Annual medical report / Colony and Protectorate of Kenya.

COLONY AND PROTECTORATE OF KENYA

MEDICAL DEPARTMENT
ANNUAL REPORT
1951

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INTRODUCTION

The most notable event of the year was the opening of the Surgical Wing of the King George VI Hospital in February, 1951. The Opening Ceremony was performed by the Countess Mountbatten of Burma in the presence of His Excellency the Governor. At the ceremony, Lady Mountbatten announced that His Majesty the King had graciously consented to permit the Hospital to be named the King George VI Hospital. The buildings opened at this time included a surgical wing of 326 beds, the new operating theatre block and the X-ray department.

With the completion of the surgical block, the King George VI Hospital now has 661 beds and is a modern and up-to-date institution which compares favourably with any African hospital in the continent. It is provided with a staff of Specialists and European Nursing Sisters and will provide facilities not only for modern curative treatment but also for research. It will also enable African staff to be trained under ideal conditions.

The development of hospitals at the provincial centres, as described in the 1950 Report, has continued. The standard of these hospitals has been steadily raised. All provincial hospitals, with the exception of Nyeri, are now provided with a laboratory maintained by a European technician and an X-ray department with a European radiographer. A surgeon, available for full-time surgical duties, is also posted to each of the provincial hospitals.

At the district hospitals, the policy has been continued of improving the amenities of the hospital rather than increasing the number of beds. In particular, additions have been made to out-patient departments to provide better facilities for out-patient treatment and for special clinics and, in certain hospitals, water-borne sanitation has been installed.

Wherever possible, the posting of a second Medical Officer or an Assistant Surgeon has been made to district hospitals to enable Medical Officers to be relieved to some extent of the routine duties of the hospital and to permit as much time as possible to be spent in the district on surveys, public health and preventive work, and to supervise, in co-operation with the Agricultural, Veterinary and Education Departments, the programmes laid down by the provincial and district teams.

The policy has been continued of improving facilities available at the dispensaries and to replace these by Locational Health Centres. The first two new Locational Health Centres were opened during the year at Githunguri in the Central Province and Kwale at the Coast, and others are being built. The object of the Locational Health Centres is to provide better curative services and, in addition, to provide domiciliary and preventive services generally. Domiciliary maternity services are steadily increasing in popularity and, in certain areas, the African midwife is paid a retaining fee by the African District Council or local authority and charges an agreed fee for ante-natal supervision and attendance at the confinement.

An innovation which was introduced during the year was the levying of charges for maternity services. In the few maternity wards maintained by Government, a charge of Sh. 15 per confinement was instituted and, in the maternity wards which are maintained by the African District Councils, charges are now generally made, the average being Sh. 10 for a confinement. The introduction of these charges has made little difference to the numbers attending.

It has been found in most districts that the organization of special clinics at dispensaries, which can be supervised at regular intervals by the Medical Officer or Nursing Sister has greatly facilitated the provision of better treatment in the rural areas. Ante-natal and child welfare clinics and clinics for the treatment of leprosy, tuberculosis and venereal disease are widely organized throughout the districts.

The Mission hospitals continue to make a useful contribution in the African areas by providing much-needed hospital beds. Most of the Mission hospitals having a qualified doctor in charge receive Government grants-in-aid.

In the settled areas, the provisions of medical and health services for Africans, below the district hospital level, is less highly developed than in the African District Council areas. This is partly because local authorities at present lack funds for the development of these services and partly because the organization of these local authorities outside the municipal areas is not yet sufficiently integrated to allow them to take on this responsibility. It is hoped

that when the County Councils Bill becomes law, local authorities will find it possible to develop health services which are so urgently needed at the present time for Africans. It is perhaps unfortunate that, in the more highly developed African areas where the people are progressive and politically conscious, the provision of medical and health services has far outstripped those available in the more backward African areas, where the people have developed a less highly organized form of society and are politically less vocal. Plans have been formed to provide more adequate medical services in these areas if the necessary finance can be found.

STAFF

With the lengthening of the scale of salaries for Medical Officers which was introduced in 1950 and the provision of a Special Grade Medical Officer's scale, whereby Medical Officers holding higher qualifications are given additional increments, the staff position has greatly improved. There is now no shortage of Medical Officers as recruits for the Medical Service in Kenya, but there is an inevitable delay between an appointment becoming vacant and a new Medical Officer arriving in the country to take up the appointment. This is due partly to the time taken to complete the formalities of recruitment and to obtain a passage, but it is also due to the requirement which is now generally made that Medical Officers should take the course for the Diploma of Tropical Medicine and Health before they come out.

A feature of the new Medical Officers who have arrived in the country during the year has been the relatively large number who are in possession of higher qualifications in medicine and surgery consequent on the introduction of the new Special Grade category. It is too early to express an opinion as to the success of this innovation which depends on their ability to undertake general duties willingly, as there is an insufficient number of specialists posts to allow Medical Officers so qualified to practise their specialities on a full-time basis.

Twenty-three Nursing Sisters were posted to Kenya on first appointment but resignations, mainly due to marriage, were numerous and resulted in frequent changes in personnel and postings which militated against the building up of an experienced and efficient staff. There were a total of 6 Matrons, 101 Nursing Sisters and 5 Health Sisters doing duty in the Department during the year. Of these, 25 Nursing Sisters were employed on practical ward and departmental instruction of the male and female nurses in training in the wards of King George VI Hospital, 3 Nursing Sisters gave practical instruction to the trainees at Kakamega, the Matron and 2 Sisters to those at Mombasa and 2 Nursing Sisters to those at Fort Hall. Among these, one Nursing Sister from each hospital was responsible for theoretical training.

There was a marked improvement in the recruitment of European Health Inspectors and at the end of the year, for the first time, all vacancies had been filled. This has allowed public health work to be commenced in a number of districts where it had previously been conducted on a rather haphazard basis.

The Biochemist resigned in the middle of the year and, by the end of the year, the appointment had not been filled.

In all other technical grades, with the exception of pharmacists, the staff position was satisfactory.

FINANCE

The total authorized Recurrent Expenditure for the Medical Department for 1951 was £857,632 and the Non-recurrent £21,975, making a total of £879,607. Owing to the rise in the prices of medical stores and the introduction of cost of living allowances, supplementary provision was made to the sum of £141,634, making a total authorized expenditure for the year of £1,021,241.

In addition to funds provided by the Central Government, there was a considerable expenditure by African District Councils on medical and health services which are administered by the Medical Department. The total sum voted for this purpose by the African District Councils was £89,808. The total expenditure by Municipalities on these services was in the region of £125,271: 50 per cent of this sum was contributed by the Central Government. In addition, considerable sums are spent by Missions on medical services.

EXTRA DEPARTMENTAL ACTIVITIES

Medical Practitioners and Dentists Board

By the end of the year under review, there were 766 names registered under the Medical Practitioners and Dentists Ordinance. All the medical practitioners and dentists on the register were circularized in an attempt to bring the register up to date by removing the names of those who had died or left the Colony permanently. Fifty-nine Medical Practitioners and three Dentists were registered in 1951; of these, fifteen Medical Practitioners were employed by the Kenya Government and the remainder entered private practice, or took up appointments with the Missions, the High Commission or Military Authorities. Of the new Medical Practitioners, eighteen gained their qualifications in India. Seven licences to practise in limited areas were granted and three meetings of the Board were held during the year.

Pharmacy and Poisons Board

Five meetings of the Board were held. Action was taken against the proprietors of medical preparations for which extravagant claims had been made, and the sale of three such preparations was prohibited. Amendments to the Ordinance were initiated to cover antibiotics and similar new drugs, and an Ordinance Amendment Sub-committee was set up for this purpose. This Committee later undertook the preparation of the draft of a new Pharmacy and Poisons Ordinance.

Nurses and Midwives Council

There were seven meetings of the Nurses and Midwives Council. A registrar was appointed and amendments were made to the Nurses and Midwives Ordinance.

Nurses and Midwives (Training School) Regulations were prepared during the year as were general regulations covering registration. This proved to be a complex subject and, despite all efforts, it was not found possible to start registration during 1951. It is hoped that this will be achieved early in 1952 when the first examinations under the auspices of the Council will also be held. The syllabus of study for these examinations was prepared and circulated.

Joint Advisory Council of St. John and Red Cross

Following discussions in the autumn of 1950, the Joint Advisory Council for the Kenya Branch of the St. John Ambulance Association and the Kenya Red Cross Society was set up early in 1951. Model terms of reference were laid down and representatives from each organization were elected. Four meetings, under the chairmanship of the Director of Medical Services, were held during the year. Numerous problems affecting both St. John and Red Cross were discussed and settled. These meetings proved a very useful forum for the exchange of ideas on organization and policy and for the furtherance of co-operation. Steps were taken to set up a Joint War Executive on the lines laid down by the British Red Cross Society in London.

VISITORS

The steadily increasing facilities for air travel has enabled numerous medical visitors, with interests embracing a wide field of medicine and public health, to visit Kenya.

In October, Dr. Wilson Rae, Deputy Chief Medical Officer of the Colonial Office, travelled through the Colony from the Uganda border to the Coast, gaining an insight into the public health problems in rural areas and visiting hospitals and other medical institutions.

Three consultants visited the country under the auspices of the Nuffield Foundation—

Professor T. H. Davey (Public Health) spent eleven days in the Colony,

Dr. G. L. M. McElligott (Venereal Diseases)—nine days, and

Professor A. A. Moncrieff (Child Health)—two days.

The limited time allocated to these consultants made it extremely difficult to arrange comprehensive programmes and resulted in much disappointment to officers away from the larger towns.

Sir Heneage Ogilvie, as a visitor of the Royal College of Surgeons of England, inspected the King George VI Hospital, Nairobi, for the purposes of assessing its suitability for recognition of intern posts by the Royal College. During his visit, he addressed the East African Association of Surgeons.

Other medical visitors were—

Dr. H. P. Himsworth, Chairman of the Colonial Medical Research Council;

Sir Hugh Cairns, Nuffield Professor of Surgery, Radcliffe Infirmary, Oxford, who was accompanied by Dr. the Hon. Honor Smith, Dr. R. L. Vollum and Dr. John Crofton;

Sir Neil Hamilton Fairley;

Professor G. Rizzotti, Director of the Ethiopian Medical Research Institute;

Major-General A. J. Beveridge, Director of Medical Services, Middle East Command;

Dr. Douglas Guthrie, Lecturer in the History of Medicine at Edinburgh University;

Dr. R. F. Tredre, Deputy Director of the Ross Institute;

Dr. W. E. S. Merrett, Principal of the Medical School, Nigeria.

Non-medical visitors who were shown various Medical Institutions were—

The Lord Chancellor and Lady Jowett;

The Rt. Hon. James Griffiths, Secretary of State for the Colonies;

His Excellency the Governor-General of the Belgian Congo;

His Excellency the Governor-General of Mozambique;

Countess Mountbatten of Burma, Superintendent-in-Chief of the St. John Ambulance Brigade;

Lady Limerick, Vice-Chairman of the British Red Cross Society;

Mr. P. Rogers, Head of the East African Section of the Colonial Office;

Mr. H. S. M. Hoare, Secretary of British Empire Leprosy Relief Association;

Mr. J. A. Reid, Entomologist, Malay.

COMMUNICABLE DISEASES

During the year, we were fortunate in that there were no cases which had their origin in the country, of any of the five major convention diseases, namely, smallpox, plague, yellow fever, epidemic typhus and cholera.

