant Nurses Grade I	34
Enrolled Assistant Nurses Grade II	70
Enrolled Assistant Midwives	71

INTERNATIONAL AGENCIES

Assistance From International Organizations

During 1962 the health services continued to benefit greatly from international aid. In particular help was received from the World Health Organization in the form of technical assistance and travel fellowships, and from the United Nations Children's Fund with equipment, supplies and training stipends. These two organizations work in the closest co-operation, the United Nations Children's Fund only supporting projects which have the approval of the World Health Organization. A full report of the work of the agencies appeared in the Annual Report for 1961. The following is a summary of the support given by these two organizations to projects in Kenya.

WORLD HEALTH ORGANIZATION

1. The Tuberculosis Survey and Chemotherapy Trials Project (Kenya 4). This project has a staff of five World Health Organization personnel. In addition assistance has been received from the World Health Organization Regional Co-ordination Centre for Tuberculosis which is situated in Nairobi.
2. Environmental Sanitation (Kenya 2). The World Health Organization sanitary engineer stationed in Kenya advises on all WHO/UNICEF assisted environmental sanitation projects.
3. Nutritional Survey (Kenya 9). The Nutritional Survey team, which was formed in 1961, includes a Senior Medical Officer, a non-medical nutritionist and non-medical dietician. A Kenya Government medical officer is now working with the team as counterpart officer.
4. Fellowships. The World Health Organization grants fellowships to officers in the Medical Department in connexion with all these schemes. These fellowships have officers to travel all over the world to study projects being carried out in different countries.

UNITED NATIONS CHILDREN'S FUND

1. The Tuberculosis Survey was started in 1958. During the year \$20,000 aid was received.
2. Environmental Sanitation. This project began in 1960 with an allocation of a total of \$167,000 for the period 1960-63 of which \$106,000 was for use during 1962/63.
3. The Nutritional Survey was initiated in 1961 and the first allocation of \$23,000 was provided to continue the project during 1962 and 1963.
4. Family Health and Child Care Services (Kenya 16). This is the new name for the continuance of maternal and child welfare services which started in 1954. During the year fifteen rural health centres and eight health sub-centres, which had been upgraded to rural health centres, and six health sub-centres received equipment. Twenty-eight vehicles were issued to local health authorities for use as mobile health units operating from rural health centres. The total allocation of UNICEF aid for 1962 amounted to \$306,000 plus 600 tons of dried skim milk. A proportion of UNICEF aid was in the form of drugs for the treatment of leprosy and B.C.G. vaccine for use in vaccination campaigns in the areas where tuberculosis is most prevalent.

PUBLIC HEALTH

International Health

The requirements of the International Sanitary Regulations were carried out satisfactorily under the Public Health (Port, Airport and Frontier Health) Rules, 1960, and no difficulties were encountered in their application.

MOMBASA PORT

Two thousand five hundred and sixty-four ships arrived at Kilindini during the year, disembarking 33,782 passengers, 7,650 of whom required vaccination against smallpox. This successfully prevented the introduction of the disease through the port despite two cases of smallpox occurring in ships calling at Kilindini.

There was an increase in dhows and motor vessels calling at the Old Port during the year.

The control of rodents both in the port and aboard ships continued with unremitting intensity. In place of the usual fumigant, hydrogen cyanide, "1080" (sodium fluoracetate) has been used for clearing ships of rats.

As a result of representations by the Port Health Authority, in addition to the arrival of food contaminated or damaged in transit, import of all food in cold store is notified to the Port Health Authorities so that inspection can be arranged where necessary.

The control of mosquitoes and flies continued and the *Aedes Index* has not risen above 0.8 per cent throughout the year.

NAIROBI AIRPORT

On international flights from areas infected with smallpox, yellow fever and cholera International Sanitary Regulations requirements were enforced throughout the year. During the period late January to early July some anxiety was felt about arrivals from Europe due to the occurrence of smallpox in Great Britain and Western Germany. Throughout this period examination of passengers' international health documents was made on a total of 455 flights. Only isolated cases of passengers not in possession of valid smallpox certificates were found and all these passengers agreed to immediate smallpox vaccination.

Throughout the year strict surveillance of all flights from the Indian sub-continent was carried out with particular emphasis on cholera vaccination certificates because of the incidence of cholera recorded in India.

The total number of flights inspected throughout the year was 495.

Routine mosquito control continued and the *Aedes aegypti* Index remained below 0.1 per cent throughout the year.

International Quarantinable Diseases

Cholera.—As mentioned above, in view of the continued prevalence of this disease in Asia and Oceania the strictest vigilance was maintained at sea and airports, and valid vaccination certificates were required from all passengers from infected areas.

Plague.—No cases of rodent or human plague were imported into the country during the year although two cases of human plague were notified from Fort Hall District where the disease is endemic amongst field rodents and annually one or two cases of human plague are discovered. The spread of the disease is

now very adequately controlled by intensive case-finding and isolation, insecticide dusting of affected houses and where necessary drug prophylaxis of immediate contacts.

Smallpox.—The low incidence of this disease in the country throughout the year is referred to later and the close scrutiny of travellers entering or in transit through Kenya has been mentioned earlier.

Two cases of smallpox aboard ships visiting Mombasa gave rise to concern.

During the month of January a doctor on board a naval vessel at Mombasa contracted smallpox some 21 days after leaving Karachi. The usual precautionary measures were instituted. The doctor survived.

The m.v. *Africa* called at Mombasa on the 3rd October *en route* for Europe. One of the passengers subsequently died of smallpox, the corpse being put ashore at Suez. Intensive efforts were made to trace all passengers who had disembarked at Mombasa, local authorities throughout East Africa being advised of contacts in their areas and vaccination instituted at the Port for all races. No further cases were reported.

Yellow Fever.—In view of the major epidemic of yellow fever in the Omo River area of Southern Ethiopia strictest precautions were maintained in regard to travellers from Ethiopia and all Government servants on active duty in the Northern Province were vaccinated against yellow fever.

Primates imported into Kenya *en route* to Europe or America for purpose of vaccine manufacture, or research, were quarantined for 15 days or vaccinated and isolated for 10 days before onward transmission. The trappers and commercial firms have co-operated with these requirements.

Industrial Health Services

In co-operation with the Ross Institute of Hygiene, Kampala, local and Central Government health staff have helped to improve health services in industry.

The Ministry of Labour has given its full support for the prevention of accidents both physical and chemical in rural and urban industries.

Sanitation and personal hygiene have been improved in food factories and the protection of the worker in the use of insecticide and rodenticide has been safeguarded despite the increasing use of organo-phosphorus compounds and the ever-insistent demand to be allowed to use aluminium for grain storage.

Environmental Sanitation

The years of pioneering in the field of environmental sanitation have given way to a period of consolidation. The people themselves are clamouring for better housing, safer and more adequate water supplies, safe meat and food and better markets and shops. Education has opened the way to a better life and with increased agricultural potential the people can afford to improve their environment. The provision of basic sanitation and protection of water supplies in rural and urban areas has reduced disease and raised the hygienic standards of this country over the past fifty years.

Special attention is given to the following aspects:—

WATER

From the early days of the formation of Health Departments throughout the country, health staff have concentrated on the provision of safe and potable water supplies in rural areas. The protection of springs and wells has long been recog-

nized as a public measure of real importance where the health staff provide the artisan skill, and the local people the labour and materials. Later hydraulic rams and rock and roof catchments were introduced and, working with ALDEV (African Land Development) safe water has been provided by dams and sub-surface dams; valuable additional facilities have been laundry slabs, bath houses and cattle troughs. The arrival of a World Health Organization Sanitary Engineer has facilitated an extension of activities, in conjunction with African District Councils, ALDEV, and the Ministries of Agriculture and Works. A great stimulus was provided by an additional \$107,000 worth of cement, piping, pumps, training equipment, etc., for 1962/63 being supplied by UNICEF to follow the initial issue of \$60,000 worth of materials provided in 1960/61.

UNICEF AND WHO ASSISTED SANITATION SCHEMES

(a) *Zaina Scheme*.—The field work on the Zaina Scheme in Nyeri District which was carried out in co-operation with Nyeri African District Council and ALDEV was completed during the year. A further survey to assess the effects of this piped water supply scheme on the health of the community will be carried out in 1963.

Further assistance was received from UNICEF in other districts in Central Province involving improvement to rock catchment areas and springs as well as sanitary improvements.

(b) *Elgeyo Marakwet*.—As in 1961 work proceeded satisfactorily on various schemes for improvement of water, springs and sanitation. It was noted that the demand for cattle troughs to prevent contamination of drinking water supplies was on the increase.

(c) *Baringo District*.—The project is proceeding satisfactorily. In this scheme the first objective is supplying of water to markets and schools.

(d) *Tana River Scheme*.—This scheme which had a very unfortunate start due to the abnormal flooding in 1961 and early 1962 has now made a slow start. The principle objectives here are the provision of wells and sanitation in the villages. In Kwale District a similar programme has been started.

(e) *Machakos District*.—In this area due to the financial difficulties of the local authority the scheme has had to be considerably curtailed, but protection of springs has been started.

(f) *Masai District*.—Water supplies for two health centres were installed, special draw off points being made available in both places.

(g) *Nyanza Province*.—A rapid sand filter has been installed in Kisii District and further schemes involving a windmill supply are being planned. At the end of the year work was started on schemes in Central Nyanza which will provide wells and pumps, protected springs, water filters and sanitation for schools and community centres.

SEWERAGE AND SEWAGE DISPOSAL

At the fourteen institutions, townships, camps and schools provided with oxidation ponds sewage disposal continued to be successful. They were extended in 1962 by one additional pilot project, oxidation channels in Meru township. These channels are utilized for sloping ground and are extensively constructed in Holland. At Meru they take sewage effluent from septic tanks dealing with the township sewage. The Nairobi City Council has under consideration utilization of ponds to deal with sewage effluent. Other countries in East Africa, South Africa and West Africa continue to show great interest in these projects especially in view of their low maintenance cost.

SETTLEMENT SCHEMES

There has been full co-operation with the Settlement Board of the Ministry of Land Settlement which has resulted in provision of a Health Assistant at each important scheme and acceptance of basic standards in housing, catchments, dams and sanitation. "Guide Lines" have been issued giving basic standards of housing hygiene, sanitation and water supplies. Finance has now been provided to allow for one Health Assistant per 600 settler families. Steps are being taken to develop basic dispensary services in conjunction with the Missions but boundary difficulties preclude some Councils from making their usual contribution.

NUTRITION

The effects of the famine and floods reported in the previous Annual Report, continued into 1962. While the damage in the areas affected by the year-end floods was being repaired, further rainfall occurred in Western Kenya causing a considerable amount of flooding in Central Nyanza. This was complicated by the fact that the level of Lake Victoria rose to 6 feet above normal so that agricultural land on the surrounding lakeside was flooded or became waterlogged, particularly in West Kano and the Yala swamps. This damage necessitated extension of the work of the Famine Relief Committee.

Failure of both the long rains and the short rains in the hinterland of Coast Province resulted in widespread famine conditions in the Nduruma area of Kwale District and the corresponding area in Kilifi. However, there was a considerable surplus of maize produced in the remainder of the country which was available for famine relief. One of the important lessons which was learnt from the famine relief operations was that, while imported foodstuffs do provide immediate relief, it is of more value to the country as a whole that local foodstuffs should be used wherever possible, as the beneficial effects of local purchase extend far beyond the area of the relief operations.

Arising from the proceedings of the Food Relief Committee, the suggestion was made that an Advisory Committee should be formed to deal with the long-term problems of malnutrition and under-nutrition. A Committee was formed after several preliminary meetings, with representation from the various Ministries and whose activities embraced the field of nutrition. The Committee changed its name to that of National Advisory Council on Nutrition and operates under a directive from the Council of Ministers as an advisory body to the Minister for Health, to whom was delegated responsibility for all matters dealing with nutrition.

Coincidentally, an officer was brought into the Ministry to fill the post of Medical Officer (Nutrition). Apart from his normal duties and acting as counterpart to the World Health Organization Consultant Nutritionist, he serves as Secretary to the National Advisory Council on Nutrition.

Much time was absorbed in dealing with the activities of the National Food Relief Committee and this medical officer formed part of an assessment team created to review and assess the continuing needs for famine relief in the various parts of the country. Field assessment revealed that, while malnutrition was present, particularly in children and old people, the work of the Food Relief Committee had prevented starvation and death in the worst affected areas. Nevertheless, the incidence of dietary deficiency signs noted in children was remarkably constant in all areas of the country. It is considered that this malnutrition is due primarily to lack of knowledge of proper dietary habits rather than to shortage of food.

In most areas education is necessary in regard to the proper food crops which may be grown to provide nutritional subsistence for the family.

The findings are confirmed from the figures available in previous annual reports and Table 1 shows the percentage changes which have occurred in the five leading causes of death in Government Hospitals from 1959 to 1961. It is therefore obvious that infant malnutrition is an ever-increasing problem. It will require a considerable effort by all Government departments concerned either in the provision of food supplies or education of the population to provide the means and the facilities for remedying the situation.

TABLE 1
PERCENTAGE CHANGE IN ADMISSIONS AND DEATHS, 1959 TO 1961

	Admissions	Deaths
	%	%
Broncho-pneumonia	+4.2	+18.6
Gastro-enteritis	-0.5	+30.3
Respiratory Tuberculosis	-0.7	-6.1
Kwashiorkor	+22.2	+38.6
Tetanus	+18.2	+18.8
All Diseases	-3.4	+21.5

One of the first problems dealt with by the National Advisory Council on Nutrition concerned the dietary standards for settlement holdings in the newly established African Settlement Schemes. The Council made recommendations on the minimum dietary standards and the amount of land required to produce these requirements.

Other problems which have been under consideration by the Council have been largely concerned with efforts to make supplies of the protective foods more readily available to the bulk of the population. In particular, protein requirements have been extensively discussed.

Representatives of this Ministry attended meetings of the co-ordinating committee of the Rural Co-operative Dairies Scheme. This is a UNICEF supported project which has been established to ensure organized marketing of milk produced in African areas. Considerable co-operation has been received in efforts to ensure that this valuable protein food is available for distribution in the areas where the co-operatives function, as there is a great tendency to abuse the cash-crop aspects of milk production and to export the milk from the area, to the detriment of the nutrition of local people.

A most pleasing feature of the Council's activities is the great degree of co-operation between Government departments which has been achieved as a result of its system of standing committees. These committees discuss and investigate in detail various problems before they are brought forward to the Council for approval.

The World Health Organization nutrition team, under the direction of the Senior Medical Officer, started their surveys in Central Province. Considerable difficulty was experienced in selecting trainees to form a team of local officers who could carry out the dietary surveys accurately. The situation was further complicated by the ever-increasing demands which are being made upon medical staff in all areas. The clinical survey is relatively easy, but the dietary survey requires that all food consumed must be weighed before and after preparation and cooking over a period of one week for every family accepted into the survey. The difficulties are obvious.