Malaria

The year 1951 was unusual in that, over most of the country, the short October rains were unduly heavy and unusually prolonged. This caused outbreaks of seasonal malaria in many parts of the country in December which were considerably in excess of the normal figures. The malaria incidence following the long rains in April, which usually reaches the maximum in June or July, was not in excess of the normal. Malaria control was continued in the larger towns and there was very little transmission in Nairobi, but in Mombasa there were 2,033 cases of malaria which were believed to have been contracted on the island. The fact that malaria transmission is still occurring at Mombasa necessitates an intensification of control measures and it is proposed during the coming year to increase the area on the mainland which is under control, as there is little doubt that such transmission as occurs on the island is due to infected mosquitoes infiltrating from the mainland. During the epidemics which occurred, arrangements were made for the wide-scale distribution of therapeutic drugs, mepacrine being chosen for use amongst the native population in rural areas.

Tuberculosis

The Royal Air Force Hospital, which was acquired at the end of 1950 for use as a Tuberculosis Hospital, was opened at the beginning of the year and renamed Port Reitz Chest Hospital. This is the first special hospital for tuberculosis to be opened in Kenya and it is intended that it shall serve the needs primarily of the Coast Province, though a few special patients from up-country are admitted. One hundred and ten beds were available for treatment. During the course of the year, 209 patients were admitted to this hospital. Selection is carefully made and patients are only admitted in the early stages of the disease when there is a reasonable prospect of cure.

Various methods of chemotherapy and collapse therapy were tried out, either separately or in combination, with a view to determining the best method of treating tuberculosis of the lung, having regard to local conditions. Owing to the shortage of special beds for tuberculosis, it is important to determine the minimum length of stay in hospital which is adequate and the optimum follow-up treatment which can be carried out in district hospitals and rural dispensaries. In order that treatment under these conditions may be effective, it is

necessary to evolve a simple form of collapse therapy which can be continued in the rural areas, if possible, by subordinate staff, and which would dispense as far as possible with the need for radiography during the follow-up period. It is even more important to discover a chemotherapeutic agent which is cheap and sufficiently non-toxic to be given to cases who have been discharged from hospital for use in their own homes under the minimum of supervision. Bearing these considerations in mind, the hospital is concentrating on the induction of pneumoperitoneum rather than pneumothorax and it is considered that in some 85 per cent of the cases where collapse therapy is indicated, pneumoperitoneum can be induced with reasonable prospects of success. This operation was as a rule combined with a phrenic nerve resection.

An extensive trial was made with Thiacetazone and it was concluded that, in combination with collapse therapy, it has a definite beneficial action in African pulmonary tuberculosis. It is now considered to be sufficiently safe to allow of its being used at home by patients who had been discharged from hospital. It is not, however, considered advisable to recommend its use for out-patient treatment in patients who have not had the advantage of a preliminary period of hospitalization.

A controlled experiment was made with D.A.D.P.S. (diapsone). The results of this experiment have been analysed and it has been concluded that the drug is of little value in the type of pulmonary tuberculosis on which it has been tried.

Streptomycin and P.A.S. were used in small quantities during the year on pulmonary tuberculosis at Port Reitz Chest Hospital and in tuberculosis of bones and joints at the Orthopædic Centre, Nairobi. It was found that this combined treatment was the quickest and most certain way of dealing with the acute type of disease so often seen in Africans and the results of treatment in these cases have been most encouraging.

Experimental work with B.C.G. was continued during the year with encouraging results. It was found that in a high proportion of cases the vaccine is successful in converting the negative Mantoux reactor but the length of time during which this conversion remains stable has not yet been determined with accuracy.

In many of the country districts, tuberculosis clinics are now held by the Medical Officer at the district hospital and district dispensaries. Unfortunately, most of the cases seen cannot be admitted to hospital owing to shortage of beds and all that is being effected is to persuade the patients voluntarily to undertake some degree of domiciliary isolation and to keep in touch with the Medical Officer so that the course of the disease and the prognosis may be determined. It is at these clinics that the lack of a safe and cheap chemotherapeutic agent is most acutely felt.

Leprosy

During the year, a beginning was made in establishing the new leper settlement at Itesio in the Nyanza Province. By the kindness of the British Empire Leprosy Relief Association, we have been able to obtain the services of an experienced lay worker who has started to develop the site.

Treatment was continued throughout the year with D.A.D.P.S. and the results as reported in previous annual reports have been most encouraging. Owing to the lack of special leprosarium accommodation for the majority of patients, treatment has been widely given to out-patients attending clinics at Government hospitals, African District Council dispensaries and Mission hospitals. Generally speaking, the treatment has been remarkably free from toxic effects and good results have been obtained amongst out-patients so treated. It has been found that, by organizing the treatment of leprosy patients at special clinics on special days, the work of treatment and examination has been greatly facilitated.

A small trial has been carried out at Kakamega in the treatment of leprosy by means of Thiacetazone and another trial has been instituted using soluble sulphones administered by injections. It is as yet too early to evaluate the results of these forms of treatment.

Schistosomiasis

No large-scale measures for the control of schistosomiasis have been initiated during the year but a good deal of work has been done both at the Coast and at Kisumu in surveying the areas known to be infected. Various control measures have been tried out on a small scale, notably the treatment of streams at the Coast with a fish poison and an attempt at biological control of dams in the Nyanza Province by the use of predatory fish. The use of the "Miridiascope" under field conditions has greatly facilitated the survey of urinary schistosomiasis in human subjects.

Venereal Disease

The control of venereal disease by specific treatment has now become almost entirely an out-patient treatment with one injection of procaine penicillin, except in complicated cases. The results of this method of treatment, where it has been possible to follow it up, have been very successful in rendering the patient non-infective. The treatment of venereal disease is now largely conducted through special clinics at hospitals and dispensaries. The cost of the drug is shared between Government and Local Authorities.

Brucellosis

This incapacitating disease, which requires prolonged treatment in hospital, continues to be an important cause of morbidity, particularly in the Meru district. One hundred and fifty-three cases in all were treated in Government hospitals.

Relapsing Fever

Three hundred and sixteeen cases were reported and treated. The large-scale treatment of native huts which was undertaken in the Meru district in 1950 had to be discontinued as the Insect-borne Diseases Division was heavily engaged on other work. The problem has not however been lost sight of and experimental work is continuing to discover the best formulation for the application of gammexane in native huts. The control of relapsing fever by chemical insecticides is probably only a palliative and the only radical way of control is the improvement of African housing. Considerable progress is being made in this direction in a number of districts, but is of necessity slow and must be measured over a period of years.

Cerebro-spinal Meningitis

Cases of cerebro-spinal meningitis were widely distributed over the whole country, a total of 350 having been treated in hospital during the year. The disease is endemic and did not reach epidemic proportions in any particular place during the year under review.

Anthrax

Anthrax continues to be an important disease in certain parts of the Colony, such as Kerugoya, Nyeri and Kericho. At Nyeri, a by-law was passed by the African District Council making it an offence to eat meat of an animal which had died. This measure has had a considerable degree of success in reducing the incidence of the disease.

Typhoid

Typhoid would appear, from an examination of the statistical evidence available, to have steadily increased over the last decade. Six hundred and twenty-four cases were reported during the year. The disease occurred sporadically and not as a rule in epidemic form. Treatment by means of chloramphericol proved to be most effective.

Kala-azar

A few cases continue to be reported from the two foci which are known to exist in the Mkamba District and in the Northern Frontier District. No cases were reported from other parts of the country.

HYGIENE AND SANITATION

General Measures of Sanitation

The European Health Inspectorate was brought to full strength during the year and, in consequence, new stations were opened in the Coast Province.

The Health Staff was increased by the qualification of African Health Inspectors from the Government School of Hygiene, but at present the backbone of the African staff in the field consists of the Health Workers and Health Assistants, most of whom have been locally trained.

African Reserves

In the African Reserves, improvements in every sphere have been observed and much has been accomplished. The Health Staff has worked with the African community from its basic level, the African homestead, which is the focal point in the prevention of the dissemination of infectious diseases.

The old type mushroom hut with its low walls, slovenly thatched roof almost touching the ground, no light or ventilation, sheep, goats and hens huddled together, causing unbelievably foul and insanitary conditions, is being rapidly replaced. Huts are now built in traditional materials with high walls, properly finished thatched roofs well above head level, proper light and ventilation. A good standard of latrine, now known to be well used, has been constructed, and compounds are maintained in a much healthier state. Persuasive methods have been given an extra urge by the Africans themselves who, through their own District Councils, have made by-laws to deal with health matters.

Composting of village waste, including animal manure, is being encouraged to prevent fly-breeding, and to improve the land owned by the Africans. The value of this is reflected in the great difference observed in growing crops. Improved grain stores have aided control measures against rats.

A number of protected springs have been constructed, and hand-drilled rigged boreholes dug, bringing water supplies to Africans who, in the past, have had to walk many miles to draw water for domestic purposes and for their animals.

Striking progress has been made in African markets generally. Assistance was given in the layout, re-siting and building of shops in permanent materials. Much of this building was done by African artisans trained at Kenya Technical and Trade Schools.

The formation of Health Centres has proved a great step in the correlation of preventive and curative services to the rural communities. These Health Centres are built at divisional or locational centres where departmental and tribunal activities are carried on.

Demonstrations, barazas, showing of films, distribution of health literature and lectures have all helped in the propaganda of public health, but this work is limited by the lack of funds.

It has been generally noticed that the African womenfolk are becoming increasingly home conscious: this will pave the way for the work of the Health Visitor.

Townships

The responsibility of certain townships has now been increased by the introduction of township accounts. This has stimulated the interest of local township committees in their own affairs, and the consequent improvement in local essential services. Such improvements include underground sewage and sullage schemes, anti-malaria measures, township cleansing and disposal methods.

Close liaison with officers of the Administration and other departments has effected improvements in all spheres of local government.

School Hygiene

The School Medical Service has been extended to include the whole Colony. Termly medical inspections by the School Sister at European day schools in Nairobi have been instituted. About 1,000 children of each race have been examined during the year. Surveys of fluorosis in all races and helminths in the African have been carried out.

Labour Conditions

The closest co-operation continued to be maintained during the year between the Labour and Medical Departments.

On the administrative side, one Medical Officer was seconded as Medical Adviser to the Labour Department. This officer worked directly under the control of the Labour Commissioner and was engaged mainly on investigations into the incidence of pneumoconiosis amongst labour in the Colony, and the effectiveness of B.C.G. inoculations in the conversion of the Mantoux reaction as a possible means of protection against tuberculosis infection. The brunt of routine matters affecting the environmental health of labour employed in the rural areas, on estates, factories, etc., was borne by the local officers of the Labour Department, working in close liaison with the District Medical Officers of Health, and a great deal of highly effective work was carried out by them, particularly in the sphere of improvements in housing, diet, water supplies and living conditions generally. Coffee and sisal estates especially have spent thousands of pounds on providing good permanent housing and amenities for their African labour.

Housing and Town Planning

Plans for the development of townships, trading centres, and urban areas, prepared by the Town Planning Adviser, were commented upon. Representation for larger residential plots in townships were made in order that drainage effluent could be disposed of within the curtilages of the plots. Essential services cannot be economical where haphazard development prevails the need for planned development in municipalities and townships has been emphasized.

At Thika, plots at reasonable prices have been provided and Africans are erecting their own houses of permanent material in accordance with the recommendations of the Vasey Housing Report.

Excellent schemes for dealing with sewage and sullage drainage in townships and public institutions were evolved by the Drainage Engineer, Public Works Department, and all plans of Government schemes, involving large-scale drainage works, were discussed and formulated before such projects were commenced.

Food in Relation to Health and Disease

A record rainfall produced good crops in some districts but proved harmful in others; however, food supplies proved adequate.

Routine inspection of meat and other foods was continued throughout all urban districts. In African areas, this was only practicable when trained staff was available.

Outbreaks of food poisoning were vigorously investigated and no extension of these occurred. The danger of food poisoning was found to be more in the preparation of food in kitchens and factories than in the buying of tinned foods from retail shops.

The days of improvisation of methods and equipment for foods preparation are over. The old out-of-date factories and hotel kitchens are gradually being replaced by establishments equipped in accordance with modern practice. Producers are becoming more interested in the factories where secondary foodstuffs are prepared: the Pig Industry particularly has allocated a large sum of money to build a new factory equipped with the most up-to-date machinery to conform with the requirements of Great Britain in the export of their products. If pre-packed foodstuffs are to be exported from Kenya, vigilant inspection and examination of foodstuffs will be necessary, and an ever-increasing qualified service will be required.

Measures Taken to Spread the Knowledge of Hygiene and Sanitation

Public Health Staff, and especially Health Inspectors and Health Assistants, working in close contact with the people in schools, markets and villages, have availed themselves of every opportunity of explaining the importance of improved environmental hygiene. Practical demonstrations in the protection of water supplies and the construction of better housing, latrines and improved grain stores, were extremely useful in this respect.

Emphasis has been placed on the training of African personnel for health centres and for field work.

Urbanized Europeans, Asians and Africans receive continual instructions and advice from local Medical Officers of Health and Health Staff.

Infant Welfare and other clinics, held in the municipalities and at health centres in the African areas, have made it possible to combine the teaching of hygiene with curative medicine, and the improved standards of education and the spread of literacy have helped to increase the appreciation of posters, pamphlets, lectures, films and other methods of health propaganda.

Port Health and Aerodromes

Mombasa is the principal port of entry by sea for all travellers to Kenya and Uganda, and handles a large tonnage of shipping from all parts of the world, in particular from the United Kingdom, India and South Africa. This, in addition to a considerable volume of coastal shipping from ports up and down the African coast and a large number of dhows from Arabia and the Middle East, makes the task of the Port Health Officer at Mombasa a most onerous one. His aim is to prevent the introduction of any of the major infectious diseases with as little inconvenience and delay to shipping as possible. To facilitate his

work, a new departure in administration at Mombasa was instituted at the end of 1950. Previously, the Medical Officer of Health, Mombasa, in addition to his many duties in connexion with the large and ever-growing municipality, had the unenviable task of being responsible for the whole of the port health work. In December, 1950, he was relieved of these duties and they became the responsibility of the Government Medical Officer in Charge, Infectious Diseases Hospital, Mombasa. Since that date, the latter has held the appointment of Port Health Officer, a step which has certainly divided more evenly the responsibilities of the health work in Mombasa.

India and the Middle East countries being endemic plague, smallpox and typhus areas, particular care is necessary in the inspection of passengers coming from these countries. The effectiveness of the control exercised by the Port Health Authority at Mombasa is borne out by the fact that, on three separate occasions, cases of smallpox were introduced to the country on ships from India and, on two of these occasions, were not diagnosed on board ship but were isolated as suspects in hospital by the Port Health Officer at Mombasa. Not a single secondary case resulted. Numerous cases of other infectious diseases were similarly introduced by ship but all were successfully dealt with and controlled at the port of entry.

The disposal of port refuse, which had for long given rise to a public health nuisance, has at last been remedied by a proper system of collection and disposal at the municipal refuse dump.

Eastleigh Airport, Nairobi, is the only true "International" airport in Kenya. Here there is available the full health organization for a "sanitary airport" as required under the International Sanitary Regulations. At Kisumu and Mombasa airports also, facilities are available for the disinsectisation of all aircraft landing from, or taking off for, other countries.

Toxic Insecticides

During 1950 and 1951, Government's attention was focussed on the potential dangers to the public caused by the increasingly general usage of the new insecticides, particularly D.D.T. and Gammaxane, as adulterants for the purpose of preventing the ravages of grain weevils in stored grain, flour, etc. As a result, a small and active committee, under the Chairmanship of the Senior Entomologist of the Scott Agricultural Laboratories, was formed to advise the Member for Agriculture on such matters. Following recommendations from this Committee, it was decided to prohibit altogether the use of D.D.T. as an adulterant and to permit only Gammexane and Pyrethrum, within certain specified dilutions, to be used for this purpose. In order to facilitate the recognition of the Gammexane permitted for mixing with stored grain and to minimize the likelihood of mistakes, it was arranged that containers of the permitted strength of Gammexane Powder would be clearly marked with a blue Maltese Cross.

Subsequently, the attention of the Department was drawn to the potential dangers of still newer and far more toxic insecticides which will almost certainly come into widespread general usage for the spraying of agricultural crops to eradicate certain undesirable weeds. Amongst these are dinitro-ortho-cresol and the organic phosphorous compounds. All are now in use in the United States of America and in the United Kingdom where several fatalities have already been reported. When it is realized that these compounds were originally developed as weapons of chemical warfare, it will be appreciated that measures to control their usage are most necessary, particularly in a vast agricultural country such as this where the general public and agricultural workers have little knowledge of the dangers entailed. Measures are now being instituted to control the use of these compounds.

TRAINING

The year 1951 was notable as the first year that the Medical Department has undertaken the training of educated African girls as Nurses on any considerable scale. It also saw a considerable expansion of the decentralization of the training for Grade II Assistant Nurses and Midwives at the provincial hospitals.

Senior Cadres

(*a*) *Hospital Assistants.*—As noted in the 1950 Annual Report, the training of hospital assistants has been expanded and 31 men commenced their training as hospital assistants (Grade I Assistant Nurse). The total of all the years under training now is 147. The number qualifying, however, was very small and only seven passed the qualifying examination during the year. As a result of the expansion of the Medical Training School, the number which it is expected will qualify in future years, including 1953, will be very much greater.

(*b*) *Nurses.*—Fourteen girls entered the Medical Training School in Nairobi at the beginning of the year. Six of these are taking the course for Assistant Nurse Grade I and eight for Assistant Nurse Grade II. They appear to be most promising material and seem to take to nursing routine and discipline more easily than the men. A special compound at the Medical Training School has been set aside for their living quarters and a European lady supervisor lives in the same compound and looks after their welfare.

(*c*) *African Health Inspectors.*—The training of health inspectors was conducted throughout the year at Jeanes School under the supervision of two European Health Inspectors. A total of 23 students were under instruction. Of the ten students who sat the external examination for the Royal Sanitary Institute, seven were successful and three failed.

(*d*) *Laboratory Assistants.*—Nine first-year learners were taken for training during the year. In addition, eight students were under training from the previous year's class. A number of laboratory assistants was brought in from out-stations for refresher courses of six months' duration.

(*e*) *Compounders.*—The policy has now been introduced of accepting students for training on alternate years only, as the teaching by the European Pharmacist is thus greatly facilitated. Sixteen candidates were recruited in 1951 and it is not intended to recruit a further class of learners in 1952.

(*f*) *Orthopædic Assistants.*—No students were recruited during the year though a class of 17 was recruited in 1950. These men, when qualified, carry out duties closely similar to those of physiotherapists.

(*g*) *Assistant Radiographers.*—A course for assistant radiographers at Kisumu commenced at the beginning of the year and six candidates, who had reached Form IV Standard, were engaged.

JUNIOR CADRES

(*a*) *Dressers and Nurses.*—In February, 1951, the first Training School outside Nairobi for assistant nurses Grade II was started at Fort Hall with 12 candidates, who were selected from the staff of the hospitals in the Province. In February also, Kakamega Hospital was ready to commence a Grade II Training School in accordance with the Nursing Council syllabus. At Mombasa, a similar Training School was started at the Native Civil Hospital in June, 1951, so that by the end of the year, three of the most important provinces in the country were provided with Training Schools for dressers. It is hoped that the fourth of the main provinces in the country, namely the Rift Valley Province, will be provided with a Training School in 1952.

(*b*) *Health Assistants.*—The training of health assistants was continued throughout the year at Siriba in the Nyanza Province but, as yet, no candidates have completed their course or taken the final examination. A similar Training School for health assistants was started at the Jeanes School near Nairobi to serve the needs of the Central Province.

(*c*) *Midwives.*—The first Training School for midwives to be run by the Medical Department was opened in Kisumu during the year. Hitherto, the training of midwives has been confined to a few Missions and to the Maternity Hospitals which are maintained by the Municipalities in Nairobi and Mombasa.

(*d*) *Health Visitors.*—The training of female health visitors in the Nyanza Province was continued, but the School had to be removed from Vihiga to Kisumu. It was not found possible to open a second school for health visitors during the year.

BUILDING PROGRAMME

Approximately £137,500 was spent on the Colony's Medical Department development programme in 1951, which represents a decrease of some £17,000 on the previous year's figure. The fact that the financial ceiling authorized was not reached is largely due to the inability of the building organization to cope with demands made upon it. Nevertheless, the development plan is now well into its stride, much useful work and development has been accomplished, and its effects are becoming increasingly noticeable throughout the country. In spite of this, however, a great deal yet remains to be achieved before the development plan is due to terminate at the end of 1955. Some £1¼-million remains to be spent, and to achieve this, it will be necessary to set, and to adhere to, a vastly increased financial ceiling in the intervening years.

The first quarter of the year was marked by an important milestone in the annals of the Medical Department, that of the completion of the construction of the operating theatres and X-ray wing at the King George VI Hospital, Nairobi. Another important project completed during the first quarter of the year was the taking over and opening of the ex-Royal Air Force Hospital at Port Reitz, Mombasa, as a Tuberculosis and Chest Hospital for all races. Extensions to Mathari Mental Hospital afforded much-needed relief to pressure on Asian and African beds.

Particular attention has been given to the provision of additional quarters for African staff. Improvements have been made at Eldoret, Nakuru, Thika, Fort Hall, Lokitaung, Machakos, Kisii, and at the Medical Research Laboratory, Nairobi. The European Nursing Sisters' quarters at the King George VI Hospital, Nairobi, and housing for African Nurses and Trainee Midwives at Kisumu have been completed.

Health Centre projects have been given priority and a Main Health Centre at Kisii in South Nyanza, and Locational Health Centres at Githunguri in the Central Province, and at Kwale in the Coast Province, have been opened.

In addition, work was begun on a number of other projects including, amongst the most important, preliminary work on the development of a large leprosarium at Itesio in Nyanza Province and new hospitals at Malindi and Mombasa in the Coast Province.

HOSPITAL SERVICES

The administration of the majority of European Hospitals has been taken over by the local Hospital Boards as a result of the passage of the Hospital Treatment Relief (European) Ordinance. At the end of the year only the European Hospitals at Nairobi and Kisumu were staffed and administered by the Medical Department.

Asian hospitals and wards, with the exception of private nursing homes in Nairobi and Mombasa, continue to be the responsibility of Government.

Provincial, district and several subsidiary African hospitals remain under the control of the Medical Department who are responsible for all expenditure.