The team conducted nine new general nutrition surveys in which there were a total of 114 families included in the dietary study with a total population of 552. Of this population, the great majority belonged to the younger age group (15 years or less) or the older age group (51 years and above); approximately 50 per cent belonged to the nutritionally vulnerable groups.

Clinically, it was found that signs of calorie, protein and Vitamin "A" deficiencies were very prevalent. Signs of nicotinic acid deficiency were found, but were less prevalent. Although the heights and weights recorded have not been analysed, there exists the clinical impression that retardation of growth and development is a very serious public health problem.

The family dietary studies showed that:—

- (i) With the exception of Tharaka area (Meru District), the remainder of the places surveyed were producing sufficient variety of food on which to base a well-balanced diet.
- (ii) It was found that the average daily intake of calories, proteins (especially animal proteins), Vitamin "A" and calcium were generally below requirements. In some areas the intake of nicotinic acid was also low.
- (iii) The intake of Thiamine, Vitamin "C" and, in some areas, Riboflavine were adequate, while the average daily intake of iron was well above the minimal requirement.
- (iv) Clinical and dietetic studies showed that the community at Tharaka was in a lower nutritional state than other rural communities studied in the Central Province, while a study in the Bondeni Location of Nairobi showed a better nutritional state than was found in any of the rural areas.

As well as general nutrition surveys, two special surveys were carried out. A survey was made to estimate the incidence of endemic goitre, in which 2,739 schoolchildren were examined in different places in the Central Province. This survey revealed an overall incidence of endemic goitre of 34.9 per cent, the majority of which were of Grade I or mild degree.

A survey on dental fluorosis showed an overall incidence of 28.8 per cent among 1,670 schoolchildren. The distribution was very wide and the degree varied from mild to severe dental lesions.

HEALTH EDUCATION

Despite the fact that the Division of Health Education continued to be housed in very poor and inadequate accommodation during the year, work progressed and the Division continued to be very active throughout the period.

The post of Senior Medical Officer in charge of Health Education was established and the unit co-operated with other departments in the production of visual aids to suit each of their needs. Discussions were carried on with the Ministries of Agriculture, Education and the United States Agency for International Development (A.I.D.) to establish a National Visual Aids Centre in Nairobi to serve all interested Ministries.

Two hospital assistants were sent on courses of Health Education to the Institute of Education, University of London, and should be returning to Kenya in mid-1963.

As in past years, a display was undertaken at the stand of the Ministry of Health at the Royal Show, Mitchell Park, and this year the theme was "Handicapped Children".

The country-wide poliomyelitis oral vaccination campaign was given much publicity through the Press, radio, pictorial window displays and by the Mobile Health Education van. The van toured the Coast, Central and Nyanza Provinces. An 8 mm. locally produced film on poliomyelitis has been produced by the unit.

Health Education lectures were given by personnel from the Division at the Medical Training Centre, Kenya Institute of Administration, and at the Community Development Centre at Jeanes School.

The advent of the Kenya Broadcasting Corporation's television service brought a new medium for health education. A combined effort planned by the Kenya Broadcasting Corporation, the African Medical and Research Foundation and the Health Education Unit resulted in a series of Swahili programmes which proved popular.

COMMUNICABLE DISEASES

SMALLPOX

Ninety-five cases of smallpox occurred in Kenya in 1962—the lowest figure for nine years. The distribution of cases was as follows:—

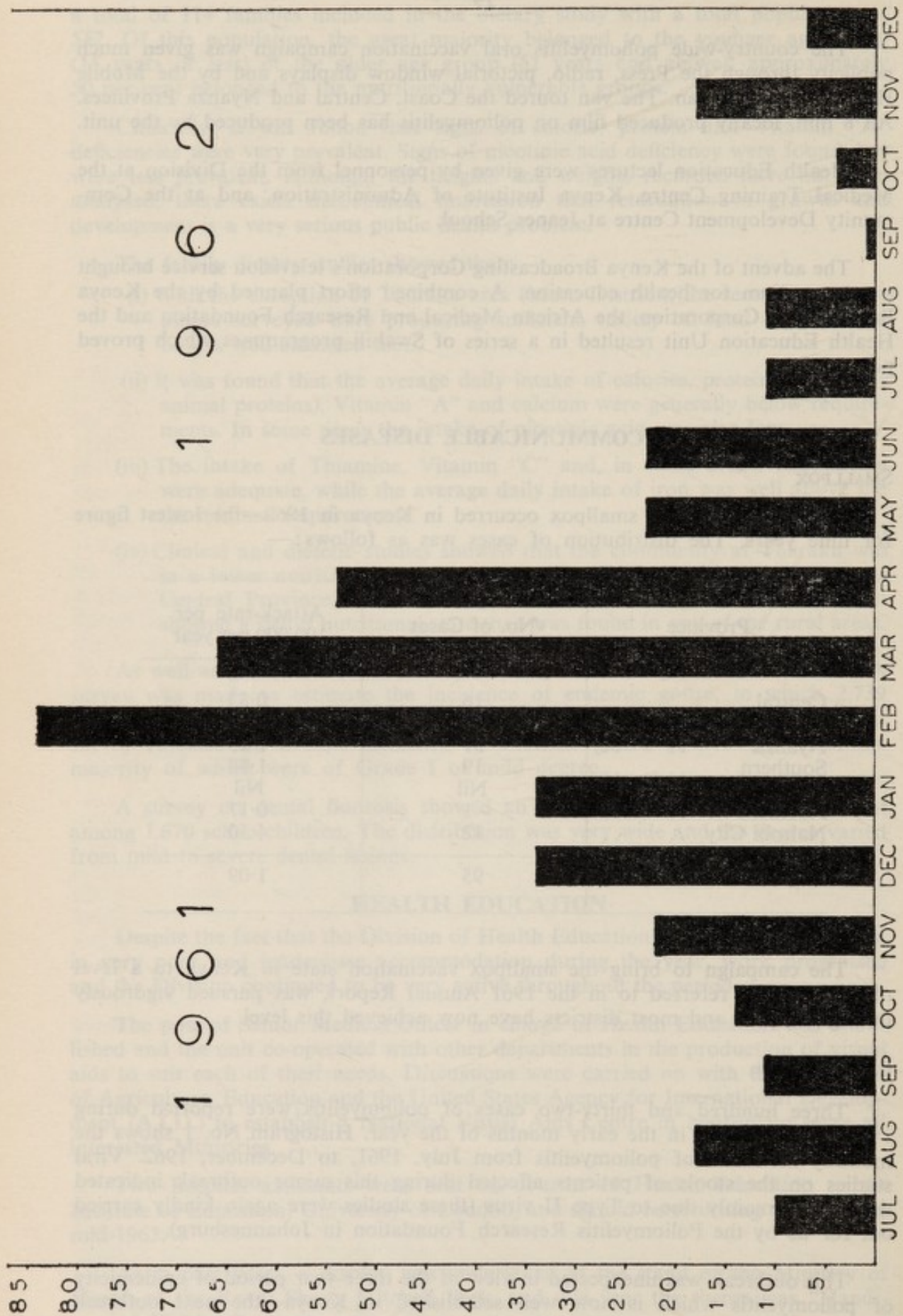
Province	No. of Cases	Attack-rate per 100,000 per year
Central	16	0.83
Rift Valley	10	0.92
Nyanza	37	1.23
Southern	19	1.88
Coast	Nil	Nil
Northern	1	0.17
Nairobi City	12	4.50
	95	1.09

The campaign to bring the smallpox vaccination state in Kenya to a level of 80 per cent, referred to in the 1961 Annual Report, was pursued vigorously during the year and most districts have now achieved this level.

POLIOMYELITIS

Three hundred and thirty-two cases of poliomyelitis were reported during 1962, most of them in the early months of the year. Histogram No. 1 shows the monthly incidence of poliomyelitis from July, 1961, to December, 1962. Viral studies on the stools of patients affected during this minor outbreak indicated that it was mainly due to Type II virus (these studies were again kindly carried out for us by the Poliomyelitis Research Foundation in Johannesburg).

This outbreak was unexpected in view of the three-year period of epidemicity of poliomyelitis which is now well setablished in Kenya—the next outbreak being expected at the end of 1962 and early in 1963. The age distribution of cases was as expected, 305 out of 332 cases being under 3½ years of age, 22 being between 3½ and 10 years of age, and only 5 being over 10 years of age.



HISTOGRAM NO. 1 MONTHLY INCIDENCE OF POLIOMYELITIS FROM JULY 1961 TO DECEMBER 1962

There would seem to be three possible explanations for this outbreak.

- (a) Type II polomyelitis virus was introduced to the country on a large scale for the first time and spread amongst a population whose previous experience of polomyelitis virus had been largely confined to the Type I strain, either by natural infection with wild virus or by oral administration of **Type I vaccine**.
- (b) The accelerating rate of population growth in Kenya has led to the density of non-immunes exceeding the epidemic threshold in a period of two years rather than three.
- (c) The ecological conditions, widespread debility and malnutrition and unusual population movements caused by the aftermath of the catastrophic floods in late 1961, produced exceptional circumstances favouring the spread of poliomyelitis.

For the moment, this unexpected outbreak must be regarded as an unsolved problem.

In anticipation of a possible epidemic in 1963, a large-scale vaccination campaign, covering the whole country, using trivalent oral vaccine, was launched in the autumn of 1962.

ENTERIC DISEASES—TYPHOID

There has been a sharp reduction in the incidence of typhoid fever in Kenya in 1962, 459 cases occurring compared with 1,081 in 1961, 998 in 1960 and 1,115 in 1959. The distribution of cases throughout the country is shown below:—

Province	No. of Cases	Attack-rate per 100,000 per year
Central	245	12.73
Rift Valley	64	5.88
Nyanza.. ..	81	2.69
Southern	35	3.45
Coast	16	2.21
Northern	4	0.67
Nairobi City	14	5.25
Total ..	459	5.29

TUBERCULOSIS

Five thousand two hundred and thirty-one new cases of pulmonary tuberculosis occurred in 1962 and 685 cases of tuberculosis of other sites. The position thus remains static compared with 1961.

$$5231 + 685 = 5916$$

However, considerable hope for the future can be derived from the introduction of a new and substantially cheaper drug for chemotherapy—TB I; this will facilitate case-finding and treatment for financially over-burdened local authorities. A change in emphasis in tuberculosis control measures is planned for the coming years from chemotherapy and chemoprophylaxis to large-scale B.C.G. vaccination, i.e. a change from secondary prevention to primary prevention.

CEREBROSPINAL MENINGITIS

A slight increase in the incidence of this disease occurred in 1962—669 cases occurring compared with 570 in 1961 and 561 in 1960. The distribution was as follows:—

Province	No. of Cases	Attack-rate per 100,000 per year
Central	286	14.86
Rift Valley	222	20.38
Nyanza	114	3.78
Southern	34	3.35
Coast	12	1.65
Northern	Nil	Nil
Nairobi City	1	0.37
Total ..	669	7.71

LEPROSY

Two thousand one hundred and fifty-six cases occurred in 1962 compared with 1,343 in 1961 and 1,470 in 1960. This figures does not reflect an undue increase in the incidence of the disease, but was produced by an energetic case-finding campaign carried out in the Central Nyanza District, which alone accounted for 1,449 cases out of the Colony total.

KALA-AZAR

Work on the comparison of the distribution of kala-azar and species of sand-flies belonging to the "*Synphlebotomus*" complex, seems to indicate that the members of this complex found in Kenya—*Phlebotomus martini*, *P. vansomerenae* and *P. celiae*—are the most likely vectors of kala-azar in Kenya. This circumstantial evidence has been partially confirmed by the successful transmission of a strain of *Leishmania*, isolated in a kala-azar area from *P. martini*, to man; kala-azar resulted, and was confirmed parasitologically.

Three hundred and thirty-six new cases occurred in Kenya during 1962 compared with 353 in 1961. Most areas showed a small decline in incidence, with the exception of Meru District, where 105 cases occurred in 1962 compared with 76 in 1961.

The field trial of the live kala-azar vaccine in the Tseikuru location of Kitui District, continued during 1962; the trial will continue until about August, 1963, when a final follow-up will be conducted and the results prepared for publication.

TRYPANOSOMIASIS

There was a small decline in the incidence of sleeping sickness in the Colony during 1962—119 cases occurring compared with 153 in 1961. However, whilst Central Nyanza District showed a sharp fall from 124 cases in 1961 to 31 cases in 1962, South Nyanza District showed an equally sharp rise from 26 cases in 1961 to 88 cases in 1962. This increase was largely due to cases of Rhodesian sleeping sickness occurring in the Lambwe Valley area of South Nyanza; this rise is causing considerable concern and energetic control measures have been put into operation. A major bid for international assistance towards the control and eventual eradication of sleeping sickness in Nyanza Province has been made by this Ministry.

ANTHRAX

A slow but steady decline in anthrax incidence continues; 1,029 cases in 1960, 903 in 1961 and 742 in 1962.

DIPHTHERIA

The position remained static during 1962; fifteen cases occurred, widely scattered over the country—exactly the same situation as in 1961.

PLAGUE

Two cases of human plague occurred in 1962, both in the Fort Hall District. In 1961 there were three cases, two in Nyeri and one in Fort Hall.

TETANUS

Five hundred and sixty-two cases occurred during 1962, compared with 836 in 1961. The epidemiology of this disease in Kenya is most interesting; except in tetanus neonatorum maximum incidence occurs in those districts where intensive cultivation of land is practised—Nyeri, Kiambu, Fort Hall, Embu, Meru and South Nyanza.

Some important detailed studies on the epidemiology and treatment of tetanus in Kenya have been made during 1962 by members of the Medical Department; results will be published in the near future.

INFECTIVE HEPATITIS

Incidence declined from 219 cases in 1961 to 177 cases in 1962.

ENCEPHALITIS

Eighteen cases, widely distributed all over the country, occurred in 1962, compared with 20 cases in 1961.

DIVISION OF INSECT-BORNE DISEASES

During 1962 the Division of Insect-borne Diseases continued with the policy of carrying out basic research into problems of vector-borne disease of particular interest to Kenya, performing field trials on control measures and giving advice to local health authorities on institution or maintenance of routine measures.

Part of the work of the Division has been mentioned in Section 8, "Communicable Diseases". The following are some of the important works undertaken.

MALARIA AND MOSQUITOES

The two central schemes being conducted on the Shimba Hills Settlement and at Malindi in Coast Province were continued throughout the year.