The following is a list of all hospitals under Government control, showing the number of beds at each:—

AFRICAN HOSPITALS

Base Hospital:

King George VI Hospital	661

Provincial Hospitals:

Mombasa	178
Nakuru	262
Kisumu	202
Nyeri	103

District Hospitals:

Kilifi	60
Msambweni	48
Wesu (Teita)	45
Lamu	20
Kipini	20
Kitale	97
Eldoret	73
Kapsabet (Nandi)	67
Tambach	24
Kabarnet	30
Kapenguria	9
Lodwar	32

District Hospitals—(Contd.)

Maralal	22
Thomson's Falls	10
Kakamega	253
Kisii	162
Kericho	96
Fort Hall	150
Kiambu	150
Meru	125
Kerugoya (Embu)	106
Machakos	152
Kitui	93
Thika	77
Nanyuki	24
Rumuruti	17
Narok	102
Kajiado	76
Wajir	48
Subsidiary Hospitals:	
Voi	40
Taveta	44
Malindi	22
Molo	34
Londiani	44
Bungoma	100
Kapkatet	42
Embu	48
Muriranjas	55
Makindu	33
Karatina	12
Tigoni	22
Kangundo	26
Moyale	48
Marsabit	21
Mandera	40
Garissa	30
Lokitaung	12
Isiolo	12
Dispensaries:	
Eldama Ravine	6
Naivasha	6
Gilgil	6
Chemagel	3
Special Hospitals:	
European Hospital, Nairobi	73
European Hospital, Kisumu	15
Prison Hospital, Nairobi	76
Prison Hospital, Kisumu	12
Infectious Diseases Hospital, Nairobi	200
Infectious Diseases Hospital, Mombasa	108
Mathari Mental Hospital, Nairobi	575
Leper Settlement, Kakamega	130
Leper Settlement, Msambweni	60
Port Reitz Chest Hospital, Mombasa	112
Orthopædic Centre, Nairobi	120
Asian Hospital, Nairobi	42
Prison Hospital, Mombasa	5
Total	5,828

In the African areas, bedded dispensaries are maintained by the African District Councils; the total number of these beds, including those for maternity cases, is 175.

MISSION HOSPITALS

Details of Mission Hospitals are as follows:—

Mission	Place or District	No. of Beds	Annual Government Grant
			£
Church of Scotland Mission	Kikuyu	90	2,000
Church of Scotland Mission	Chogoria	99	2,390
Church of Scotland Mission	Tumutumu	115	2,265
Church Missionary Society	Kaloleni	86	1,820
Church Missionary Society	Maseno	89	1,760
Friends Africa Mission	Kaimosi	90	1,875
Seventh Day Adventists	Kendu	89	2,090
Methodist Missionary Society ..	Meru	72	1,700
Africa Inland Mission	Elgeyo	36	1,100

SPECIALIST SERVICES

ESTABLISHED POSTS

Senior Specialist (Surgical),
Specialist (Opthalmic),
Specialist (Medical),
Specialist (Surgical),
Specialist (Psychiatrist),
Specialist (Anæsthetist),
Specialist (Parasitologist).

No additional Specialist posts were created in 1951.

Visits by Specialists were made as frequently as possible to provincial and district hospitals. These visits were welcomed by Medical Officers who appreciated the opportunity for discussion of problems, and the advice and guidance which was given.

MEDICAL STORES

During the year an improvement in supply from overseas was noticeable, supplies coming forward more readily, particularly items of general equipment. Prices, however, were still on the increase and showed no signs of stabilizing.

The introduction of the Schedules of stock items facilitated a more exact planning of the year's requirements in the placing of overseas indents and, as the system becomes more effective, the stock position should become balanced.

A system of staggered half-yearly indents by stations was introduced during the year and proved most successful; not only did this allow a more equitable distribution of stores, but it enabled a rapid despatch of indents from Medical Stores. When stores were not available at time of despatch, they were noted on a "To Follow" list and were forwarded when received from overseas. This obviated the ceaseless requests of the past for items not immediately available. A better setting out of station indents according to the Schedules was effected and a continuance of this will greatly enable more rapid ledger entry and quick turn-round of indents.

With the expansion of the Medical Department, stores handling is increasing. During the year, 2,957 individual indents were fulfilled and 1,935 receipt vouchers made.

An important adjunct of Medical Stores is the Sterile Preparation Unit, situated at the King George VI Hospital. This unit, under the control of the Pharmacist at the Hospital Dispensary, prepared sterile intravenous and intramuscular preparations for Colony-wide distribution. During the year 27,523 single packs of all items were prepared.

The total expenditure by the Medical Stores was £191,270.

The use of antibiotics is increasing each year and in 1951 the approximate expenditure on the various preparations was £24,000. Any great increase in their use in future would have to be offset by a corresponding reduction in the use of less important items.

MATHARI MENTAL HOSPITAL

Year	European			Asian			African			Total
	M.	F.	Total	M.	F.	Total	M.	F.	Total	
Admissions:										
1950 ..	20	29	49	16	10	26	203	123	326	401
1951 ..	28	22	50	25	17	42	272	137	410	502
Under Treatment:										
1950 ..	27	43	70	41	21	62	480	254	734	866
1951 ..	33	28	61	48	28	76	564	272	836	973
Discharges:										
1950 ..	20	34	54	17	10	27	144	92	236	317
1951 ..	23	23	46	19	15	34	205	93	298	378
Deaths:										
1950 ..	2	3	5	1	0	1	45	27	72	78
1951 ..	1	0	1	3	1	4	40	14	54	59

Accommodation

	Male Beds	Female Beds	Increase over Previous Year	
			Male Beds	Female Beds
European	6	13	—	—
Asian..	28	23	10	13
African	370	180	70	62
Total	404	216	80	75

Additional accommodation for Africans relieved congestion and allowed a reasonable standard of isolation and segregation. For the first time in the history of the hospital, it became possible to admit all mental cases in Nairobi direct to hospital, thus obviating the necessary for admission to the Prison for observation. However, despite the increased accommodation on the African side, all male beds were occupied at the end of the year and there were only 13 vacant beds on the female side.

General Conduct of Patients

The need for restraint was eliminated entirely, as against four cases last year and 118 in 1949. The times that seclusion was resorted to were negligible. Injuries sustained by patients were less than half the number suffered in 1950 and they were all of a minor nature. About 20 per cent of all injuries were caused by bites; a further 20 per cent were sustained in fights.

Patients' Occupation, Recreation and Welfare

Patients capable of work were encouraged to undertake tasks suitable to their mental and physical condition; the working week was one of just over 30 hours. An average of 58 per cent of male patients and 55 per cent of females were usefully employed on maintenance work, i.e. grounds, roads, kitchen, laundry and ward work, and assisted with the excavations for foundations of new buildings and tree felling. Asian male patients remain unemployed and constitute, so far as occupations are concerned, a "black spot" in the hospital. Asian females, capable of sewing, etc., continued to form the majority of the sewing-room workers. Except for an occasional convalescent case engaged on clerical work, European patients were seldom employed. A few females did knitting and sewing of a private nature.

Therapeutics

Types of Mental Disorders from which patients suffered and for which they were treated:—

Manic Depression	255
Schizophrenia	289
Paranoia	6
Psychopathic	17
Neurosyphilis	14

Senile Dementia	15
Other Organic Reactions	168
Epilepsy	31
Terminal Dementia	25
Neurosis	24
Mental Defect	72
Alcoholism and Drug Addiction	27
Unclassified	30
Total	973

Every effort was made throughout the year to give patients the benefit of modern treatment. It was found difficult to maintain an insulin therapy department owing to the need for almost continuous presence of a doctor and the constant attendance of a nurse.

The following briefly summarizes the work of the different departments.

(a) Electro Convulsive Treatment

This unit continued to work at full pressure. A total of 198 patients had courses of treatment—about the same number as last year. Of these, 81 were discharged either recovered or improved, 4 died, and the remainder were unimproved. Of the 4 who died, one was from pulmonary tuberculosis, another from a lung abscess, and the other two from enteritis. It seems likely that the one who developed tuberculosis (probably a latent focus activated by E.C.T.) and the lung abscess were the only complications out of 198 cases treated. A good deal of the convulsive treatment is now administered under curare and thiopentone.

The following table shows the number of patients treated and results:—

	European		Asian		African		Out Patients	Total
	M.	F.	M.	F.	M.	F.		
Patients treated	3	12	4	7	69	70	33	198
Shocks given	30	96	32	63	625	666	132	1,644
Discharged	3	9	2	6	29	32	—	81
Died	—	—	—	—	3	1	—	4

A few pensions assessment cases suffering from hysteria were given this treatment and dramatic recoveries resulted.

(b) Insulin Therapy

Seven patients (five Europeans and two Asians) underwent full courses of insulin treatment: of these, two derived no benefit, four were improved and one completely recovered.

(c) Narco-Analysis and Hypnosis

More than a quarter of all out-patients, the majority of military patients, and nearly all of pensions assessment cases, required analysis.

Narco-analysis, i.e. lengthy analysis, is being replaced to an increasing extent by E.C.T. Narco-analysis is time consuming but one or two sessions are frequently useful in "clearing the ground" before beginning of treatment by E.C.T. A few European patients have been cured by E.C.T. who have previously been exposed to lengthy and unavailing psychoanalysis in England. In African hysterical cases, good results were obtained by suggestion under narcosis, or by E.C.T.; a good illustration of the duality of approach to these problems.. The results in these cases were gratifying since they were cured in a few days after being incapacitated for many years.

(d) Neurosyphilis

There were 11 new cases in the year, all of whom were treated by a combination of penicillin, arsenic and malaria. One case was discharged and three died—the remaining seven were unimproved. Difficulty was experienced in finding a strain of parasite capable of producing serious enough rigors to influence the progress of the disease. It is probable that, in African cases, patients are diagnosed and sent in too late to benefit by penicillin. Penicillin, up to now, has only been used intramuscularly.

(e) Prefontal Leucotomy

Twenty-one patients were leucotomized. The operations were mostly performed at the King George VI Hospital. There were two Europeans (one male and one female) in this series. Seven cases remained unimproved and two died, but one case was discharged improved and 10 cases were relieved of acute symptoms. One case was discharged unimproved. Of the 11 cases noted as being improved from the 1950 series, it was possible during 1951 to discharge a further four. Of the five leucotomies discharged in 1951, the period spent in hospital averaged 2,354 days each (i.e. over six years).

It is not insignificant that the African staff believe leucotomy worth while for the behaviour improvement obtained alone. Leucotomy nearly always cures tearing of clothes, filthy habits and dangerous propensities.

The following table summarizes the results so far:—

Year	No. of Cases	Died	Died No Relating Cause	Discharged Improved	Not Improved	Remaining in Hospital		
						Improved	Not Improved	Worse
1948 ..	4	1	—	2	—	—	1	—
1949 ..	7	—	—	4	—	1	2	—
1950 ..	26	4	2	6	—	7	6	1
1951 ..	21	2	—	1	1	10	7	—

LABORATORY SERVICES

Medical Research Laboratory

The opening of a provincial laboratory under a European technician at Nakuru, the posting of an African laboratory assistant to King George VI Hospital and the expansion of the work of the Laboratory of Clinical Medicine, a private laboratory in Nairobi serving the needs of general practitioners and their private patients, have somewhat reduced the number of routine examinations in certain sections of the central laboratory but, in the case of those examinations which are not done elsewhere, the amount of work has continued to increase. For example, three times as many specimens were received for histological examination as before the war and the number of medico-legal tests has increased even more. The staff, however, remains the same.