Shimba Hills.—Within this scheme there are more than 3,000 people who have been encouraged to settle on smallholdings in an area of high agricultural potential where malaria is endemic. Many of the settlers are non-immunes from the highlands. In October, 1959, the parasite rate amongst the settlers was 69 per cent and the scheme was in jeopardy. During the past three years control has been effected by using drugs alone; in the first year "Darachlor" was used; this was replaced by fortnightly administration of Chloroquin in September, 1961. Malaria has not been eliminated (this would be difficult in a holoendemic area), but it has been adequately controlled and there is no doubt that this has added to the popularity of the scheme. The number of people treated in January was 3,045, in December the new intake of settlers raised the figure to 3,582. 400 blood slides have been taken each month from children under ten years of age.

The average parasite rate over the year was 1.8 per cent. All blood slides showed *P. falciparum* except three showing *P. vivax* and one *P. malariae*.

Malindi.—In this scheme there are two objectives, first to prevent malaria transmission in this important town; secondly, to see if by the combined use of insecticides and drugs malaria can be controlled in a rural area where there is active transmission. More than 3,000 dwellings were sprayed in March/April and October/November with D.D.T. at the rate of 200 mg. per square foot, using a 50 per cent wettable powder. Every fortnight more than 6,000 people have been given Chloroquine.

Before the scheme was started the parasite rate in the north was 75 per cent and in the south 48 per cent. 100 blood slides have been examined every month from children under ten years of age in two villages in the north (Kisima and Sabaki) and two villages in the south (Maziwani and Maweni). The average parasite rates for the four villages were:—

Kisima Farm	..	..	11.40 per cent
Sabaki	..	..	11.05 per cent
Maziwani	..	..	6.05 per cent
Maweni	..	..	4.20 per cent

All the blood slides showed *P. falciparum* except three showing *P. vivax*.

Here in an undisciplined rural community the results, as in 1961, were not as satisfactory as at Shimba, but the first objective, namely the protection of Malindi, has been very effective. Only four *A. gambiae* were caught in the town during the year and malaria is no longer a threat to the tourist trade.

An important outcome of this work was the discovery that although *A. funestus* was eliminated from the sprayed area, another member of this complex, *A. parensis*, was unaffected. It was thought that this species, which was biting man in large numbers outside the houses, might be responsible for the persistent parasitaemia in the people. Nearly 4,000 *A. parensis* were dissected; none contained sporozoites. This problem is still under investigation, in co-operation with Dr. Gilles of the Malaria Institute, Amani.

In Nyanza Province Lake Victoria reached an unprecedented high level and large areas of formerly well-drained land were flooded. At the end of the year the lake level was still high and many of the anti-malarial drains around Kisumu were still under water. The flooded area included half the golf course and the whole of the promenade. The town for most of the year was virtually an island. There was justified concern that the anti-malarial measures which have been so efficient in Kisumu would break down. Large numbers of *Mansonia africanus* and *M. uniformis* invaded the houses, but an energetic larvicidal and peri-urban "Dieldrin"-spraying scheme prevented any undue anopheline breeding. The hut index for *A. gambiae* and *A. funestus* never exceeded 0.02. There has been excellent co-operation between the Division of Insect-borne Diseases and the Municipal Authorities.

In North Nyanza two areas were selected to study the effect of fish-ponds on malaria transmission. Vihiga, where there was a large number of ponds, and Khwisero, where there are few. Results showed that as the ponds have matured *A. gambiae* has gradually been replaced by *A. funestus*.

RICKETTSIOSES

Since the observation that murine typhus is usually confined to *Rattus* in towns and absent from those caught in the country, attempts have been made to devise an experiment to test the relative efficiency of *Xenopsylla cheopis* and

X. brasiliensis on rats in the country. It was hoped to feed the two species independently on guinea-pigs infected with *R. mooseri* and to compare their vector potential. Despite intensive work it has not been possible to isolate a local strain of *R. mooseri*, nor has successful passage of an imported strain from guinea-pigs to *Xenopsylla* been achieved.

FILARIASIS

In 1958 night blood smears were taken from 144 Africans from the Barani area of Malindi. 31 (21 per cent) were positive for *Wuchereria bancrofti*; this caused some alarm, especially since 2 per cent of the *Culex fatigans* contained infective larvae.

Many of the infected people had probably brought the parasite with them when they settled in Malindi. In 1962 a survey was carried out amongst people who had been resident in the town for more than 15 years; 252 Africans were examined, 25 (9.9 per cent) were positive for *W. bancrofti*. Only one out of 88 Bohora Indians was positive; the Bohora have lived in Malindi for many generations.

No filariae were seen in 121 *C. fatigans* caught during 1962.

There is no doubt that filarial transmission has been greatly reduced in the Malindi area. The vectors are *A. gambiae*, *A. funestus* and *C. fatigans*; the first two have been practically eliminated from the town; the last is kept under control using "Diazinon" or "Diesolone" as a larvicide.

Work has continued on differentiating infective filarial larvae in their vectors. The life cycle of another dog filarial parasite, *Dipetalonema dracunculoides*, has been studied; it was found that the fly *Hippobosca longipennis* is the vector.

This is the first time that this group of parasitic flies have been implicated in the transmission of filarial worms.

An investigation was started to study *Dipetalonema perstans* in Kenya. Clinical studies in London and America suggest that *D. perstans* is responsible for a great deal of morbidity in Europeans. In the Maragoli area *D. perstans* was found in 38.8 per cent of a group of 259 people examined. All man-biting *Culicoides* are being examined; so far the vector has not been found.

ONCHOCERCIASIS

No *Simulium neavei* have been seen in the Nyanza control area since 1956. Eradication has been completely effective in an area of nearly 5,000 square miles, but since *S. neavei* is still prevalent in Mount Elgon there is always a danger of reinfestation and the rivers in Nyanza must be periodically surveyed. A search is being made for the vectors of *Onchocerca gutturosa* and *O. armillata*, parasites which are very common in cattle in Nyanza. Large numbers of *S. medusaeformis form hargreavesi* taken from cattle were dissected after being kept for as long as 20 days, but none was infected. It was found that the microfilariae of *O. gutturosa* and *O. armillata* could be dissected from the uterus of adult worms, and that they survived for several days in bovine serum. An attempt is being made to find the vectors, using the techniques developed in the *Setaria labiatopapillosa* work, where mosquitoes were infected by feeding them on *in vitro* suspensions of microfilariae, or by injecting the microfilariae into the thorax.

At the request of WHO a large batch of simuliids from Venezuela have been examined using the haemalum-glycerine technique which was used in the Kenya filariasis studies.

TAPEWORMS

The problem of *Echinococcus* and hyatid disease has been investigated in collaboration with Dr. R. L. Rausch.

Hyatid cysts were found in more than 30 per cent of all cattle, sheep and goats in Kenya, but the disease was only prevalent in man in semi-desert areas of Turkana. Up to the time of this investigation the life cycle of the parasite in East Africa has not been studied, but it has been suggested that wild carnivores such as hyaenas and jackals might be the hosts of the adult worms.

One hundred and thirty-seven carnivores were examined representing 23 species. *Echinococcus* adults were found in 23 out of 43 domestic dogs (*Canis familiaris*); 3 out of 4 hunting dogs (*Lycaon pictus*); 1 out of 9 jackals (*Thos mesomelas*); and 3 out of 14 hyaenas (*Crocuta crocuta*).

A detailed morphological study was made of the Kenya material and a comparison was made from many other parts of the world. The only species found in Kenya was *E. granulosus*. As a result of these studies it was concluded that only 3 out of 11 species of *Echinococcus* could be distinguished by morphological criteria.

A search has been made for larval hyatids in 102 ungulates representing 18 species, and in a miscellaneous collection of nearly 2,000 rodents and primates representing a further 31 species. Only one animal was positive; this was a wildebeeste (*Gorgon taurinus*).

The infections in the wild carnivores were all very light, only the dogs were heavily infested. It was concluded that the main cycle of transmission in Kenya was between dogs and domestic livestock.

Turkana tribesmen are the most heavily infected people, either because the strain of parasite is more pathogenic to man in this area, or more probably because of the intimate contact between children and the large number of infected dogs. A particularly dangerous custom in Turkana is the use of dogs to clean the face and anal regions of babies when they vomit or have diarrhoea. No satisfactory explanation can be given for the rarity of the disease in man in many other areas of Kenya where hyatids are very common in domestic animals.

The control of the disease will require an active health education campaign, together with the destruction of all unregistered dogs and the improvement in meat hygiene.

TRICHINOSIS

The search for the natural hosts of *Thricinella spirellis* has continued. More than 2,000 animals have been examined; the following have been found infected: spotted hyena (*crocuta crocuta*), striped hyena (*hyaena hyaena*), side-striped jackal (*Canis adustus*), domestic dog (*Canis familiaris*), lion (*Leoleo*), leopard (*Panthera pardus*), serval (*Felis serval*), and the bush pig (*Potomochaerus*). The parasite is widespread and has been found on Mount Kenya, in the Rift Valley near Nakuru, at Kericho, at Narok, at Kajiado, on the Ngong Hills, at Karen and at Lake Manyara in Tanganyika.

All human infections have resulted from eating bush pigs; proved outbreaks have occurred at Kerugoya, at Rongai and at Kericho. Numerous cases must go undetected and will remain unrecognized unless muscle biopsies are taken in cases with odema, muscular pains and eosinophilia.

Laboratory studies have shown that this strain of *T. spiralis* is unique in showing a very high infectivity to man and laboratory primates, but a very low infectivity to rats, rabbits and possibly to domestic pigs.

Preliminary experiments showed that when piglets were given 2,500 larvae of the Kenya strain they produced less than one larva per gramme of muscle, whereas control animals from the same litter produced between 150 and 300 larvae per gramme when given the same infective dose of the London strain.

SCHISTOSOMIASIS AND SNAILS

In Machakos District the snail and parasitological survey of Iveti location was completed in 1961. On a single examination 288 out of 1986 schoolchildren were found infected with *S. mansoni*. Foci of *Biophalaria* snails were found only in a limited number of streams. A search was made for animal reservoirs. There are no baboons in this area, but rodents are abundant.

It is still not certain if rodents play any part in the transmission of *S. mansoni* but experimental work in South Africa, using colonies of infected *Mastomys* suggests that there is little inter-rodent transmission. Using local labour all the infected streams were dealt with, either by simple drainage or, in a few instances, by molluscicides. By May, 1962, no vector snails could be found in the whole area. The entomologist then went on leave and when he returned in November he found that a few streams had been reinfested. The control work is being handed over gradually to the local health staff. If a simple scheme such as this is successful, similar techniques could be applied to a much greater area.

In Nyanza regular snail counts have been made in eleven dams which have been stocked with snail-eating fish (*Astatorelmodon alluaudi*) for several years. The mean count before the fish were introduced was 99; in 1962 the mean count was 16. In a control dam the count has increased from 71 to 133.

At Mwea-Tebere, effective bilharzia control has been maintained by applying sodium pentachlorophenate to all new foci of *Biophalaria*. The same technique was recommended for Perkerra, but here snails were found only once during the year.

A survey at the Shima Scheme showed that *Physopsis africanus* is widespread throughout the settlement. Recommendations were made for the control of *S. haematobium*; it is important to canalize all small streams at washing places and road crossings. In this well watered area transmission could be reduced if individual families made their own water holes.

PERSONAL HEALTH SERVICES

There was an increase of seventeen in the number of new doctors registered or licensed in Kenya during 1962 when compared with 1961. The number in private practice was thought to have decreased but as the Register was completely revised it is possible that some doctors who had in previous reports been recorded as in practice were in fact not in the country. As stated earlier in the Report, the Register is now up to date and a great effort is being made to maintain this state.

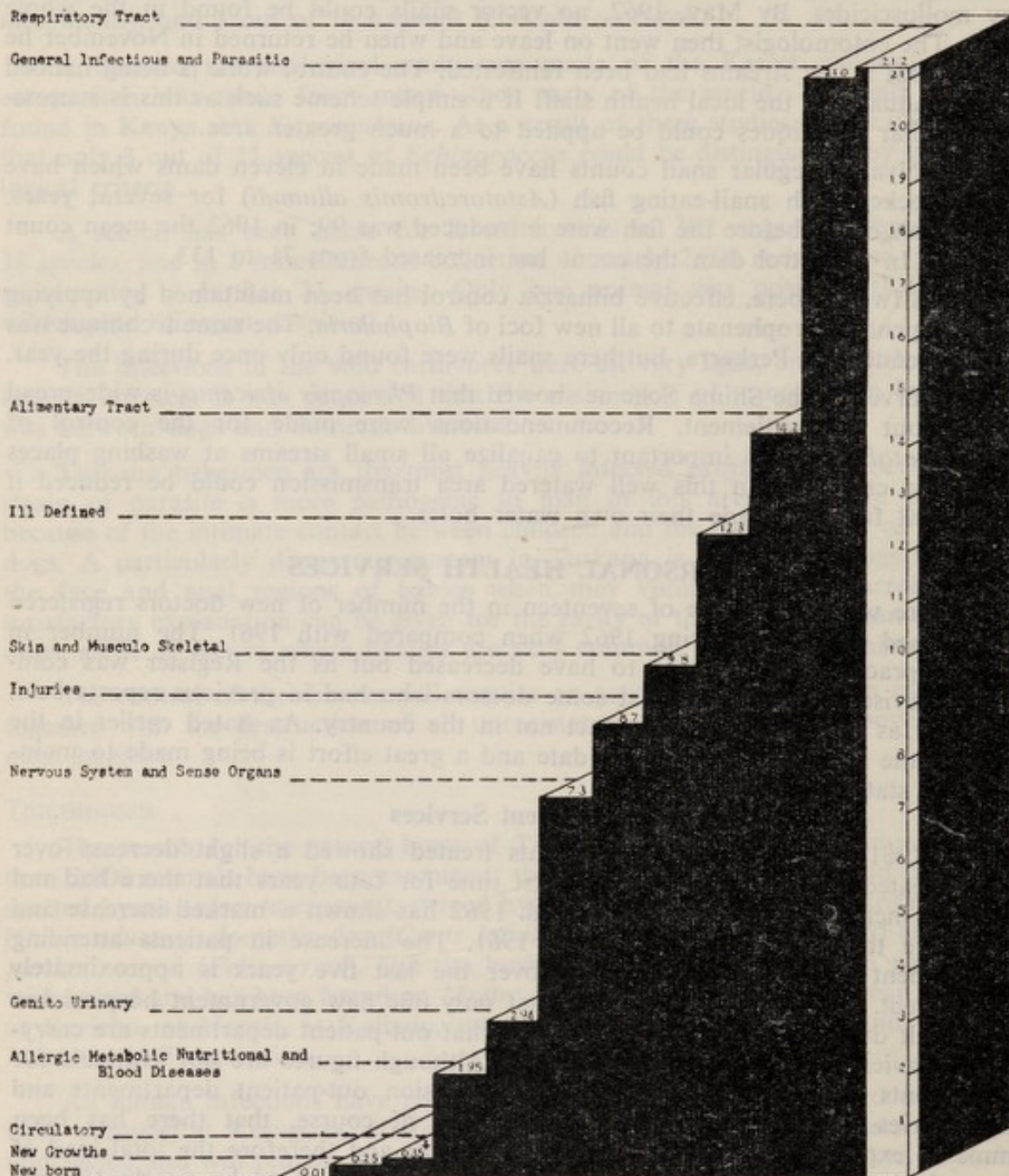
Out-patient Services

In 1961 the number of out-patients treated showed a slight decrease over those treated in 1960. This was the first time for four years that there had not been an increase in out-patients treated. 1962 has shown a marked increase and has more than made up the loss in 1961. The increase in patients attending Government out-patient departments over the last five years is approximately 63 per cent. When it is remembered that only one new government hospital has been built during this period it is obvious that out-patient departments are carrying a heavier and heavier load each year. Although figures are not available for out-patients attending local authority and mission out-patient departments and dispensaries during this period, it is known, of course, that there has been immense expansion in the local authority services and therefore the total load of out-patients seen in all these services has probably increased by nearly 100 per cent during the five years under consideration.

OUT-PATIENT ATTENDANCES

1958	..	..	..	..	..	..	894,411
1959	..	..	..	..	..	..	992,652
1960	..	..	..	..	..	..	1,117,488
1961	..	..	..	..	..	..	1,125,454
1962	..	..	..	..	..	..	1,421,630

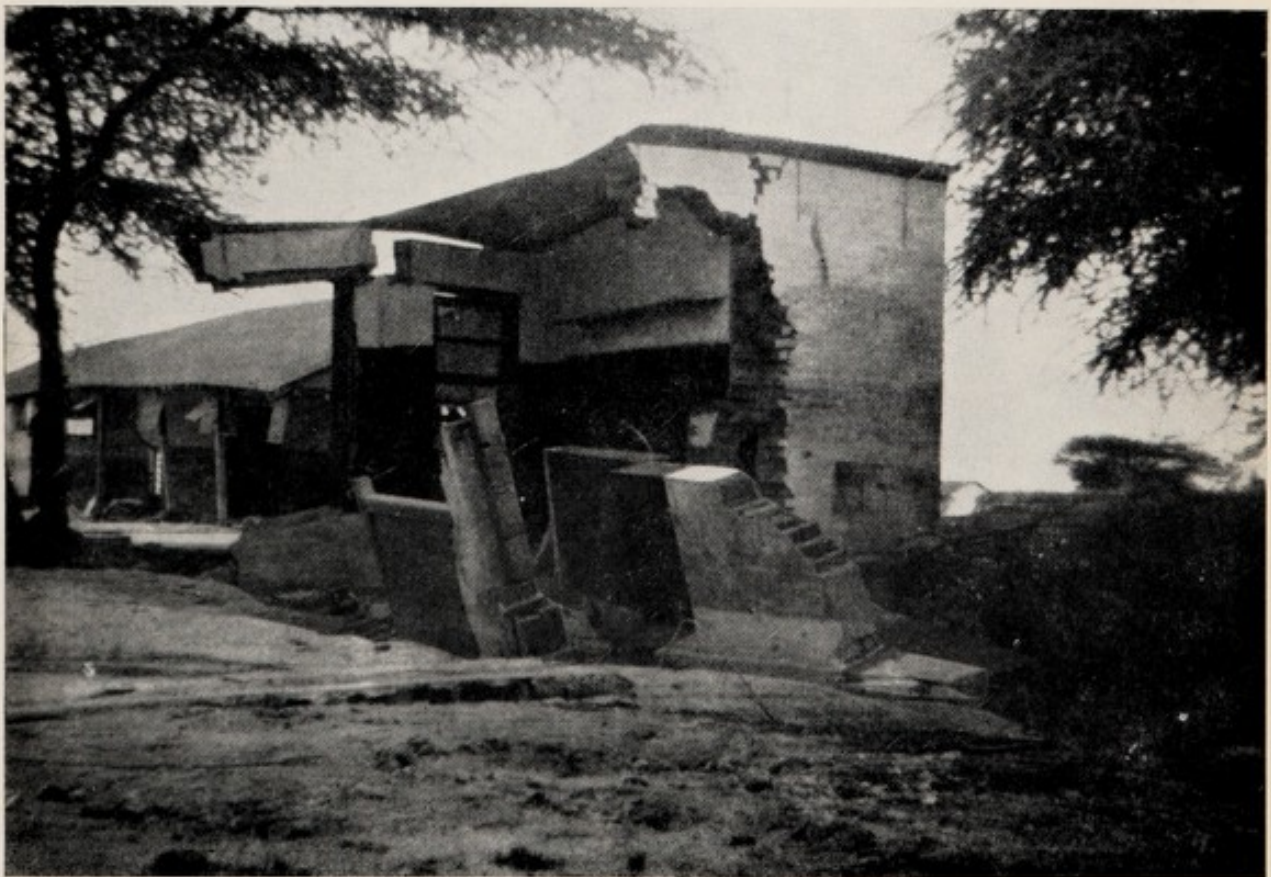
There has been little change in the principle causes of morbidity amongst out-patients. Diseases of the respiratory tract remain the chief cause of morbidity and are again followed by general infections and parasitic diseases and diseases of the alimentary tract. These are shown in Histogram No. 2.



HISTOGRAM NO.2 SHOWING BY DISEASE GROUPS THE PRINCIPAL CAUSES OF MORBIDITY AMONG OUT - PATIENTS AT GOVERNMENT HOSPITALS.



Floods in the Tana River area.



Close-up of damage to District Hospital, Garissa, by floods.



Wakamba children queueing at soup kitchen for their weekly rations.



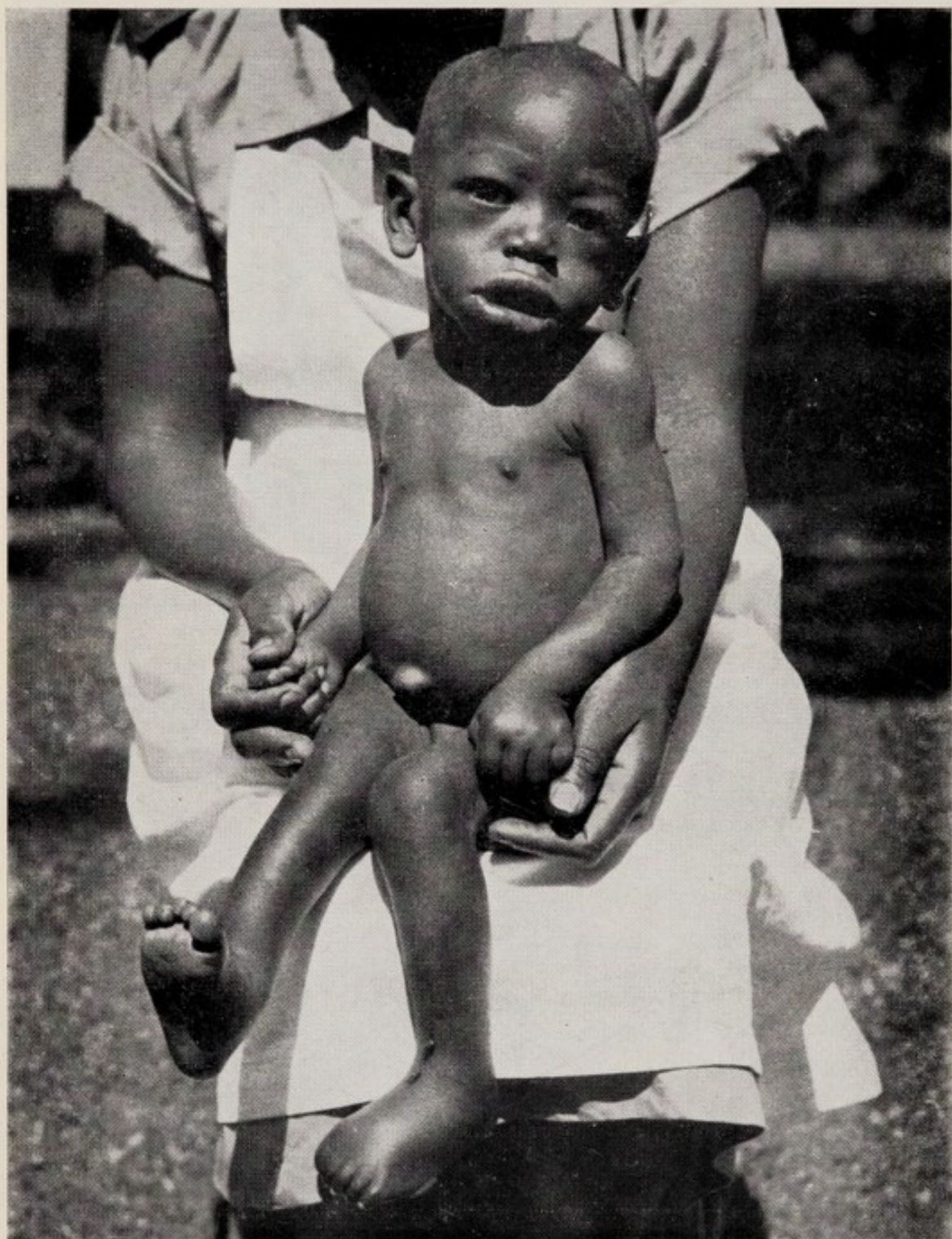
Handicapped children receiving milk from Red Cross officer at Dagoretti Children's Centre.



Rehabilitation—partially paralysed polio victim being taught to walk again at the Orthopaedic Centre, Nairobi.



Problems still to be tackled—typical peri-urban shanty housing at Kariobangi, Nairobi.



Problems still to be tackled—child suffering from kwashiorkor under treatment at King George VI Hospital, Nairobi.

In-patient Services

Perhaps the most important event in the year was the opening of the new psychiatric unit in the Rift Valley Province General Hospital at Nakuru. At the end of 1958 a seminar on mental health in Africa was sponsored by the World Health Organization in collaboration with the Commission for Technical Co-operation in Africa South of the Sahara. Among the recommendations emanating from the seminar were—

(i) that mental units should be attached to general hospitals; and

(ii) that progress must be made in the training of African psychiatric nurses.

It is therefore particularly pleasing to be able to report that this unit has been opened and that on the staff are two Enrolled Assistant Psychiatric Nurses trained at Mathari Hospital.

For the second year running there was a slight decrease in the total number of admissions to Government hospitals.

ADMISSIONS TO GOVERNMENT HOSPITALS

1958	1959	1960	1961	1962
155,272	153,722	156,874	148,825	146,740

This did not however represent an overall decrease in activity and the average length of stay per patient again increased. It has been noticed over the last few years that despite the overcrowding which is general throughout the hospitals there is a tendency for patients to stay longer. This is due to more simple cases being treated in out-patients which were formerly admitted to hospital and more complicated cases being admitted to hospital for treatment which in earlier years were not considered to be suitable for admission at all. However, examination of Table 2 shows that preventable simple diseases still remain the principle cause of hospital mortality.

TABLE 2
A LIST OF THE TEN PRINCIPAL CAUSES OF DEATH IN GOVERNMENT HOSPITALS

Code No.	Disease	No. of Admissions	No. of Deaths	Case Mortality Rate
1. 491	Broncho-pneumonia	7,549	1,370	17
2. 571.0	Gastro-enteritis and Colitis between 4 weeks and 2 years ..	4,127	650	16
3. 110-117	Malaria	12,872	456	4
4. 001-008	Respiratory Tuberculosis ..	4,336	438	10
5. 286.6	Kwashiorkor	1,581	395	25
6. 061	Tetanus	830	387	45
7. 090-293	Anaemias	2,491	297	12
8. 788.8	P.U.O.	7,229	294	4
9. 140-203	Malignant Neoplasm	1,278	284	22
10. 056	Whooping Cough	2,552	280	11
	All Causes	146,740	8,521	6

Returns from most districts show that there is an increasing demand for a higher standard of treatment arising from the patients themselves. Undoubtedly medical officers have been under very considerable pressure with the ever-increasing commitments in the public health field. However, on the whole there

appears to have been a satisfactory service maintained at all levels of hospitals throughout the country. The final problem is always that of expense and with the increasing cost of maintaining hospitals, it has been found particularly difficult to maintain a reasonable diet for the patients. Additional funds will undoubtedly be required in the future to maintain the present standard of service and it is not considered that these can be found from hospital fees, which have already reached the maximum compatible with the public's health.

At the end of the year work was nearly completed on the preparation of syllabuses for the courses to be given to the health centre staffs at the National Reference Health Centre, Karuri. Candidates had already been selected for the first course, which was scheduled to start in January, 1963.

Voluntary and Mission Hospitals

The voluntary hospitals, which were mostly ex-European hospitals but are now multiracial, have had a difficult time financially during 1962. As a result of the decrease in the European population the hospitals have not been running to capacity and hence have been unable to pay their way. In particular, the Princess Elizabeth Hospital Group has been losing very heavily and a Working Party was formed to investigate ways and means of improving its finances. In fact, all the voluntary hospitals suffer from the lack of a general hospital insurance fund. The European Hospital Fund Authority and the Asian and Arab Hospital Fund cover the immigrant races, but there is no equivalent insurance scheme for the indigenous people, so that Africans in the higher income groups can still ill afford to use the amenity hospitals.

The Mater Misericordiae Hospital was opened in Nairobi; this hospital was planned several years ago to form a low-cost amenity hospital for the middle-income groups; however, due to changing circumstances its opening has resulted in an increase in the at-present excessive number of amenity beds in Nairobi.

Throughout the country mission hospitals also have been having a difficult time financially. The cost of running hospitals increases steadily and it is impossible to raise fees above a certain level or the result is a decrease in the number of patients admitted. However, there has been some expansion amongst the mission hospitals and the Roman Catholic Missions are constructing a new hospital in Narok District and another in Kitui District.

LABORATORY SERVICES

CLINICAL PATHOLOGY AT THE MEDICAL RESEARCH LABORATORY AND AT PROVINCIAL HOSPITALS

Seven students from the Medical Research Laboratory are at present studying in the United Kingdom for the A.I.M.L.T. qualification. Four have passed their intermediate examinations and are due back late in 1963.

The first microscopists' course was examined in October, 1962, and the tutorial staff of the Medical Training School and the examiners from this laboratory were agreeably surprised at the standard obtained by the microscopists after only one year of training. They were posted in the main to district hospitals and reports so far have been satisfactory. The introduction of this cadre has greatly relieved the acute shortage of laboratory workers.

The increased demand on the Medical Research Laboratory by King George VI Hospital has been met by the introduction of a number of small ward laboratories, where the work will be undertaken by interns. The establishment of these laboratories is one of the requirements of post-graduate training laid down by Makerere College.