The new store was completed early in the year and was filled at once, releasing a good workroom for public health bacteriology.

The training of African laboratory assistants continues. One third-year learner, the only one remaining from the first intake of students in 1949, is due to qualify at the end of 1952 and there were six first-year and second-year learners. Six-month refresher courses were held for five assistants from outstations; more could usefully have been called in if only reliefs had been available for the period of their training.

There are still three vacancies for European learner technicians for which no applications were received.

Vaccine Production

Vaccine production was as follows:—

	Issued to Other Territories	*Issued in Kenya*	*Total Issues*
Vaccine Lymph (doses)	2,381,700	3,511,950	5,893,650
Typhoid Vaccine "T.A.B. (ALC)" ml.	54,085	71,720	125,805
Antirabic Vaccine ml.	41,280	47,980	89,260
Plague Vaccine ml.	10,650	3,095	13,745

The revenue earned by the sale of vaccines to other Governments was £4,726. Vaccines are still sold at only a fraction of the commercial rate and their price has been increased by only 10 per cent since before the war.

Bacteriological Section

Routine bacteriological examinations numbered only 9,006 which is considerably below previous years' figures. A small explosive outbreak of food poisoning at a country hotel was investigated and shown to be due to *Salmonella enteritidis* in a cold dessert but the actual source of the infection was not found. A smouldering infection with *S. oranienberg* continued in certain wards of the King George VI Hospital and provided 112 positive cultures. Two new *salmonellæ* were isolated and were named, in accordance with the accepted custom, *S. nairobi* and *S. kiambu*. The typing of brucellæ in cases of undulant fever continued.

Public Health Bacteriology

A separate workroom for the bacteriological examination of water samples and foodstuffs was equipped at the beginning of the year; 251 water samples, 160 mineral waters and 134 food samples were cultured. At the beginning of the year, the Nairobi water supply showed evidence of pollution and was, in addition, infected with iron bacteria which caused blocking of pipes in some areas. After the installation of new sedimentation tanks, however, the results became uniformly good. Mineral waters were generally satisfactory.

The majority of the food samples were tins of meat products from a country cannery where a high spoilage rate in certain classes of canned goods was being experienced. A visit was made to the factory and it was shown that the spoilage was due to inadequate exhaustion of the cans before processing which led to straining of the seams and consequent leakage.

Biochemical Section

Dr. D. Harvey, Biochemist, retired in July and his post had not been filled at the end of the year.

A total of 2,411 specimens examined showed a reduction from previous years' figures mainly due to the routine examination of urines from patients in King George VI Hospital being done in the hospital instead of in the Laboratory. Increasing use in routine work was made of the Coleman Spectro-photometer. Requests were received for the first time for the estimation of 17-ketosteroids and this was done in four cases.

Medical Biology Section

Hæmatological examinations numbered 6,294 and included 2,625 total blood counts; 12,839 blood slides were examined for parasites with the following results:—

	European	*Asian*	*African*
P. falciparum—trophozoites	101	60	640
P. falciparum—gametocytes	9	4	170
P. vivax	2	17	9
P. malariæ	4	4	27
P. ovale	3	—	6
Mixed infections	—	2	12
S. duttoni	—	—	13
Microfilaria *A. perstans*	—	—	8
Negative	2,138	1,203	8,407

Leishman-Donovan bodies were found in 10 out of 143 films from spelnic puncture.

Fæcal specimens numbered 12,850. *E. histolytica* cysts were found in 236 and active forms in 33.

Some work was done, as opportunity offered, on the culture of amœbæ and of nematode larvæ.

Pathological Section

Specimens for histological examination were received from 1,803 patients. They included 13 cases of Kaposi's disease in Africans and a case of rhinosporidiosis in a Kikuyu girl; it is believed that this is the first case of the latter disease to be recorded in Kenya.

Sera and cerebrospinal fluids received for the Kahn test numbered 27,497; 975 ml. of Kahn antigen were supplied to other laboratories.

Two hundred and seventy-eight post-mortem examinations were carried out, nearly all of them at the request of the Police. It is desirable that more post-mortems should be done on cases of disease from King George VI Hospital but with the present staff it is not possible. The Police cases included 71 deaths from traffic accidents, 14 cases of homicide and 18 suicides; three Africans were killed in one hut by carbon monoxide from a charcoal brazier.

Blood groups were determined in 819 cases; rhesus grouping was done in every case, using an anti-D serum for recipients and an anti-C + D serum for donors.

The Friedman remained the routine pregnancy test and 819 urines were examined.

Bloodstains were grouped in 75 medico-legal cases and in one case the demonstration that three cigarette butts found near the body of a murdered African had all been smoked by a group B secretor was of value in evidence in securing a conviction.

Electrocardiographic examinations are also done in this section and 82 were performed.

The Kenya Blood Transfusion Service

All technical work in connexion with this service, which is run by the Kenya Branch of the British Red Cross Society, continues to be done at the Laboratory. Five hundred and sixty-nine pints of blood were taken during the year and check-grouping, Kahn tests and examinations for malarial parasites were done on them. Over 100 new donors were grouped and all giving and taking sets were serviced and sterilized, and all glucose-citrate used was prepared in triple-distilled water obtained from King George VI Hospital Pharmacy.

Provincial Laboratories

The total number of examinations carried out at the three provincial laboratories was as follows:—

Mombasa	*Kisumu*	*Nakuru*
43,779	19,248	19,856

The provincial laboratories now undertake all except histological examinations and those involving animal inoculations. Each is in charge of a European technician and they are very well equipped.

Out-station Laboratories

An African laboratory assistant is posted to nearly every African hospital; the larger ones have two. With one exception, they are equipped to carry out simple microscopic examinations of blood-films, fæces, urines and sputa only, and forward sera, histological specimens, and material for culture to Nairobi or to the nearest provincial laboratory; several can undertake blood-counts and, as the standard of training improves, they will be done more widely. The exception is Nyeri where Kahns and Widals are done. The number of examinations done in each varied widely with the size of the hospital but the average was about 10,000. The greatest number recorded was at Fort Hall where it was 19,780.

DIVISION OF INSECT-BORNE DISEASES

Mrs. Van Someren was responsible for the identification of mosquitoes. Five culcines, four Aedes and one anopheline were recorded in Kenya for the first time. About five new species of Aedes and culex were discovered and will be described. An interesting find was *Aedes woodi*. This rare mosquito was caught in large numbers in the bush round Ganda near Malindi.

The sandfly survey continued. *P. congolensis* predominated in dwellings near a Kala-Azar focus near Kitui. A new record was *P. freetownensis* var *meridianus* de Meillon from Kenya. Six new species were found during the year. Specimens of *P. langeroni* var *orientalis*, *S. clydei*, *P. squamipleuris*, *P. freetownensis* var *meridianus*, *P. schwetzi*, *P. congolensis* var *distinctus*, *P. africanus* and *P. ingrami* were collected.

The *Aedes ægypti* colony is still being maintained. An attempt will soon be made to establish a colony of *A. gambiæ* in the new insectory; this should facilitate the testing of new anti-malarial drugs against local strains of malarial parasites. The successful maintenance of a *gambiæ* colony in Nairobi by a laboratory technician of Imperial Chemical Industries has been a remarkable achievement, and experience thus gained should be of great value to us.

Aedes control measures are still in force in many parts of the Colony, but the organization has been modified in several ways. In certain towns control has beeen discontinued, and in others a fortnightly cycle introduced. The effectiveness of D.D.T. in eliminating *ægypti* from two coastal towns has suggested a new and perhaps more economical way of control which may eventually supercede the present somewhat archaic and laborious methods.

Malaria

The organization of control in some of the larger towns, particularly Mombasa and Kisumu, has been improved but, taking the Colony as a whole, these measures are still inadequate. The control of malaria in rural areas is a more difficult problem, and until the the large-scale anti-malarial experiment in the Taveta region has been completed and the results assessed, it will be difficult to formulate a control policy for rural areas. A Parasitologist will concentrate on malarial work in the Colony, carrying out surveys, devising methods of control and supervising any existing schemes, in consultation with the Interterritorial Malariologist.

Malarial Survey Near Machakos

A detailed malarial survey was made in the Machakos District towards the end of the year. Only a few of the more important findings are dealt with here. Five hundred blood films (thick drops stained with Giemsa) were examined from Kasikiu.

Age Group	Number Examined	Per cent with Falciparum	Crescent Rate	Per cent with Malariae	Per cent with Vivax	Spleen Rate
0–2	38	73·7	52·6	13·2	28·9	76
3–5	61	75·4	36	26·2	31	86·5
6–10	118	55·1	14·4	17·8	17·8	83·2
11–15	87	55·2	10·3	8·0	9·2	73·3
Adults	196	27·0	3·6	2·6	4·6	63·6

The malarial picture is that of a fairly sharp epidemic affecting a community with only a moderate degree of immunity. Only a few *A. gambiæ* and no *funestus* were found at the time of the survey. A number of larvæ of *A. pretoriensis* were found in pools and streams nearby, and it is wondered whether this species acts as auxiliary malarial vector in the area. Searches for adult *A. pretoriensis* will be made in huts near the breeding places at a more suitable time of the year.

This is the first of a series of malarial surveys to be made in different parts of the country when opportunity permits.

Snail Survey in Nyanza and Coastal Provinces

A large number of snails have been collected and identified from different parts of Nyanza. A total of 12,811 were examined and were found to include the following potential vectors of schistosomiasis: *Physopsis nasuta, Biomphalaria sudanica, Bulinus forskalii, B. trigonis, P. africana, B. adowensis* and *B. chaanomphala.* In the Coastal Province, 48 dams were examined for snails and potential vectors (*Physopsis* sp.) only found in two of them. Indiscriminate snail surveys are probably rather a waste of time and at this stage it seems much more important to know the distribution of the human disease. This has been explained to various Provincial Medical Officers who have promised to initiate surveys.

Urinary schistosomiasis is widespread in the coastal province; during the year, 645 cases were treated in Malindi and 862 at Msambweni. These figures are high, but how really deleterious the disease is to humans remains a matter for conjecture. The usual methods of snail eradication do not seem to work well in East Africa. Some preliminary trials made by placing the pounded roots of the plant *Dolichos pseudopachyrhizus* in a pool infested with *P. globosa,* have been encouraging.

Relapsing Fever and Ticks

Considerable progress has been made while studying the development cycle of *S. duttoni* in lice. A new technique was evolved for examining the hæmocoelic fluid of infected lice. This has revealed that with *S. duttoni* there is no negative phase in lice, *spirochætes* appearing in hæmocoelic fluid as early as half an hour after an infective feed. This is a discovery of great interest and it is hoped to repeat the experiment using a louse-borne strain. Unfortunately, this may now be impossible due to unforeseen circumstances. Granules have been seen in certain cells of the louse, which either represent a stage in the development of the spirochætes or a phagocytic phenomenon. This is also of great interest, particularly as a granular phase in the cyclic development of spirochætes has been regarded a possibility for many years.