The animal house at the Medical Research Laboratory has recently been enlarged and a wide range of animals are bred there for use by the Division of Insect-borne Diseases, visiting research workers as well as the laboratory.

The increased demand on the laboratory division continues throughout the country and it is difficult to apportion both staff and services as the appeals of both clinicians and public health workers are equally convincing. An example of the increase is the fact that the number of histological examinations has doubled since 1956.

PUBLIC HEALTH LABORATORY SERVICES

The projected extension of this laboratory for a variety of reasons has not been completed. Laboratory services are expensive and nowhere more so than in this field. As much of the work is for local government authorities the Constitution, which may define the financial responsibility of regions, is awaited. When the effects of this is known definitive plans for the Public Health Laboratory will be made.

RESEARCH IN THE MEDICAL RESEARCH LABORATORY, NAIROBI

Doctors Foy and Kondi of the Wellcome Foundation continued their researches on the haematological problems of helminthic diseases. Dr. Gilbert Dalldorf of the Sloan Kettering Institute completed his study of the lymphoma of African children and Dr. Linsell held a Fellowship during his overseas leave studying further lymphoma material. Dr. J. Buettner Janusch of Yale University worked at the Medical Research Laboratory for six months on animal haemoglobins. Dr. C. Booth of the Post-graduate Medical School, London, investigated the possibility of sprue in Africans using duodenal biopsy. Dr. B. Burman of St. Mary's Hospital, London, investigated kwashiorkor, using the same technique. The work of the Cancer Registry continued with the support of the British Empire Cancer Campaign. Considerable assistance has been given to members of the cancer chemotherapy team of King George VI Hospital by members of this laboratory.

VACCINES SECTION

There have been increased sales of all types of our vaccines with a total increase of revenue of £2,000. The production of plague vaccine ceased and O.T. was replaced by the more stable P.P.D. RT 23 for mantoux testing. Apart from the routine production of smallpox vaccine experimental work continues in an endeavour to increase production per animal and it is hoped to introduce pock counts to reinforce scarification potency tests.

STORES SECTION

A section of medical stores is located at the Laboratory and this was responsible for the distribution of vaccine for the polio campaign and for the B.C.G. campaigns as well as the routine supply of vaccines and sera to district and mission hospitals and African district councils.

BLOOD TRANSFUSION SERVICES

In Nairobi the technical side of the blood transfusion service has proceeded satisfactorily, but it is still experiencing difficulty in recruiting Asian and African donors. At the end of the year the Red Cross became unable to continue their assistance and the Donor Centre was moved to the Orthopaedic Centre. An increased number of visits to district hospitals has been made to encourage the use of Eldon Cards and to supervise blood transfusion work. The Eldon Card method has not proved entirely satisfactory and is still under investigation. Dr. Rogoff was placed in administrative charge of the blood transfusion service throughout the country. Providing blood for hospitals both at provincial and district level is a great strain both financially and technically.

APPENDIX "A" (i)
VACCINE SECTION ANNUAL REPORT, 1962

	Prepared	Issued to Kenya	Sold to Other Territories	Total Issue
Vaccine Lymph Doses	7,930,000	2,835,229	6,345,190	9,180,419
T.A.B. Phenolized Mls.	400,000	181,940	34,495	216,435
Anti-Rabies Vaccine .. Mls.	88,680	22,620	61,500	84,120
Standard Agglutinable Suspensions Mls.	20,000	20,000	Nil	20,000
Milk Cultures — Acidophilus and Bulgaricus Doses	71	60	Nil	60
Old Tuberculin— 1/100; 1/1,000; 1/10,000 — Pre- pared until 25-9-62 Doses	148,700	148,000	700	148,700
P.P.D. RT 23 — Prepared from 26-9-62	48,760	26,010	480	26,490

Anti-plague vaccine was prepared until 26-7-62. Only 850 mls. were supplied of which 150 mls. was sold to Uganda.

APPENDIX "A" (ii)
VACCINE SECTION ANNUAL REPORT, 1962

Revenue Earned from other Territories Including M.O.H., Nairobi

	Vaccine Lymph	T.A.B. Vaccine	Anti- Rabies Vaccine	Total
	£	£	£	£
Tanganyika	3,512	Nil	33	3,545
Uganda	7,350	480	895	8,725
Zanzibar	241	37	Nil	278
Somali Republic	Nil	Nil	97	97
M.O.H., Nairobi	630	35	Nil	665
R.A.F., Eastleigh	2	Nil	Nil	2
TOTALS £	11,735	552	1,025	13,312

Tetanus Toxoid was brought from Evans Medical in bulk, broken down and bottled in the laboratory and sold to A.D.C.s and Hospitals at 10 cents per ml. The revenue over the year amounted to £1,315.

RADIOLOGICAL SERVICES

GENERAL COMMENTS

Despite the increased work under the chronic handicap of shortage of staff and funds, considerable progress and consolidation has been achieved. The quantity of work accomplished expressed in the United Kingdom N.M.S. units of work is shown in Table 3.

EQUIPMENT

At the end of the year the new department at Bungoma was complete but not yet functioning. Work was well advanced on a new X-ray department for the Rift Valley Province General Hospital, Nakuru. This will be a larger department than the existing one and will enable an Odelca camera to be installed.

Despite the increased number of departments and the continued construction of new departments the vote for the purchase of new X-ray equipment, from which vote old equipment must also be replaced, has had to be held at £5,000 per annum. This is inadequate to equip fully one X-ray room so that any re-equipment of old X-ray sets must be undertaken over a period of years. Notwithstanding this, progress has been made and the following equipment was installed during the year:—

- (a) A 100 mm. Odelca camera at Port Reitz Chest Hospital, Mombasa.
- (b) A dental set at King George VI Hospital, Nairobi.
- (c) Drying cabinets at Machakos Hospital and at King George VI Hospital.
- (d) King George VI Hospital was re-equipped with Superpractix portable sets releasing the transportable Watson M $\times$ 2 sets for other departments, namely Nyeri, Machakos and the Orthopaedic Centre.

At the Orthopaedic Centre the installation of the GR set ex Coast Province General Hospital, Mombasa, was completed and the darkroom fully equipped.

DARK ROOM EQUIPMENT

New improved intensifying screens have been introduced. These need shorter X-ray exposures; all new screens and cassettes purchased are now of this type, which diminishes the exposure necessary making better radiography possible with the less powerful equipment and lessening the patient dose.

RECURRENT EXPENDITURE

In any X-ray service this is high; it is in fact surprisingly low for the quantity of work done in Kenya. The increasing number of 100 mm. Odelca cameras is beginning to show economies. It is undoubtedly true that had these not been installed a considerable diminution of the work undertaken would have been necessary in order to avoid over-expenditure.

Recurrent costs other than those charged to the capital equipment vote are met by medical officers from the Provincial allocations. In certain instances this limits available radiography and because of this some departments, such as Wesu which averages 60 units of work per month, are run uneconomically. A small number of busy departments running at optimum economy and efficiency is ideal; at present there is one group of overworked and one group of uneconomically idle departments.

PROTECTION

Periodic monitoring has continued with no proof of risk to staff. Continuous monitoring is under consideration but is dependent upon action to be taken by the Physics Department of the Royal College, Nairobi.

TABLE 3

UNITS OF WORK DURING THE YEAR 1962

	Units
<i>King George VI Hospital Group—</i>	
King George VI Hospital, Nairobi	46,122
Mobile Unit (based on King George VI Hospital)	7,200
<i>Provincial Hospitals—</i>	
Central Province General Hospital, Nyeri	11,376
Southern Province General Hospital, Machakos	5,445
Rift Valley Province General Hospital, Nakuru	8,554
Nyanza Province General Hospital, Kisumu	10,649
Coast Province General Hospital, Mombasa	17,780
<i>District Hospitals—</i>	
Kiambu District Hospital (also visited by Mobile Unit)	5,652
Kitui District Hospital	1,040
Kisii District Hospital	1,760
Wesu District Hospital	840
Port Reitz Chest Hospital, Mombasa	4,898

ADMINISTRATION

Development

During the financial year 1961/62 development expenditure was as follows:—

	£
Government Medical Institutions	73,434
Staff Housing	22,056
Grants in Aid for Health Centres	4,000
Development of Health Centres	8,461
Grants in Aid in Non-Government Hospitals—	
(a) Mission	16,461
(b) Private	20,397
TOTAL	£144,809

The most important works completed during 1962 were:—

- (i) A new ward block at Mathari Mental Hospital.
 - (ii) The first provincial hospital mental ward built at Nakuru Provincial Hospital.
 - (iii) An X-ray department at Bungoma District Hospital.
- At the end of the year work was in progress on the following projects:—
- (a) The National Reference Health Centre, Karuri—due to be opened on 28th January, 1963.
 - (b) In-patient accommodation at Garissa, to replace that part of the hospital destroyed in the floods in December, 1961.
 - (c) Mental ward blocks at Machakos and Nyeri Provincial General Hospitals.
 - (d) Steam installation at King George VI Hospital.
 - (e) A new X-ray department at Nakuru Provincial General Hospital.

Finance

The gross recurrent expenditure of the Medical Department amounted to £2,602,832, as compared with £2,626,216 in 1960/61. In addition the sum of £125,098 was spent on Social Services.

Health Revenue for the year amounted to £616,390 as compared with £516,806 for 1960/61.

The following are summaries of expenditure and revenue during the year:—

<i>Year Ending 30th June, 1961</i>	EXPENDITURE	<i>Year Ending 30th June, 1962</i>
£		£
1,566,365	Personal Emoluments	1,469,902
36,223	House Allowances	40,099
47,538	Passages and Leave Expenses	42,692
81,307	Travelling Expenses	74,372
338,621	Medical and Surgical Stores and Equipment ..	372,573
177,604	Maintenance and Upkeep of Medical Establishments	181,312
57,793	Grants in Aid	62,626
117,992	Grants to Hospital Fund Authorities	121,134
7,412	X-ray Equipment	4,343
11,391	British Red Cross	4,379
174,993	Miscellaneous Other Charges	198,658
5,939	Nuffield Foundation Grant	8,748
2,710	Compensation and Ex-gratia Payments ..	6,503
328	Losses of Cash	96
—	Localization and Training	15,395
£2,626,216	Total Medical Department	£2,602,832
—	Social Services	125,098
£2,626,216	Total Ministry of Health and Social Affairs	£2,727,930
<i>Year Ending 30th June, 1961</i>	REVENUE	<i>Year Ending 30th June, 1962</i>
£		£
	CAPITATION FEES—	
12,903	E.A. High Commission	19,008
50,656	E.A. Railways and Harbours	72,538
13,888	E.A. Posts and Telecommunications	17,632
986	Miscellaneous	2,129
182,468	Hospitals and Dispensaries	206,121
4,255	X-ray	3,377
58	Massage and Physiotherapy	62
19,111	Laboratory	26,280
	SALE OF STORES AND OTHER MATERIALS—	
94,027	Stores and Equipment	104,548
3,560	Artificial Limbs	3,407
498	Health Education Materials	233
247	Occupational Therapy Products	109
6,957	Polio Vaccine	—
	REIMBURSEMENTS—	
1,659	Learners for Boarding Fees	1,765
396	Rations	372
30,662	Public Health Authorities for Seconded Staff ..	34,535
76,807	Public Health Authorities for Health Services ..	75,473
—	Housemen's Messing Fees	3,488
5,939	Nuffield Foundation Grant	8,748
—	Leverhulme Trust Fund Grant	2,364
—	Localization and Training	15,395
11,729	Miscellaneous	18,806
£516,806	Total Medical Department	£616,390
—	UNICEF Grant for Community Development	3,733
£516,806	Total Ministry of Health and Social Affairs	£620,123

TRAINING AND RECRUITMENT

Courses in training were carried out in the larger district hospitals and at the Medical Training Centre, Nairobi, as in previous years.

The innovations in training which were mentioned in the Report on the year 1961 bore fruit in 1962. Of the five Hospital Assistants who underwent a Promotion Course in Clinical Medicine and Clinical Surgery four were successful in passing the examination held in October, 1962, and have been promoted to the C6—5 salary scale with a new title of Clinical Assistant. Reports indicate that they are doing very well indeed and that the experiment was a success.

This training has been very considerably extended and in October/November, 1962, 40 Hospital Assistants commenced a one-year Clinical Assistant training at Kisumu, Nakuru and Mombasa. They will be employed in due course in the district hospitals when they qualify.

Seven graded dressers were successful in the final examination and qualified as Assistant Mental Nurses in June, 1962. Reports indicate that they are very highly thought of in the provisions. A new course of 13 graded dressers was recruited in 1962 and is now in training at Mathari Mental Hospital, Nairobi. The Nurses and Midwives Council of Kenya has recognized the Assistant Mental Nurse Course.

The training of microscopists at the Medical Training Centre was highly successful and a further course of 20 students was recruited in October, 1962.

After a considerable amount of negotiation, a Supervisor was obtained from England to supervise the inception of a two-year course for membership of the Society of Radiographers, London. The Supervisor arrived in October, 1962, and following assessment of the students in training and of the already qualified Assistant Radiographers, it is proposed that 14 be admitted to the intermediate examination for the M.S.R. in March/April, 1963, the exact date not yet being fixed.

A course for Hospital Administrative Assistants was commenced in February, 1962, under the supervision of a qualified Hospital Secretary. 19 individuals, later reduced to 18, took this course. The selection for it was made from the Clerical and Hospital Assistant cadres. 11 were successful in passing the final examination and have been promoted to the C6—5 salary scale. It is hoped that it will be possible to repeat this course in 1963. The course is necessary for two reasons, the first being that numerous vacancies will arise within the Hospital Executive Staff, and the second reason being that of localization.

New courses in 1963 were the two courses held for the Diploma in Meat and Other Foods Inspection. It is hoped that this innovation can be repeated in 1963.

Following a visit from Dr. J. H. Middlemiss, Professor of Radiology, University of Bristol, King George VI Hospital has been recognized for training for the D.M.R.D. Part II. It follows that our trainee radiologists will now be able to study in Nairobi, which will have the advantage that they will train under the conditions in which they will later work and that their services will not be lost to the country due to overseas study. It is now possible for doctors to study in Nairobi for the following diplomas: D.M.R.D., D.L.O., D.O.M.S., D.C.H., M.R.C.P. and the final F.R.C.S.

Lay Lecturers' Courses for the St. John Ambulance Association were run as usual.

Tables 4 and 5 give the statistics of students in training at all Government training establishments.

TRAINING OVERSEAS

During the year, continuing the policy of localization, officers were sent on overseas courses. It will be seen from the Table that at the end of the year there were 60 officers taking various forms of training not available in Kenya at universities and colleges overseas.