A spirochæte, provisionally named *S. graingeri* has been isolated from several batches of *O. graingeri* collected from a cave near Tiwi. This spirochæte is quite unlike any other strain studied in this laboratory. It is of a very low pathogenicity causing very scanty evanescent infections in white rats and mice. Blood smears (thick drops) from infected animals never contain more than 3-4 spirochætes. Monkeys and guinea pigs have been inoculated with negative results. Morphologically *S. graingeri* n.sp. resembles other spirochætes. The infections have a very constant pattern.

Specimens of the bat tick, *Argas boueti*, were received from Wajir in the Northern Province. This species has never before been reported in Kenya.

Two experiments were completed with chloramphenicol and aureomycin used in the treatment of experimental relapsing fever infections in man, rats, mice and monkeys. Both drugs were extremely effective against the initial attack but did not prevent relapses or the development of residual brain infections in white rates or mice.

TRYPANOSOMIASIS

An interesting experiment with D.D.T. against *G. palpalis* was made by the Colonial Insecticides Research Unit in the Kibigori-Songhor area. Spraying of riverine bush caused a great reduction in the number of *G. palpalis*. A few *G. palpalis* started to reappear in the area in November, 1951. It seems probable that, although it may be difficult to eradicate the fly completely with D.D.T., the insecticide may be of great value in controlling epidemics.

The foci of *T. gambiense* near Kibigori and Lake Kanyaboli appear to be under control. Only a few new cases have been reported during the year.

EXPERIMENTS ON THE BIONOMICS AND CONTROL OF AEDES ÆGYPTI AT MAMBRUI AND TAKAUNGU

It is over two years since Mambrui was sprayed with D.D.T. and *Aedes ægypti* have not yet reappeared. *C. fatigans*, however, reappeared six months after spraying. As *A. ægypti* has been found breeding in treeholes near Mambrui, it is curious that the town has not become reinfested. A more exacting test has been the spraying of Takaungu, a village with a high larval index surrounded and interspersed with coco-nut trees in which prolific breeding occurs. Takaungu was sprayed with D.D.T. in June and no domestic *ægypti* have been found since.

Observations on the bionomics of *Aedes ægypti* have been made chiefly at Ganda, the control village near Mambrui, and also at Kwa Shekh and Jomvu near Mombasa. Techniques have included 24-hourly catches both in houses and bush, net bush catches, space spraying of houses, the use of exit and entrance traps, breeding experiments, ovarian dissections and precipitin tests. The detailed results will be described elsewhere and only a few points will be mentioned here. The information obtained has been rather disappointing considering the extent of the investigations; this is because *A. ægypti* is a tantalizing and awkward insect to study.

The most striking peculiarity of *Aedes ægypti* has been the extraordinary discrepancy between the numerous larvæ found in domestic utensils in infested villages and the small number of adults obtained. Twenty-four-hour catches, whether carried out in houses or surrounding bush, seldom produce more than 4-5 adults in the twenty-four hours. Even when a special hut was used where the breeding had been artificially increased tenfold, no marked increase in adult production was observed. Space spraying with pyrethrum was equally disappointing, the adult *ægypti* index per hut averaging less than two. It is possible to walk about in coastal villages with high larval indices and to enter huts at all hours of the day without either seeing or being bitten by *A. ægypti*. This extraordinary scarcity of adults may be the reason why, in East Africa, there have been no *ægypti* transmitted epidemics as in West Africa and other parts of the world. The bush round infested villages has been very extensively searched, all types of vegetation being beaten and emerging mosquitoes caught in nets: very few adult *A. ægypti* were ever caught in this way. Although adult *A. ægypti* are usually very scarce, exceptions have been noted. Thus, on two occasions, adults were caught biting in large numbers near unusually prolific breeding places. A number of stomach bloods kindly examined for us by Weitz of the Lister Institute were mostly human although a few gave bovine reactions. The ovaries of *ægypti* caught in exit traps were mostly first or fourth stage. *A. ægypti* is mainly a diurnal biter with peaks of activity between 10 a.m. and 1 p.m. and 5 p.m. and 7 p.m. Shady parts of the body are usually preferred. Breeding experiments with larvæ in calabashes suggest that often only a few larvæ reach adult stage. Development from egg to adult stage varies considerably, from eight days to three weeks or more.

Onchocerciasis

After the discovery by Mr. McMahon last year of the larval and pupal stages of *S. neavi* on the crab *Potomon niloticus*, extensive crab surveys were made in the Kakamega-Kaimosi area. It has been discovered that the important phoretic host *P. niloticus* is almost confined to the large rivers whereas another and harmless species, *P. granviki*, occurs in the small tributaries. Detailed maps showing the distribution of both species have been prepared. While preparations were made for treating the large rivers in the area with D.D.T. in a final large-scale attempt at eradication, a new focus was discovered on the south-westerly slopes of Mount Elgon. This focus was found to be extensive and extends from the Kenya border near Malakisi to the River Sipi on the north-westerly slopes of Mount Elgon, a distance of about 40 miles. This has made it necessary to postpone treating the rivers until arrangements have been made with the Uganda Medical Authorities for a joint eradication scheme. If the Kenya focus only were treated, reinfestation would almost certainly occur from the Uganda side.

Three other Simuliids have been found in phoretic association with crabs. Two of these are new species which have been described and named *S. goinyi* and *S. hightoni*. Other observations of great interest have been made on the bionomics of *S. neavei*.

Yellow Fever

Bush babies (*G. crassicaudatus*) immune to yellow fever have been caught by Drs. Haddow and Lumsden at Taveta who, early in the year, also visited the coast in a search for sylvan reservoirs.

Two bush babies became infected with *T. rhodesiense* after eating the bodies of two white rats left lying on a bench. It is wondered whether perhaps, in nature, bush babies might become infected with yellow fever by eating some unknown rodent reservoir during dry periods when mosquito transmission is minimal.

Gammexane Against O. moubata

The attempt in 1950 to eradicate *O. moubata* from 21,692 native huts in Meru by the application of 3 per cent gamma Gammexane larvicide powder has proved disappointing. This may have been partially due to the method of application, but there seems little doubt that the eradication of *O. moubata* on a large scale is no easy matter. The Gammexane preparation used at Meru was tested against *O. moubata* in the laboratory and found effective. In a second experiment near Meru, groups of ten huts were treated with a powder containing 0.5 per cent gamma isomer. Two to four cigarette tins per hut were applied; this caused a great reduction in the number of ticks but did not eliminate them. The Gammexane larval preparation was also used against *O. moubata* at Vuga near Kwale. About 30 huts were treated (3.2 lb. per 1,000 sq. ft.). Tick reduction continued for three months since when there has been a slight increase.

It is doubtful whether Gammexane will ever permanently eliminate *moubata* from large rural areas unless used in uneconomic dosage. However, several applications at three-monthly intervals are likely to prove more effective than single applications.

ARTICLES SUBMITTED FOR PUBLICATION BY MEMBERS OF THE MEDICAL DEPARTMENT

Dr. Pauline W. Balmer.—"A Case of Pneumococcal Meningitis Simulating Tuberculous Meningitis."

Dr. W. L. Barton.—"The Treatment of Urinary Bilharzia."

Dr. F. Bell.—"A Description of an Outbreak of Human Trypanosomiasis with Special Reference to the Prognostic Value of the Cerebro-Spinal Fluid."

Dr. Malcolm Clark—"Kwashiorkor."

Dr. G. C. Cochrane.—"Bismuth Intoxication Treated with B.A.L."

Dr. E. R. N. Cooke.—"Iron Bacteria and their effect on the Nairobi Water Supply."

Dr. N. R. E. Fendall.—"Prothesis".

—— "Mixed Tumour of the Nose."

—— "Kala-Azar in the Kitui Reserve II."

Mr. G. E. Goram.—"The Prevention of Malaria."

Dr. A. S. Haddow and Mrs. E. C. C. van Someren.—"A New Species of *Stegomyia* Theobald from the Ruwenzori Range, Uganda."

Dr. A. S. Haddow, Mrs. E. C. C. van Someren, Dr. W. H. R. Lumsden and Messrs. J. O. Harper and J. D. Gillett.—"The Mosquitoes of the Bwamba County, Uganda. VIII Records of Occurrence, Behaviour and Habitat."

Dr. W. S. Haynes.—"Tuberculosis in Kenya."

Dr. R. B. Heisch and Mr. A. E. C. Harvey.—"Chloramphenicol (Chloromycetin) in the Treatment of Experimental Relapsing Fever."

Dr. R. B. Heisch.—"The Presence of Trypanosomes in *Galagos* after eating infected rats."

—— "*Argas boueti* Roubaud and Colas-Belcour, 1933, in the Northern Province of Kenya."

Dr. R. B. Heisch and Mr. C. A. W. Guggisberg.—"On *Ornithodoros graingeri* N. Sp. a Tick from caves in Kenya."

—— "A Description of *Ornithodoros erraticus* Lucas from Kenya."

Mr. W. H. Kirkaldy-Willis, F.R.C.S.—"The Factors Concerned in Procuring Joint Arthrodesis."

Dr. J. P. Mackenzie.—"Medical Aid Schemes in Southern Rhodesia."

Dr. J. R. M. Miller.—"Intensive Treatment of Tropical Ulcers."

Dr. A. R. Sandford.—"Case History of a Self-inflicted Cæsarian Section."

Dr. H. Stott.—"B.C.G. Vacination of Kenya Africans—Follow-up one year after B.C.G. Vaccination."

Mrs. E. C. C. van Someren.—"New Culicini from Kenya and Uganda."

Dr. F. J. Wright.—"A Case of Pneumococcal Meningitis Obscured by Chemotherapy."

The following papers were published as "Reports of the Medical Research Laboratory":—

No. 8.—"The Chemical Composition of Wheats Grown in East Africa"—Dr. D. Harvey and Mr. W. L. Titman.

No. 9.—"Diabetes Mellitus in Kenya: A Summary of Laboratory Data"—Dr. D. Harvey and Messrs. W. L. Titman and A. W. Pearson

No. 10.—"The Chemical Composition of some Kenya Foodstuffs"—Dr. D. Harvey.

No. 11.—"Plasma Protein Levels in East Africans"—Dr. D. Harvey and Mr. W. L. Titman.