Apart from formal training five officers were granted W.H.O. Travelling Fellowships.

These Fellowships, which are part of the W.H.O. schemes current in Kenya, have been founded to give valuable experience to officers in their particular spheres.

TABLE 4

TRAINING: ENROLLED ASSISTANT NURSE STUDENTS AND PRE-TRAINEES AT PROVINCIAL AND DISTRICT HOSPITALS AS AT 31ST DECEMBER, 1962

STATIONS	TRAINEES			PRE-TRAINEES			Grand Total	A.D.C. Students
	M	F	Total	M	F	Total		
COAST PROVINCE— Mombasa ..	29	29	58	16	13	29	87	
CENTRAL PROVINCE— Nyeri ..	18	18	36	—	17	17	53	
Fort Hall ..	11	10	21	7	15	22	43	Of these 7 Pre-Tr. and 6 Trs. A.D.C.
Meru ..	4	9	13	3	3	6	19	3 Pre-Tr. and 6 Tr. A.D.C.
Thika ..	—	—	—	2	3	5	5	
RIFT VALLEY PROVINCE— Nakuru ..	24	16	40	9	10	19	59	2 non-Govt.
Kapsabet ..	—	—	—	7	3	10	10	1 of these A.D.C.
Eldoret ..	—	—	—	1	3	4	4	
Kitale ..	—	—	—	6	2	8	8	
NYANZA PROVINCE— Kisumu ..	29	18	47	1	12	13	60	1 of these A.D.C.
Kakamega ..	17	6	23	3	11	14	37	
Kisii ..	27	8	35	5	3	8	43	Of these 2 Pre-Tr. and 11 Trs. A.D.C.
Bungoma ..	—	—	—	1	7	8	8	
Kericho ..	—	—	—	8	—	8	8	3 of these A.D.C.
SOUTHERN PROVINCE— Machakos ..	15	5	20	7	11	18	38	3 of these A.D.C.
Kitui ..	—	—	—	10	—	10	10	
Narok ..	—	—	—	2	—	2	2	
TOTALS ..	174	119	293	88	113	201	494	

Total Males 262

Total Females 232

1962

Graded Dressers who qualified from Provincial and District Hospitals M. 10 } 13
F. 3

1963

Estimated Number of E.A.N. Students to qualify from Provincial and District Hospitals M. 34 } 41
F. 7

TABLE 5

OTHER COURSES WITHIN THE MINISTRY OF HEALTH AND HOUSING

1. *Assistant Health Visitor*

One or two years' duration depending on previous training. Courses commenced in May and November.

Numbers as at 31st December, 1962:—

Kisumu, 9; Embu, 10. Total: 19.

Those who qualified in 1962:—

Kisumu, 6; Embu, 6. Total: 12.

2. *Assistant Midwife*

One or two years' duration depending on previous training. Courses commenced April and October.

Numbers as at 31st December, 1962:—

Kisumu, 5; Fort Hall, 15. Total: 20.

Those who qualified in 1962:—

Kisumu, 5; Fort Hall, 4. Total: 9.

3. *Assistant Mental Nurse*

One year's duration for graded dressers.

Those who qualified in May, 1962: 7.

Numbers as at 31st December, 1962: 13. (Commenced June, 1962.)

4. *Clinical Assistant Courses (for Hospital Assistants)*

One year's duration.

First Course held at Nakuru (completed in October, 1962): 4 passed the examination and 1 failed.

Second Course (commenced October/November, 1962):—

Kisumu, 9; Nyeri, 9; Mombasa, 8; Nakuru, 12. Total: 38.

5. *E.N.T. (Mr. Clifford)*

One year's duration.

One Hospital Assistant—to enter Clinical Assistant cadre.

6. *Eyes (Dr. Bisley)*

Six months' duration.

One Hospital Assistant.

7. *Anaesthetic Course*

Six months' duration—for Hospital Assistants.

December, 1961/May, 1962: 4 took part.

June/November, 1962: 4 took part.

8. *Theatre Training*

Approximately six months' course held for Graded Dressers.

9. *Meat and Other Foods Inspection Course*

Sixteen weeks' duration. Two courses held in 1962.

First Course: 4 Uganda Health Inspectors.

Second Course: 11 Health Inspectors—5 Government, 6 Local Authorities.

10. *Health Inspector Extension Course from Mbale*

In November, 1962, a three-week period of practical training was held in November for the students in the second "extension" course at Mbale.

Number in course: 20.

11. *Hospital Administration Course*

February/December, 1962: 4 Hospital Assistants; 14 Clerks.

Eleven were successful in passing the examinations.

SUMMARIZED DETAILS OF OFFICERS UNDERTAKING OVERSEAS COURSES AS AT 31ST DECEMBER, 1962

Kenya Government Funds

- 2 Medical Officers—F.R.C.S.
- 1 Medical Officer—D.P.H.
- 1 Medical Officer—Surgical Apprenticeship, France.
- 1 Senior Health Inspector—Public Health Engineering.
- 3 Kenya Registered Nurses—S.C.M. Course—United Kingdom.
- 1 Health Visitor—Social Welfare.

British Society for the Blind Scholarship—United Kingdom

- 1 Medical Officer—D.O.M.S.

C.D. and W. Funds—United Kingdom

- 2 Nursing Sisters—Sister Tutor Diploma

U.N. E.P.T.A. Funds

- 2 Officers on Medical Course at Hadassah Medical School, Jerusalem, Israel.
- 4 Medical Officers—2 on D.P.H. Course, London; 2 on D.P.H. Course, Liverpool.
- 1 Medical Officer—T.B. Course, Czechoslovakia.

Kenya Development and Training Scholarships

- 11 Health Inspectors (E.A.) on Health Inspectors Courses: 2 at Salford, 9 at Mbale.
- 7 Laboratory Assistants—A.I.M.L.T. Course.
- 1 Assistant Radiographer—M.S.R. Course.
- 2 Medical Officers—M.R.C.P. Course.
- 3 Medical Officers—F.R.C.S.
- 1 Medical Officer—D.P.H., Bristol.
- 1 Medical Officer—D.P.M.
- 2 Medical Officers—D.M.R.D. Courses: 1 at Edinburgh; 1 at Bristol.
- 5 Hospital Assistants—R.M.N. Courses, U.K.
- 2 Kenya Registered Nurses—R.M.N. Courses, U.K.
- 2 Hospital Assistants—Diploma in Health Education, London.
- 2 Student Assistant Physiotherapists—M.C.S.P.

Voluntary Courses

- 1 Medical Officer—M.R.C.O.G.
- 1 Medical Officer—F.R.C.S.

RECRUITMENT

The supply of staff from overseas was reduced to a trickle. New arrivals, all appointed on contract terms were:—

- 2 Nursing Sisters (Psychiatric).
- 1 Male Charge Nurse (Psychiatric).
- 2 Health Visitors.
- 9 Nursing Sisters.

As during 1962 one Matron, Grade II, four Health Visitors and twenty-one Nursing Sisters left the Service, the balance was a negative one and the Service was increasingly staffed with temporary officers.

One Health Inspector, a Biochemist, a Physiotherapist and a Librarian were appointed during the year—all on contract.

TABLE 6

MEDICAL TRAINING CENTRE STUDENTS

Students	In Training 1-1-62	Com- menced Training from 1962	Training Discon- tinued in 1962	Qualified in 1962	In Training at 31-12-62
KENYA REGISTERED NURSES—					
Males	4	7	4	—	7
Females	58	35	16	4	73
Total	62	42	20	4	80
Asians	21	—	—	—	28
Africans	37	—	—	—	45
HOSPITAL ASSISTANTS—					
Males	55	—	1	24	30
Females	9	—	2	3	4
Total	64	—	3	27	34
ENROLLED ASSISTANT NURSES—					
Males	115	41	22	—	134
Females	16	28	29	—	37
Total	131	69	29	—	171
PRE-TRAINEES—					
Males	15	—	—	—	20
Females	37	—	—	—	16
Total	52	—	—	—	36
DRESSERS—					
Males	6	1 EAN trans.	1	6	—
DISPENSERS	11	15	8	5	13
LABORATORY ASSISTANTS	10	—	3	—	7
MICROSCOPISTS	16	19	2	16	17
ASSISTANT RADIOGRAPHERS—					
Males	9	3	3	3	6
Females	5	3	—	—	8
Total	14	6	3	3	14
Asians	—	2	—	—	7
Africans	—	1	—	—	1
DARK ROOM ASSISTANTS	5	2	—	5	2
HEALTH INSPECTORS—					
(E.A.)	7	19	16	7*	3
(Overseas)	—	—	—	—	7
HEALTH ASSISTANTS	62	—	1	43	18
PHYSIOTHERAPISTS/OCCUPATIONAL THERAPY ASSISTANTS—					
Males	3	2	2	—	3
Females	2	5	3	—	4
Total	5	7	5	—	7
Asians	2	4	—	—	—
Africans	—	1	—	—	—
STOREKEEPER ASSISTANTS	7	3	1	2	7

*Five Ex-Health Assistants.

VISITORS, 1962

- DR. JOHN M. WEIR, M.D., Associate Director, The Rockefeller Institute, New York.
- DR. PATWARDHAN, Nutrition Division, W.H.O. Headquarters, Geneva.
- DR. THOMAS WELLER, M.D., Harvard University School of Public Health, Boston.
- PROFESSOR HSU PAO YANG, F.A.O., Rome.
- DR. R. LEWTHWAITE, Department of Technical Co-operation, London.
- PROFESSOR WOODRUFF, London School of Hygiene and Tropical Medicine, London.
- PROFESSOR MAX ROSENHEIM, University College Hospital, London.
- MR. MALCOLM ARCHER, Acting Kenya Agent, London.
- DR. I. W. KESSON, St. George's Hospital, London.
- DR. A. P. NORMAN, M.B.E., Institute of Child Health, Great Ormond Street, London.
- MR. FRANK HORSFALL, JR., Sloan-Kettering Institute, New York.
- DR. GONARD, Vice-President, Junior Committee, International Red Cross, Geneva.
- DR. HOFFMAN, International Red Cross, Geneva.
- DR. NORMAN-WILLIAMS, Director of Health Services, W.H.O. Regional Office, Brazzaville.
- MR. VICTOR LESSIOVSKI, Deputy Director, Programmes Division, United Nations Technical Assistance, New York.
- PROFESSOR GEORGE BELL, Queen's College, Dundee, Scotland.
- MONSIEUR A. ZARB, Chief of Legal Office, W.H.O. Headquarters, Geneva.
- MR. H. BERKELEY, M.P., M.P. for Lancaster.
- DR. FEITELBURG, Jerusalem, Israel.
- MRS. POPE-HOVEY, People to People Programme, Washington, D.C.
- DR. H. T. DAW, International Atomic Energy Agency, Vienna.
- MR. DEVAULT, Department of State, Washington, D.C.
- PROFESSOR A. E. SALAZAR, Associate Professor of Clinical Medicine, University of Puerto Rico School of Medicine, Santurce, P.R.
- DR. MARIO MAFFI, Malariologist, W.H.O., Brazzaville.
- DR. J. M. LISTON, C.M.G., Chief Medical Officer, Department of Technical Co-operation, London.
- PROFESSOR COPE W. SCHWENGER, M.D., Assistant Professor of Public Health, University of Toronto, Canada.
- DR. HUGH TARLOCK, M.D., Northampton, Massachusetts, U.S.A.
- DR. MARIA PFISTER, Medical Officer of Mental Health, W.H.O. Headquarters, Geneva.
- THE HON. EDWIN SAMUEL, C.M.G., Director, Institute of Public Administration, Israel.
- SIR ARTHUR PORRITT, K.C.M.G., K.C.V.O., C.B.E., President, Royal College of Surgeons, London.
- PROFESSOR JOHN BRUCE, C.B.E., T.D., President, Royal College of Surgeons, Edinburgh.
- DR. P. M. KAUL, Assistant Director-General, W.H.O. Headquarters, Geneva.

SIR ANDREW COHEN, K.C.M.G., K.C.V.O., C.B.E., Director of Technical Co-operation, London.

MR. KIRKLEY, Director, Oxford Famine Relief Committee.

MR. T. F. BETTS, Regional Representative, Oxford Famine Relief Basutoland.

PROFESSOR HUGH LUCKEY, Cornell University Medical College, New York.

DR. EDWARD W. HOOK, M.D., Cornell University Medical College, New York.

DR. B. H. KEAN, M.D., Cornell University Medical College, New York.

PROFESSOR A. J. TUYNS, Medical Officer, Cancer Section, W.H.O. Headquarters, Geneva.

DR. JEAN COMBAIRE, W.H.O., Addis Ababa.

MR. P. W. HUTTON, F.R.C.P., Overseas Relations Officer, Royal College of Physicians, London.

DR. J. H. MIDDLEMISS, Nuffield Medical Visitor in Radiology, University of Bristol.

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APPENDIX I

SPREAD OF BEDS PER THOUSAND OF POPULATION

District	HOSPITAL BEDS			Population 1962 (Thousands)	Beds per 1,000
	Basic Service	Amenity	Total		
Nairobi	1,041	826	1,867	314	5.94
CENTRAL PROVINCE—					
Nyeri	408	17	425	254	1.67
Kiambu	354	—	354	407	0.87
Fort Hall	272	4	276	345	0.80
Meru	570	—	570	470	1.21
Thika	259	2	261	98	2.66
Embu	209	—	209	293	0.75
Nanyuki	43	9	52	57	0.91
Provincial Sub-Total ..	2,115	32	2,147	1,924	1.12
NYANZA PROVINCE—					
Central Nyanza	465	45	510	664	0.76
North Nyanza	651	6	657	608	1.08
Elgon Nyanza	208	—	208	348	0.60
South Nyanza	162	—	162	482	0.32
Kisii	255	—	255	519	0.49
Kericho	528	2	530	391	1.36
Provincial Sub-Total ..	2,269	53	2,322	3,012	0.77
RIFT VALLEY PROVINCE—					
Trans Nzoia	109	35	144	97	1.48
Uasin Gishu	114	37	151	101	1.50
Nakuru	317	90	407	237	1.79
Naivasha	31	—	31	75	0.42
Nandi	89	—	89	119	0.75
Elgeyo Marakwet ..	87	—	87	161	0.54
Baringo	67	—	67	170	0.39
Laikipia	37	—	37	70	0.53
West Pokot	106	—	106	59	1.80
Samburu	63	—	63	50	1.26
Provincial Sub-Total ..	1,020	162	1,182	1,139	1.04
COAST PROVINCE—					
Mombasa	243	236	479	178	2.69
Kwale	132	—	132	158	0.84
Kilifi	243	—	243	247	0.98
Lamu	42	—	42	23	1.83
Tana River	90	—	90	29	3.05
Taita	157	—	157	90	1.74
Provincial Sub-Total ..	907	236	1,143	725	1.58

APPENDIX I—(Contd.)
SPREAD OF BEDS PER THOUSAND OF POPULATION—(Contd.)

District	HOSPITAL BEDS			Population 1962 (Thousands)	Beds per 1,000
	Basic Service	Amenity	Total		
SOUTHERN PROVINCE—					
Machakos.. ..	325	6	331	551	0.60
Kitui	195	—	195	285	0.68
Narok	114	—	114	110	1.04
Kajiado	94	3	97	68	1.42
Provincial Sub-Total ..	728	9	737	1,014	0.73
NORTHERN PROVINCE	216	—	216	543	0.40
TOTAL	8,296	1,318	9,614	8,676 (Includes persons in transit)	1.11
SPECIAL HOSPITALS—					
Mathari (Mental) ..	645	70	715	8,676 (Colony)	0.08
Port Reitz (T.B.) ..	172	59	231	8,676 (Colony)	0.03
GRAND TOTAL ..	9,113	1,447	10,560	8,676	1.22

APPENDIX II
RETURN OF DISEASES—OUT-PATIENTS

Code	DISEASES	OUT-PATIENTS		
		Male	Female	Total
	INFECTIOUS AND PARASITIC DISEASES			
001-008	Respiratory Tuberculosis	3,963	2,674	6,637
010-019	Other Tuberculosis	1,496	961	2,457
020-029	Syphilis	1,607	904	2,511
030-035	Gonorrhoea	11,543	4,966	16,509
036-039	Other Venereal Diseases	1,522	770	2,292
045	Bacillary Dysentery	7,282	5,021	12,303
046	Amoebic Dysentery	1,824	1,314	3,138
056	Whooping Cough	7,306	7,985	15,291
060	Leprosy	1,065	692	1,757
062	Anthrax	220	217	437
073	Yaws	568	482	1,050
081	Late effects of acute Poliomyelitis	329	296	625
084	Variola Minor	80	43	123
085	Measles	9,624	8,472	18,096
086	Rubella	758	1,503	2,261
087	Chicken-pox	3,501	3,696	7,197
088	Herpes Zoster	572	338	910
089	Mumps	2,605	1,908	4,513
092	Infectious Hepatitis	338	318	656
095	Trachoma	3,009	1,762	4,771
110	B.T. Malaria	1,241	1,344	2,585
111	Qt. Malaria	5,393	3,429	8,822
112	S.T. Malaria	31,137	24,440	55,577
113	Ovale Malaria	—	—	—
116	Other forms of Malaria	15,749	16,030	31,779
120	Leishmaniasis (Kala-azar)	76	51	127
121	Trypanosomiasis	225	81	306
123-0	Schistosomiasis (Hematobium)	3,588	1,645	5,233
123.1	Schistosomiasis (Mansoni)	657	957	1,614
126	Tapeworm	8,461	6,440	14,901
127	Filariasis	—	—	—
129	Ankylostomiasis	3,451	3,282	6,733
130.0	Ascariasis	6,171	9,061	15,232
131	Tinea	3,388	1,854	5,242
135	Scabies	10,533	7,671	18,204
N.O.S.				
036-138	Other Infective and Parasitic Diseases	4,311	2,822	7,133
	GROUP SUB-TOTAL	153,593	123,429	277,022
	NEW GROWTHS			
140-205	Malignant Neoplasms	716	855	1,571
210-239	Benign and other Neoplasms	908	837	1,745
	GROUP SUB-TOTAL	1,624	1,692	3,316

APPENDIX II—(Contd.)

RETURN OF DISEASES—OUT-PATIENTS—(Contd.)

Code	DISEASES	OUT-PATIENTS		
		Male	Female	Total
	ALLERGIC, METABOLIC, NUTRITIONAL AND BLOOD DISEASES			
241	Asthma	3,922	2,136	6,058
250-252	Goitre	39	40	79
260	Diabetes Mellitus	195	72	267
N.O.S.				
280-289	Avitaminoses and other Metabolic Diseases ..	209	137	346
286-6	Kwashiorkor	2,778	2,644	5,422
290-293	Anaemia	2,627	2,644	5,271
N.O.S.				
240-299	Other Allergic, Endocrine, Metabolic and Nutritional Diseases	4,583	3,662	8,245
	GROUP SUB-TOTAL	14,353	11,335	25,688
	DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS			
N.O.S.				
300-326	Mental Disorder	3,394	5,303	8,697
325	Mental Deficiency	109	200	309
353	Epilepsy	3,221	5,279	8,500
N.O.S.				
330-369	Other Diseases of the Nervous System and Sense Organs	5,886	6,478	12,364
	GROUP SUB-TOTAL	12,610	17,260	29,870
	Total	182,180	153,716	335,896
	DISEASES OF EYE AND EAR			
370	Conjunctivitis and Ophthalmia	22,532	14,409	36,941
385	Cataract	479	282	761
389	Blindness	736	398	1,134
N.O.S.				
371-388	Other Diseases of Eye (not Trachoma) ..	7,057	3,079	10,136
390-397	Diseases of Ear and Mastoid Process ..	10,466	8,249	18,715
398	Deafness	154	128	282
	GROUP SUB-TOTAL	41,424	26,545	67,969
	CIRCULATORY DISEASES			
400-447	Diseases of the Heart	809	698	1,507
450-468	Other Circulatory Diseases	1,876	1,105	2,981
	GROUP SUB-TOTAL	2,685	1,803	4,488

APPENDIX II—(Contd.)

RETURN OF DISEASES—OUT-PATIENTS—(Contd.)

Code	DISEASES	OUT-PATIENTS		
		Male	Female	Total
	RESPIRATORY DISEASE			
490-493 N.O.S.	Pneumonia	13,983	11,122	25,105
470-527	Other Diseases of the Respiratory System (including Coryza, Pharyngitis and Bron- chitis)	147,611	106,457	254,068
	GROUP SUB-TOTAL	161,594	117,579	279,173
	ALIMENTARY DISEASES			
530-535	Dental Caries—Other Diseases of Teeth and Gums	15,467	9,690	25,157
536-538	Stomatitis and Other Diseases of the Buccal Cavity and Salivary Glands	12,311	10,753	23,064
560-561	Hernia	1,220	678	1,898
570	Gastro-enteritis under 2 years	21,035	19,100	40,135
571.0	Gastro-enteritis over 2 years	13,859	10,421	24,280
571.1	Gastro-enteritis over 2 years	13,859	10,421	24,280
539-587	Other Diseases of Alimentary System	41,607	30,787	72,394
	GROUP SUB-TOTAL	105,499	81,429	186,928
	GENITO-URINARY DISEASES			
613 N.O.S.	Hydrocele	14 614	}	628
590-617	Other Diseases of Genito-Urinary System and Male Genital Organs	7,691		
636	Sterility (Female)	—	2,280	2,280
620-637	Other Diseases of Uterus and Female Genital Organs	—	12,953	12,953
N.O.S.	Normal Pregnancy	—	9,173	9,173
630-652	Complications of Pregnancy	—	3,696	3,696
670-689	Complications of Childbirth and the Puer- perium	—	1,507	1,507
	GROUP SUB-TOTAL	8,319	30,585	38,904
	SKIN AND MUSCULO-SKELETAL DISEASES			
690-698	Boils, and Infections of Skin and Subcutaneous Tissues	25,942	14,588	40,530
715	Chronic Ulcers	18,507	10,761	29,268
700-716	Other Diseases of the Skin	14,491	9,649	24,140
720-959	Diseases of Bones, Joints, Muscles and Mal- formation	20,890	14,891	35,781
	GROUP SUB-TOTAL	79,830	49,889	129,718

APPENDIX II—(Contd.)
RETURN OF DISEASES—OUT-PATIENTS—(Contd.)

Code	DISEASES	OUT-PATIENTS		
		Male	Female	Total
	ILL-DEFINED DISEASES AND INJURIES			
760-776	Neonatal Diseases	26	25	51
788-8	Pyrexia of Unknown Origin	48,735	46,989	95,724
N.O.S.				
780-795	All Other Ill-defined Causes of Morbidity ..	9,604	6,675	16,279
N.800-				
N.839	Fractures and Dislocations	6,430	3,137	9,567
N.840-				
N.848	Sprains	6,897	2,970	9,867
N.930-				
N.936	Foreign Bodies	5,020	2,595	7,615
N.940-				
N.949	Burns and Scalds	6,794	5,243	12,037
N.960-				
N.979	Poisoning	2,058	2,099	4,157
N.O.S.				
N.850-				
N.999	Other Injuries and Wounds	50,289	21,081	71,370
Y.00-				
Y.18	Examination	37,349	9,538	46,887
	GROUP SUB-TOTAL	173,202	100,352	273,554
	(a) Total	754,719	561,912	1,316,631
	(b) Out-patients admitted to Hospital (See Note 1)		117,908	
	(c) Sub-total (a) + (b) (New Cases) ..		—	
	(d) Total of re-attendances		1,421,630	

APPENDIX III
RETURN OF DISEASES—IN-PATIENTS

Code	DISEASES	ADMISSION		DEATHS	
		Male	Female	Male	Female
	GENERAL, INFECTIOUS AND PARASITIC DISEASES				
001-008	Respiratory Tuberculosis	2,628	1,708	249	189
010	T.B. Meninges and Central Nervous System	161	156	54	37
011	T.B. of Intestines, Peritoneum and Mesenteric Glands	91	93	23	12
012, 013	Tuberculosis of Bones and Joints	233	161	3	6
014-019	Tuberculosis—All other Forms	681	534	77	53
020	Congenital Syphilis	11	5	5	—
021.0, 021.1	Primary Syphilis	37	13	—	1
021.2-021.4	Secondary Syphilis	39	25	5	—
024	Tabes Dorsalis	1	1	—	—
025	General Paralysis of Insane	14	8	8	2
022, 023	Cardio Vascular Syphilis	7	2	2	1
026, 029	All other Syphilis	25	20	2	—
030, 031	Gonorrhoea, Genito-Urinary	241	169	1	1
033	Gonococcal Infection of Eye	14	9	—	—
032-034, 035	Other Gonococcal Infections	61	50	1	—
037	Lymphogranuloma Venereum	15	14	1	—
038	Granuloma Inguinale	2	1	—	—
039	Other Unspecified Venereal Diseases	22	27	—	—
040	Typhoid Fever	329	249	38	19
041, 042	Salmonella Infections	10	7	—	—
043	Cholera	—	—	—	—
044	Brucellosis	98	50	3	1
045	Bacillary Dysentery	822	560	25	21
046	Amoebiasis	559	385	17	11
047, 048	Other Unspecified Dysentery	541	251	11	13
049	Food Poisoning, Infective and Toxic (excepting Salmonella infections)	125	106	5	1
050	Scarlet Fever	5	1	—	—
051	Streptococcal Sore Throat	173	96	1	—

APPENDIX III—(Contd.)
RETURN OF DISEASES—IN-PATIENTS—(Contd.)

Code	DISEASES	ADMISSION		Total	DEATHS		Total
		Male	Female		Male	Female	
052	Erysipelas	9	8	17	—	—	—
053	Septicaemia and Pyaemia	19	25	44	8	6	14
055	Diphtheria	8	14	22	—	2	2
056	Whooping Cough	1,271	1,281	2,552	127	153	280
057	Meningococcal infections	229	190	419	56	34	90
058	Plague	—	3	3	—	1	1
060	Leprosy	340	90	430	5	2	7
061	Tetanus Neonatorum	144	126	270	83	74	157
061	Tetanus all other causes	342	218	560	131	99	230
062	Anthrax Cutaneous	50	34	84	4	2	6
062	Anthrax Intestinal	124	75	199	5	7	12
071.0	Relapsing Fever (Louse Borne)	—	2	2	—	1	1
071.1	Relapsing Fever (Tick Borne)	—	2	2	—	1	1
072	Weil's Diseases	—	—	—	—	—	—
073	Yaws	13	3	16	—	1	1
080	Acute Poliomyelitis	163	124	287	10	7	17
082	Acute Infectious Encephalitis	50	27	77	25	7	32
081, 083	Late Effects Poliomyelitis and Infectious Encephalitis	49	52	101	5	5	10
084	Variola Major	5	2	7	—	—	—
084	Variola Minor	45	43	88	—	—	—
085	Measles	1,629	1,352	2,981	44	35	79
086	Rubella	8	5	13	—	—	—
087	Chicken-pox	521	246	767	2	2	4
088	Herpes Zoster	34	18	52	—	—	—
089	Mumps	266	109	375	1	1	2
090	Dengue	—	—	—	—	—	—
091	Yellow Fever	—	—	—	—	—	—
092	Infectious Hepatitis	277	177	454	16	9	25
093	Glandular Fever (infectious mono-nucleosis)	1	1	2	—	—	—
094	Rabies	8	6	14	—	1	4
095	Trachoma	77	68	145	3	—	—

APPENDIX III—(Contd.)
RETURN OF DISEASES—IN-PATIENTS—(Contd.)

Code	DISEASES	ADMISSION			DEATHS		
		Male	Female	Total	Male	Female	Total
096.7	Sandfly Fever..	—	—	—	—	—	—
100	Louse Borne Epidemic Typhus	—	—	—	—	—	—
101	Flea Borne Epidemic Typhus	—	—	—	—	—	—
104	Tick Borne Typhus ..	—	1	1	—	—	—
N.O.S. 102-108							
110	Other Rickettsial Diseases ..	4	3	7	—	—	—
111	B.T. Malaria ..	70	47	117	—	—	—
112	Qt. Malaria ..	126	78	204	3	—	3
113	S.T. Malaria ..	4,686	3,818	8,504	160	142	302
115	Ovale Malaria ..	9	4	13	—	—	—
117	Blackwater Fever ..	4	—	4	2	—	2
N.O.S. 113-117							
120	Other Forms of Malaria ..	2,375	1,655	4,030	95	54	194
120.0	Leishmaniasis ..	41	21	62	4	3	7
121.0	Leishmaniasis Visceral (Kala-azar)	56	50	106	9	5	14
121.0	Trypanosomiasis (Gambiense) ..	1	—	1	—	—	—
121.0	Trypanosomiasis (Rhodesiense) ..	7	7	14	2	—	2
121.2	Other Unspecified Trypanosomiasis	110	46	156	9	6	15
123.0	Schistosomiasis (Haematobium) ..	408	162	570	—	1	1
123.1	Schistosomiasis (Mansoni) ..	313	184	497	—	2	2
123.3	Other Unspecified Schistosomiasis	80	29	109	1	—	1
125	Hydatid Disease ..	43	35	78	8	4	12
126	Tapeworm and other Cestode infestation	786	288	1,074	—	—	—
127	Onchocerciasis ..	3	—	3	—	—	—
127	Filariasis (Elephantiasis) ..	28	5	33	1	—	1
127	Other Filariasis ..	8	—	8	—	—	—
128	Trichiniasis ..	8	5	13	—	—	—
129	Ankylostomiasis ..	802	654	1,456	—	4	4
130.0	Ascariasis ..	722	526	1,248	1	1	2
N.O.S. 124-130							
	Other Diseases due to Helminths ..	239	142	381	—	—	—

APPENDIX III—(Contd.)
RETURN OF DISEASES—IN-PATIENTS—(Contd.)