RETURN OF DISEASES—IN-PATIENTS

Numbers treated during the year 1951

Code	No.	Diseases	European		Asian		African	
			Total Admissions	Total Deaths	Total Admissions	Total Deaths	Total Admissions	Total Deaths
		General Infectious and Parasitic Diseases						
001–008	A.1	Respiratory Tuberculosis	4	—	28	6	2,335	587
010	A.2	Tuberculosis of Meninges and Central Nervous System	—	—	1	—	139	95
011	A.3	Tuberculosis of Intestines, Peritoneum and Mesenteric Glands	—	—	3	—	220	65
012, 013	A.4	Tuberculosis of Bones and Joints	26	—	12	—	594	24
014–019	A.5	Tuberculosis—All other Forms	2	—	10	6	740	86
020	A.6	Congenital Syphilis	—	—	—	—	388	36
021.0, 021.1	A.7	Primary Syphilis	—	—	1	—	1,052	1
021.2–021.4	A.7	Secondary Syphilis	—	—	1	—	2,621	8
024	A.8	Tabes Dorsalis	—	—	—	—	12	—
025	A.9	General Paralysis of Insane	—	—	—	—	—	—
022, 023	A.10	Cardio Vascular Syphilis	—	—	—	—	31	—
026–029	A.10	All other Syphilis	2	—	—	—	567	19
030, 031	A.11	Gonorrhœa, Genito-Urinary	2	—	5	—	5,073	3
033	A.11	Gonoccal Infection of Eye	—	—	1	—	179	6
032, 034, 035	A.11	Other Gonoccal Infections	—	—	2	—	408	—
040	A.12	Typhoid Fever	6	—	18	—	624	113
041, 042	A.13	Salmonella Infections	—	—	—	—	48	7
043	A.14	Cholera	—	—	—	—	—	—
044	A.15	Brucellosis	1	—	—	—	154	3
045	A.16	Bacillary Dysentery	21	—	4	2	974	49
046	A.16	Amœbiasis	94	—	14	—	1,086	23
047, 048	A.16	Other Unspecified Dysentery	7	—	13	—	942	23
050	A.17	Scarlet Fever	1	—	—	—	2	—
051	A.18	Streptococcal Sore Throat	—	—	1	—	125	—
052	A.19	Erysipelas	1	—	—	—	16	—
053	A.20	Septicæmia and Pyæmia	3	—	3	1	100	33
055	A.21	Diphtheria	4	—	1	—	85	48
056	A.22	Whooping Cough	3	—	4	—	2,615	100
057	A.23	Meningococcal Infections	2	—	—	—	350	75
058	A.24	Plague	—	—	—	—	—	—
060	A.25	Leprosy	—	—	—	—	467	19
061	A.26	Tetanus	—	—	1	1	257	114
062	A.27	Anthrax	—	—	—	—	643	30
080	A.28	Acute Poliomyelitis	11	2	19	1	81	12
082	A,29	Acute Infectious Encephalitis	9	2	—	—	14	—
081, 083	A.30	Late Effects Poliomyelitis and Infectious Encephalitis	—	—	6	—	82	8
084	A.31	Variola Major	—	—	—	—	—	—
084	A.31	Variola Minor	—	—	—	—	—	—
085	A.32	Measles	73	—	10	—	2,176	26
091	A.33	Yellow Fever	—	—	—	—	—	—
092	A.34	Infectious Hepatitis	4	—	8	1	169	20
094	A.35	Rabies	—	—	—	—	3	3
100	A.36	Louse Borne Epidemic Typhus	—	—	—	—	—	—
101	A.36	Flea Borne Endemic Typhus	—	—	—	—	—	—
104 N.O.S.	A.36	Tick Borne Typhus	29	—	—	—	10	2
102–108	A.36	Other Rickettsial Diseases	—	—	—	—	1	1
110	A.37	B.T. Malaria	—	—	4	—	119	—
111	A.37	Qt. Malaria	2	—	7	—	364	18
112	A.37	S.T. Malaria	122	1	128	3	13,167	278
115 N.O.S.	A.37	Blackwater Fever	—	—	4	1	17	6
113–117	A.37	Other Forms of Malaria	107	—	240	1	13,702	225
123.0	A.38	Schistosomiasis (Hæmatobium)	—	—	5	—	1,368	4
123.1	A.38	Schistosomiasis (Mansoni)	—	—	—	—	162	1
123.2	A.38	Schistosomiasis (Japonicum)	—	—	—	—	—	—
123.3	A.38	Other Unspecified Schistosomiasis	3	—	—	—	110	—
125	A.39	Hydatid Disease	—	—	—	—	19	5
127	A.40	Onchocerciasis	—	—	—	—	50	—
	A.40	Loiasis	—	—	—	—	—	—
127	A.40	Filariasis (Elephantiasis)	—	—	1	—	67	—
127	A.40	Other Filariasis	—	—	15	1	60	—
129	A.41	Ankylostomiasis	10	—	—	—	995	1

RETURN OF DISEASES—IN-PATIENTS—(*Contd.*)

Code	No.	Diseases	European		Asian		African	
			Total Admissions	Total Deaths	Total Admissions	Total Deaths	Total Admissions	Total Deaths
		General Infection and Parasitic Diseases—(*Contd.*)						
126	A.42	Tapeworm and other Cestode Infestation	12	—	1	—	733	—
130.0	A.42	Ascariasis	2	—	4	—	695	—
130.3	A.42	Guineaworm	—	—	—	—	16	—
N.O.S. 124–130	A.42	Other Diseases due to Helminths	1	—	—	—	86	—
036	A.43	Chancroid	—	—	1	—	295	—
037	A.43	Lymphogranuloma Venereum	—	—	—	—	33	1
038	A.43	Granuloma Inguinale	—	—	2	—	39	—
039	A.43	Other Unspecified Venereal Diseases	—	—	—	—	27	—
049	A.43	Food Poisoning, Infective and Toxic (excepting Salmonella Infections)	—	—	—	—	138	15
071.0	A.43	Relapsing Fever (Louse Borne)	—	—	—	—	—	—
071.1		Relapsing Fever (Tick Borne)	—	—	—	—	321	21
072	A.43	Weil's Diseases	—	—	—	—	—	—
073	A.43	Yaws	—	—	—	—	582	—
086	A.43	Rubella	—	—	—	—	—	—
087	A.43	Chicken-pox	35	—	3	1	1,301	—
088	A.43	Herpes Zoster	10	—	—	—	118	—
089	A.43	Mumps	—	—	5	—	705	1
090	A.43	Dengue	1	—	—	—	—	—
095	A.43	Trachoma	—	—	1	—	488	—
096.7	A.43	Sandfly Fever	—	—	—	—	—	—
120	A.43	Leishmaniasis	—	—	—	—	24	1
121.0	A.43	Trypanosomiasis (Gambiense)	—	—	—	—	64	12
121.0	A.43	Trypanosomiasis (Rhodesiense)	—	—	—	—	—	—
121.2	A.43	Other Unspecified Trypanosomiasis	—	—	—	—	6	6
131	A.43	Dermatophytosis (Tinea)	4	—	1	—	84	—
135	A.43	Scabies	—	—	2	—	716	—
N.O.S. 054–122	A.43	Other Infectious and Protozoal Diseases	7	—	1	—	29	—
N.O.S. 132–138	A.43	Other Parasitic Diseases	1	—	—	—	47	—
		New Growths						
140–148	A.44	Malignant Neoplasm of Mouth and Pharynx	2	—	—	—	32	11
150	A.45	Malignant Neoplasm of Oesophagus	—	—	—	—	10	4
151	A.46	Malignant Neoplasm of Stomach	1	—	2	—	76	28
152, 153	A.47	Malignant Neoplasm of Intestine	—	—	1	—	52	10
154	A.48	Malignant Neoplasm of Rectum	4	1	—	—	8	2
161	A.49	Malignant Neoplasm of Larynx	—	—	—	—	—	—
162, 163	A.50	Malignant Neoplasm of Trachea, Bronchus and Lung not Specified as Secondary	—	—	—	—	1	1
170	A.51	Malignant Neoplasm of Breast	7	1	3	—	29	4
171	A.52	Malignant Neoplasm of Cervix Uteri	—	—	1	1	35	3
172–174	A.53	Malignant Neoplasm of other Unspecified Parts of Uterus	—	—	—	—	24	4
177	A.54	Malignant Neoplasm of Prostate	—	—	—	—	8	1
190, 191	A.55	Malignant Neoplasm of Skin	1	—	—	—	53	9
196, 197	A.56	Malignant Neoplasm of Bone and Connected Tissue	—	—	1	1	19	2
155 N.O.S.	A.57	Malignant Neoplasm of Liver and Bile Passages (Primary)	—	—	—	—	95	35
156–199	A.57	Malignant Neoplasm of all other and Unspecified Sites	14	5	4	2	134	27
204	A.58	Leukæmia and Aleukæmia	—	—	2	1	26	5
200–203, 205	A.59	Lymphosarcoma and other Neoplasm of Lymphatic and Hæmatopoietic Systems	—	—	2	—	29	2
210–239	A.60	Benign Neoplasms and Unspecified Neoplasms	29	—	16	1	432	2
		Allergic, Metabolic and Blood Diseases						
250, 251	A.61	Non-toxic Goitre	—	—	—	—	30	2
252	A.62	Thyrotoxicosis	—	—	1	—	18	4
260	A.63	Diabetes Mellitus	20	2	20	—	41	3
280	A.64	Beri-beri	—	—	—	—	72	4

RETURN OF DISEASES—IN-PATIENTS—(*Contd.*)

Code	No.	Diseases	European		Asian		African	
			Total Admissions	Total Deaths	Total Admissions	Total Deaths	Total Admissions	Total Deaths
		Allergic, Metabolic and Blood Diseases—(*Contd.*)						
281	A.64	Pellagra	—	—	—	—	183	6
282	A.64	Scurvy	—	—	—	—	8	4
286.6	A.64	Kwashiorkor	—	—	—	—	562	139
283–286	A.64	Other Deficiency States	—	—	—	—	300	51
290	A.65	Pernicious and other Hyperchromic Anæmias	1	—	—	—	148	13
291	A.65	Iron Deficiency Anæmias	4	—	3	—	87	5
292, 293	A.65	Other Anæmias	4	—	26	2	361	44
241	A.66	Asthma	4	—	24	—	651	5
N.O.S. 240–299	A.66	Other Allergic, Endocrine, Metabolic and Blood Diseases	5	—	4	—	289	20
		Diseases of Nervous System and Sense Organs						
300–309	A.67	Psychoses	1	—	1	—	102	1
310–324, 326	A.68	Psychoneuroses and Disorders of Personality	8	—	11	1	99	1
325	A.59	Mental Deficiency	—	—	1	—	172	9
330–334	A.70	Vascular Lesions Affecting Central Nervous System	1	—	3	1	17	7
340.0	A.71	Meningitis due to H. Influenza	—	—	—	—	21	6
340.1	A.71	Meningitis due to Pneumococcus	—	—	1	1	246	136
340.2	A.71	Meningitis due to Other Organisms except Tuberculous and Syphilitic	2	—	2	1	142	85
340	A.71	Meningitis (except Meningococcal and Tuberculous)	—	—	—	—	—	—
345	A.72	Multiple Sclerosis	—	—	1	—	3	1
353	A.73	Epilepsy	7	—	1	—	174	5
370–379	A.74	Inflammatory Diseases of Eye	9	—	22	—	1,501	—
385	A.75	Cataract	—	—	38	—	313	—
387	A.76	Glaucoma	—	—	4	—	8	—
390	A.77	Otitis Externa	10	—	8	—	107	—
391–383	A.77	Otitis Media and Mastoiditis	10	—	7	—	438	5
394	A.77	Other Inflammatory Diseases of Ear	7	—	1	—	264	—
N.O.S. 341–369, 395–398	A.78	All other Diseases of Nervous System, Sense Organs and Auditory System	52	1	83	2	412	27
N.O.S. 380–389	A.78	All other Diseases and Conditions of Eye	20	—	17	—	1,095	—
		Circulatory Diseases						
400–401	A.79	Rheumatic Fever	—	—	13	1	436	6
402	A.79	Chorea	1	—	—	—	14	4
410–416	A.80	Chronic Rheumatic Heart Disease	—	—	2	—	78	10
420–422	A.81	Arteriosclerotic and Degenerative Heart Disease	8	3	6	1	28	12
430–434	A.82	Other Diseases of Heart	75	9	16	3	367	128
440–443	A.83	Hypertension with Heart Disease	16	1	2	—	6	—
444–447	A.84	Hypertension without Mention of Heart	3	—	—	—	18	12
450–456	A.85	Diseases of Arteries	6	1	3	—	32	4
460–468	A.86	Other Diseases of Circulatory System	95	8	80	2	310	15
		Respiratory Diseases						
470–475	A.87	Acute Upper Respiratory Infections	132	—	61	—	1,265	2
480–483	A.88	Influenza	59	—	53	—	1,888	—
490	A.89	Lobar Pneumonia	20	2	46	5	8,180	452
491	A.90	Bronchopneumonia	14	1	25	5	8,803	1,136
492, 493	A.91	Primary Atypical, other and Unspecified Pneumonia	2	—	13	1	1,471	66
500	A.92	Acute Bronchitis	38	—	84	—	7,397	20
501, 502	A.93	Bronchitis, Chronic and Unqualified	25	—	11	—	516	2
510	A.94	Hypertrophy of Tonsils and Adenoids	58	—	118	—	1,175	15
518, 521	A.95	Empyema and Abscess of Lung	—	—	—	—	79	6
519	A.96	Pleurisy (other than Tuberculous)	21	—	4	—	316	5
523	A.97	Pneumoconiosis	—	—	—	—	—	—
N.O.S. 511–527	A.97	All other Respiratory Diseases	48	—	115	—	802	11