Code	DISEASES	ADMISSION			DEATHS		
		Male	Female	Total	Male	Female	Total
131	Dermatophytosis (Tinae)	22	15	37	—	—	—
036	Chancroid	—	—	—	—	—	—
N.O.S.							
054-122	Other infectious and Protozoal Diseases	33	27	60	—	—	—
N.O.S.							
132-138	Other Parasitic Diseases	361	191	552	13	15	28
	GROUP SUB-TOTAL	23,972	16,985	40,957	1,364	1,055	2,419
	NEW GROWTHS						
140-148	Malignant Neoplasm of Mouth and Pharynx	33	23	56	6	—	6
150	Malignant Neoplasm of Oesophagus	125	29	154	32	4	36
151	Malignant Neoplasm of Stomach	49	38	87	10	14	24
152, 153	Malignant Neoplasm of Intestine	9	3	12	5	—	5
154	Malignant Neoplasm of Rectum	20	9	29	1	1	2
155	Malignant Neoplasm of Liver and Bile Passages (Primary)	60	37	97	30	10	40
N.O.S.							
156-199	Malignant Neoplasm of all other and Unspecified Sites	350	310	660	86	44	130
204	Leukaemia and Aleukaemia	34	27	61	11	9	20
200-203, 205	Lymphosarcoma and other Neoplasm of Lymphatic and Haematopoietic Systems	97	86	183	23	18	41
210-239	Benign Neoplasms and Unspecified Neoplasms	222	296	518	16	16	32
	GROUP SUB-TOTAL	999	858	1,857	220	116	336
	ALLERGIC, METABOLIC AND BLOOD DISEASES						
241	Asthma	640	374	1,014	9	8	17
250, 251	Non-toxic Goitre	17	64	81	—	1	1
252	Thyrototoxicosis	9	11	20	—	2	2

APPENDIX III—(Contd.)
RETURN OF DISEASES—IN-PATIENTS—(Contd.)

Code	DISEASES	ADMISSION			DEATHS	
		Male	Female	Total	Male	Female
260	Diabetes Mellitus	183	90	273	14	11
280	Beri-beri	2	3	5	—	—
281	Pellagra	26	19	45	—	1
282	Scurvy	2	1	3	—	—
286.6	Kwashiorkor	856	725	1,581	227	168
283-286	Other Deficiency States	335	291	626	41	38
290	Pernicious and other Hyperchromic Anaemias	69	84	153	15	15
291	Iron Deficiency Anaemias	480	532	1,012	33	49
292, 293	Other Anaemias	605	721	1,326	100	85
N.O.S.						
240, 299	Other Allergic, Endocrine, Metabolic and Blood Diseases	279	174	453	23	12
	GROUP SUB-TOTAL	3,503	3,089	6,592	462	390
	DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS					
300-309	Psychoses	1,082	537	1,619	1	3
310-324, 326	Psychoneurosis and Disorders of Personality	101	71	172	—	—
325	Mental Deficiency	269	224	493	3	11
330-334	Vascular Lesions Affecting Central Nervous System	73	19	92	18	7
340.0	Meningitis due to <i>H. Influenzae</i>	29	26	55	15	6
340.1	Meningitis due to Pneumococcus	125	93	218	46	36
340.2	Meningitis due to Other Organisms except Tuberculous and Syphilitic	93	60	153	24	21
340	Meningitis (except Meningococcal and Tuberculous)	244	195	439	57	51
345	Multiple Sclerosis	7	2	9	2	—
353	Epilepsy	261	137	398	12	3
370-379	Inflammatory Diseases of Eye	344	181	525	—	—
385	Cataract	342	236	578	—	—
387	Glaucoma	19	11	30	—	—

APPENDIX III—(Contd.)
RETURN OF DISEASES—IN-PATIENTS—(Contd.)

Code	DISEASES	ADMISSION			DEATHS	
		Male	Female	Total	Male	Female
N.O.S. 380-389	All Other Diseases and Conditions of Eye	328	218	546	2	—
390	Otitis Externa	33	23	56	—	—
391-393	Otitis Media and Mastoiditis	221	197	418	1	5
394	Other inflammatory Diseases of Ear	99	78	177	—	—
N.O.S. 341-369, 395-398	All other Diseases of Nervous System, Sense Organs and Auditory System	247	129	376	14	9
	GROUP SUB-TOTAL	3,917	2,437	6,354	195	152
	CIRCULATORY DISEASES					
400-401	Rheumatic Fever	287	254	541	9	2
402	Chorea	14	21	35	1	1
410-416	Chronic Rheumatic Heart Disease	135	152	287	25	32
420-422	Arteriosclerotic and Degenerative Heart Disease	40	27	67	18	14
430-434	Other Diseases of Heart	331	259	590	105	86
440-443	Hypertension with Heart Disease	62	38	100	12	6
444-447	Hypertension without Mention of Heart	124	80	204	12	15
450-456	Diseases of Arteries	36	18	54	11	3
460-468	Other Diseases of Circulatory System	219	102	321	17	16
	GROUP SUB-TOTAL	1,248	951	2,199	210	175
	RESPIRATORY DISEASE					
470-475	Acute Upper Respiratory Infections	847	573	1,420	11	12
480-483	Influenza	560	378	938	7	4
40	Lobar Pneumonia	2,603	1,500	4,103	134	91

APPENDIX III—(Contd.)
RETURN OF DISEASES—IN-PATIENTS—(Contd.)

Code	DISEASES	ADMISSION			DEATHS		
		Male	Female	Total	Male	Female	Total
491	Bronchopneumonia	4,056	3,493	7,549	706	664	1,370
492, 493	Primary Atypical, other and Unspecified Pneumonia	733	554	1,287	64	47	111
500	Acute Bronchitis	1,579	1,302	2,881	28	19	47
501, 502	Bronchitis, Chronic and Unqualified	1,338	999	2,337	17	11	28
510	Hypertrophy of Tonsils and Adenoids	732	578	1,310	2	—	2
518, 521	Empyema and Abscess of Lung	117	52	169	22	10	32
519	Pleurisy (other than Tuberculosis)	87	49	136	3	—	3
523	Pneumoconiosis	13	3	16	1	—	1
N.O.S. 511-527	All other Respiratory Diseases	683	510	1,193	32	22	54
	GROUP SUB-TOTAL	13,348	9,991	23,339	1,027	880	1,907
	ALIMENTARY DISEASES						
530	Dental Caries.. .. .	90	80	170	—	—	—
531-535	All other Diseases of Teeth and Supporting Structures	84	55	139	—	2	2
540	Ulcer of Stomach	150	93	243	6	2	8
541	Ulcer of Duodenum	197	62	259	2	—	2
543	Gastritis and Duodenitis	518	370	888	2	—	2
550-553	Appendicitis	301	157	458	6	2	8
560, 561, 570	Intestinal Obstruction and Hernia	1,015	251	1,266	95	43	138
571.0	Gastro-Enteritis and Colitis between Four Weeks and Two Years	2,394	1,733	4,127	342	308	650
571.1	Gastro-Enteritis and Colitis, Age Two Years and over	1,108	872	1,980	136	98	234
572	Chronic Enteritis and Ulcerative Colitis	164	137	301	2	11	13
581	Cirrhosis of Liver	280	137	417	102	35	137
584, 585	Cholelithiasis and Cholecystitis	31	26	57	3	2	5
536-587	Other Diseases of Digestive System	1,072	751	1,823	48	20	68
590	Acute Nephritis	184	140	324	25	15	40
591-594	Chronic, other and Unspecified Nephritis	127	105	232	32	14	46
600	Infections of Kidney (Other than Tuberculosis)	81	81	162	6	4	10

APPENDIX III—(Contd.)
RETURN OF DISEASES—IN-PATIENTS—(Contd.)

Code	DISEASES	ADMISSION			DEATHS		
		Male	Female	Total	Male	Female	Total
602, 604 610 613 N.O.S. 601-617	Calculi of Urinary System Hyperplasia of Prostate Hydrocele	50 229 251	26 12 —	76 241 251	2 25 —	— — —	2 25 —
620, 621 634 622-637	Other Diseases of Genito-Urinary System and Male Genital Organs Diseases of Breast (not Neoplastic) Disorders of Menstruation Other Diseases of Uterus and Female Genital Organs	923 — — —	— 263 945 2,605	923 263 945 2,605	14 — — —	— 7 — 33	14 7 — 33
	GROUP SUB-TOTAL	9,256	8,894	18,150	848	596	1,444
DISEASES OF PREGNANCY, PUERPERIUM							
640-641, 681/ 2/4 642, 652, 685, 686 643, 644 650 650 660 N.O.S. 645-689	Sepsis of Pregnancy, Childbirth and the Puerperium Toxaemias of Pregnancy and the Puerperium Haemorrhage of Pregnancy and Childbirth Abortion without Mention of Sepsis or Toxaemia Abortion with Sepsis Delivery without Complication Other Complications of Pregnancy, Childbirth and Puerperium	— — — — — — —	337 192 349 2,468 396 7,955 215	337 192 349 2,468 396 7,955 215	— — — — — — —	9 5 27 3 6 — 89	9 5 27 3 6 — 89
	GROUP SUB-TOTAL	—	11,912	11,912	—	139	139
SKIN AND MUSCULO-SKELETAL DISEASES							
690-698 720-725	Infections of Skin and Subcutaneous Tissue Arthritis and Spondylitis	1,119 442	646 257	1,765 699	4 2	8 —	12 2

APPENDIX III—(Contd.)
RETURN OF DISEASES—IN-PATIENTS—(Contd.)

Code	DISEASES	ADMISSION			DEATHS		
		Male	Female	Total	Male	Female	Total
726-727	Muscular Rheumatism and Rheumatism, Unspecified	438	248	686	1	1	2
730	Osteomyelitis	332	129	461	6	7	13
737, 745-749	Ankylosis and Acquired Musculo-Skeletal Deformities	119	42	161	4	—	4
715	Chronic Ulcer of Skin	883	551	1,434	1	2	3
700-714, 716	All Other Diseases of Skin	716	361	1,074	7	1	8
731/736, 738-744	All Other Diseases of Musculo-Skeletal System	217	88	305	4	2	6
751	Spina Bifida and Meningocele	20	17	37	6	4	10
754	Congenital Malformations of Circulatory System	21	22	43	2	1	3
N.O.S. 750-759	Other Congenital Malformations	121	84	205	6	3	9
	GROUP SUB-TOTAL	4,428	2,445	6,873	43	29	72
	DISEASES OF NEW BORN						
760-761	Birth Injuries	7	13	20	3	2	5
762	Post-natal Asphyxia and Atelectasis	11	10	21	3	7	10
764	Diarrhoea of Newborn (under Four weeks)	69	68	137	12	16	28
765	Ophthalmia Neonatorum	7	5	12	—	—	—
763, 766, 768	Other Infections of Newborn	91	76	167	53	44	97
770	Haemolytic Disease of Newborn	15	5	20	5	2	7
769, 771, 772	All other defined Diseases of Early Infancy	67	65	132	23	22	45
773, 776	Ill-defined Diseases Peculiar to Early Infancy and Immaturity, Unqualified	232	202	434	67	60	127
	GROUP SUB-TOTAL	499	444	943	166	153	319
	ILL-DEFINED DISEASES						
794	Senility without Mention of Psychosis	150	106	256	22	17	39
788.8	Pyrexia of Unknown Origin	4,143	3,086	7,229	154	140	294

APPENDIX III—(Contd.)
RETURN OF DISEASES—IN-PATIENTS—(Contd.)

Code	DISEASES	ADMISSION			DEATHS	
		Male	Female	Total	Male	Female
793 N.O.S. 780-795	Observations, without need for further medical care	582	590	1,172	17	10
	All other ill-defined Causes of Morbidity	455	220	675	21	9
	GROUP SUB-TOTAL	5,330	4,002	9,332	214	176
						390
N.800-N.804	INJURIES					
N.805-N.809	Fracture of Skull	433	115	548	54	9
N.810-N.829	Fracture of Spine and Trunk	293	99	392	20	6
N.830-N.839	Fracture of Limbs	2,512	991	3,503	35	15
N.840-N.848	Dislocation without Fracture	583	259	842	4	1
N.850-N.856	Sprains and Strains of Joints and Adjacent Muscle	732	304	1,036	—	—
N.860-N.869	Head Injury (excluding Fracture)	676	215	891	68	17
N.870-N.908	Internal Injury of Chest, Abdomen and Pelvis	300	118	418	32	8
N.910-N.929	Laceration and Open Wounds	3,890	1,455	5,345	10	5
	Superficial Injury, Contusion and Crushing with Intact Skin Surface	1,438	556	1,994	7	7
N.930-N.936	Effects of Foreign Body Entering through Orifice	236	144	380	1	1
N.940-N.949	Burns	1,006	824	1,830	103	95
N.960-N.979	Effects of Poisons	286	147	433	16	12
N.980-N.999	All other and Unspecified Effects of External Causes	387	233	620	16	4
	GROUP SUB-TOTAL	12,772	5,460	18,232	366	172
	TOTAL	79,272	67,468	146,740	5,115	4,033
	TOTAL IN-PATIENT DAYS			1,933,937		
						538
						9,148

APPENDIX IV
RETURN OF ACCIDENTS (COMBINED IN- AND OUT-PATIENTS)

Code	ACCIDENTS	Cases	Deaths
E810-E835	Motor vehicle accidents	15,415	129
E800-E802	Other transport accidents	4,170	30
E840-E866			
E870-E895			
E900-E904	Accidental poisoning	725	4
E912	Accidental falls	10,274	1
E916	Accident caused by machinery	1,478	25
E917-E918	Accident caused by fire and explosion of combustible material	3,905	106
E919	Accident caused by hot substance, corrosive liquid, steam and radiation	3,341	52
E929	Accident caused by firearm	55	—
E920	Accidental drowning and submersion	31	3
E923	Foreign body entering eye and adnexa	2,179	—
E927	Foreign body entering other orifice	3,127	4
E928	Accidents caused by bites and stings of venomous animals and insects	2,448	1
N.O.S.	Other accidents caused by animals	1,216	3
E910-E979	All other accidental causes	30,525	38
E980-E985	Homicide and injury purposely inflicted by other persons (not in war)	9,182	12
E990-E999	Injury resulting from operations of war	—	—
	TOTAL	88,071	408