RETURN OF DISEASES—IN-PATIENTS—(*Contd.*)

Code	No.	Diseases	European		Asian		African	
			Total Admissions	Total Deaths	Total Admissions	Total Deaths	Total Admissions	Total Deaths
		Alimentary Diseases						
530	A.98	Dental Caries	7	—	31	—	243	—
531–535	A.98	All other Diseases of Teeth and Supporting Structures	10	—	6	—	257	4
540	A.99	Ulcer of Stomach	6	—	15	—	50	4
541	A.100	Ulcer of Duodenum	37	3	6	1	48	4
543	A.101	Gastritis and Duodenitis	41	—	36	1	383	7
550–553	A.102	Appendicitis	176	1	82	1	113	19
560, 561 570	A.103	Intestinal Obstruction and Hernia	22	—	65	6	710	65
571.0	A.104	Gastro-Enteritis and Colitis between Four Weeks and Two Years	9	—	25	2	2,840	335
571.1	A.104	Gastro-Enteritis and Colitis, Ages Two Years and over	60	—	37	3	1,788	95
572	A.104	Chronic Enteritis and Ulcerative Colitis	1	—	—	—	192	5
581	A.105	Cirrhosis of Liver	5	1	10	—	191	63
584, 585	A.106	Cholelithiasis and Cholecystitis	26	1	4	—	96	11
536–587	A.107	Other Diseases of Digestive System	152	2	136	7	1,718	61
		Genito-Urinary Diseases						
590	A.108	Acute Nephritis	7	2	1	—	149	38
591–594	A.108	Chronic, other and Unspecified Nephritis	29	1	4	1	134	42
600	A.110	Infections of Kidney (other than Tuberculous)	37	1	11	—	163	13
602, 604	A.111	Calculi of Urinary System	20	—	27	—	30	1
610	A.112	Hyperplasia of Prostate	—	—	6	—	76	6
620. 621	A.113	Diseases of Breast (not Neoplastic)	8	—	—	—	278	—
613	A.114	Hydrocele	—	—	5	—	169	—
634 N.O.S.	A.114	Disorders of Menstruation	12	—	36	—	624	1
601–617 N.O.S.	A.114	Other Diseases of Genito-Urinary System and Male Genital Organs	62	—	50	—	1,028	11
622–637	A.114	Other Diseases of Uterus and Female Genital Organs	121	—	57	—	1,642	12
		Diseases of Pregnancy Puerperium						
640–641, 681, 682, 684	A.115	Sepsis of Pregnancy, Childbirth and the Puerperium	—	—	1	1	108	12
642, 652, 685, 686	A.116	Toxæmias of Pregnancy and the Peurperium	2	—	1	—	55	5
643, 644	A.117	Hæmorrhage of Pregnancy and Childbirth	1	—	10	—	141	25
650	A.118	Abortion without Mention of Sepsis or Toxæmia	12	—	30	—	1,657	4
650	A.119	Abortion with Sepsis	—	—	13	—	1,009	2
660 N.O.S.	A.120	Delivery without Complication	32	—	49	—	9,067	33
645–689	A.120	Other Complications of Pregnancy, Childbirth and Peurperium	16	—	20	—	1,769	92
		Skin and Musculo-Skeletal Diseases						
690–698	A.121	Infections of Skin and Subcutaneous Tissue	30	—	91	3	3,454	24
720–725	A.122	Arthritis and Spondylitis	20	—	34	—	948	2
726, 727	A.123	Muscular Rheumatism and Rheumatism, Unspecified	36	—	13	—	975	1
730	A.124	Osteomyelitis and Periostitis	1	—	14	—	705	7
737, 745–749	A.125	Ankylosis and Acquired Musculo-skeletal Deformities	—	—	3	—	73	2
715	A.126	Chronic Ulcer of Skin	7	—	43	—	5,368	1
700–714, 716	A.126	All other Diseases of Skin	83	—	41	—	1,845	4
731/736, 738–744	A.126	All other Diseases of Musculo-skeletal System	84	2	49	—	790	1
751	A.127	Spina Bifida and Meningocele	—	—	2	—	21	3
754	A.128	Congenital Malformations of Circulatory System	—	—	1	—	4	—
N.O.S. 750–759	A.129	Other Congenital Malformations	3	—	28	—	97	4

RETURN OF DISEASES—IN-PATIENTS—(*Contd.*)

Code	No.	Diseases	European		Asian		African	
			Total Admissions	Total Deaths	Total Admissions	Total Deaths	Total Admissions	Total Deaths
		Diseases of New Born						
760–761	A.130	Birth Injuries	—	—	—	—	17	8
762	A.131	Post-natal Asphyxia and Atelectasis	—	—	—	—	29	14
764	A.132	Diarrhœa of Newborn (under Four Weeks)	—	—	—	—	56	6
765	A.132	Ophthamia Neonatorum	—	—	—	—	16	—
763, 766–768	A.132	Other Infections of Newborn	—	—	—	—	39	4
770	A.133	Hæmolytic Disease of Newborn	—	—	—	1	1	7
769, 771, 772	A.134	All other Defined Diseases of Early Infancy	—	—	—	—	94	21
773, 776	A.135	Ill-defined Diseases Peculiar to Early Infancy and Immaturity, Unqualified	—	—	1	1	136	45
		Ill-Defined Diseases						
794	A.136	Senility without Mention of Psychosis	5	1	1	—	109	43
788.8	A.137	Pyrexia of Unknown Origin	37	—	8	—	782	59
793	A.137	Observation, without need for further Medical Care	5	—	26	—	3,134	—
N.O.S. 780–795	A.137	All other Ill-defined Causes of Morbidity	75	—	3	—	4,050	10
		Injuries						
N.800–N.804	AN.138	Fracture of Skull	—	—	18	3	245	35
N.805–N.809	AN.139	Fracture of Spine and Trunk	1	—	17	—	315	21
N.810–N.829	AN.140	Fracture of Limbs	119	—	109	1	2,777	59
N.830–N.839	AN.141	Dislocation without Fracture	15	—	10	1	483	2
N.840–N.848	AN.142	Sprains and Strains of Joints and Adjacent Muscle	7	—	12	—	749	—
N.850–N.856	AN.143	Head Injury (excluding Fracture)	2	—	46	3	435	19
N.860–N.869	AN.144	Internal Injury of Chest, Abdomen and Pelvis	—	—	3	—	438	36
N.870–N.908	AN.145	Laceration and Open Wounds	17	—	51	1	4,645	30
N.910–N.929	AN.146	Superficial Injury, Contusion and Crushing with Intact Skin Surface	8	—	27	2	2,511	6
N.930 N.936	AN.147	Effects of Foreign Body Entering through Orifice	2	—	3	—	462	1
N.940–N.949	AN.148	Burns	15	1	33	4	1,678	169
N.960–N.979	AN.149	Effects of Poisons	9	—	17	2	336	17
N.950–N.959, N.980–N.999	AN.150	All other and Unspecified Effects of External Causes	59	1	47	—	2,955	12
		Total	3,017	57	3,079	102	171,738	6,516

RETURN OF DISEASES—OUT-PATIENTS

Numbers treated during the year 1951

Code	Diseases	European			Asian			African		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
	Infectious and Parasitic Diseases									
001–008	Respiratory Tuberculosis	3	5	8	5	1	6	592	383	975
010–019	Other Tuberculosis	1	5	6	15	—	15	531	378	909
020–029	Syphilis	2	—	2	106	—	106	8,748	5,712	14,460
030–035	Gonorrhœa	16	2	18	72	1	73	11,330	5,299	16,629
036–039	Other Venereal Diseases	—	—	—	—	—	—	1,292	519	1,811
045	Bacillary Dysentery	24	9	23	174	13	187	1,952	1,255	3,207
046	Amœbic Dysentery	25	11	36	67	5	72	1,734	1,001	2,735
055	Diphtheria	—	—	—	—	—	—	1	—	1
056	Whooping-cough	7	10	17	58	17	75	2,740	3,273	6,013
057, 340	Meningitis (excluding Tuberculosis)	—	2	2	—	—	—	42	37	79
058	Plague	—	—	—	—	—	—	—	—	—
060	Leprosy	—	—	—	—	2	2	494	247	741
061	Tetanus	—	—	—	—	—	—	32	27	59
062	Anthrax	—	1	1	1	—	1	200	155	355
071	Relapsing Fever		—	—	—	—	—	132	59	191
073	Yaws	—	—	—	2	—	2	5,902	3,343	9,245
080	Acute Poliomyelitis	—	1	1	—	—	—	6	8	14
084	Variola Major	—	—	—	—	—	—	—	—	—
084	Variola Minor	—	—	—	—	—	—	—	—	—
085	Measles	6	22	28	25	16	41	1,526	1,105	2,631
086	Rubella	3	8	11	—	—	—	—	6	6
087	Chicken-pox	7	64	71	47	10	57	1,205	616	1,821
088	Herpes Zoster	3	2	5	27	13	40	831	462	1,293
089	Mumps	3	8	11	115	17	132	891	755	1,646
092	Infectious Hepatitis	1	1	2	37	6	43	516	429	945
095	Trachoma	—	—	—	18	20	38	1,375	948	2,323
110	B.T. Malaria	—	1	1	22	1	23	189	256	445
111	Qt. Malaria	3	2	5	2	—	2	470	401	871
112	S.T. Malaria	104	47	151	203	89	292	22,112	15,853	37,965
115	Blackwater	—	—	—	1	—	1	—	—	—
121	Trypanosomiasis	—	—	—	—	—	—	21	15	36
120.0	Schistosomiasis (Hæmatobium)	—	1	1	5	17	22	2,532	1,030	3,562
123.1	Schistosomiasis (Mansoni)	16	7	23	23	—	23	299	193	592
126	Tapeworm	—	—	—	79	2	81	11,808	5,176	16,984
127	Onchocerciasis	—	3	3	—	—	—	4	5	9
129	Ankylostomiasis	—	—	—	3	8	11	2,535	1,791	4,326
130.0	Ascariasis	6	10	16	13	16	29	5,535	5,680	11,215
131	Tinea	25	10	35	16	17	33	1,505	1,085	2,590
135	Scabies	—	1	1	87	51	137	14,267	9,858	23,125
N.O.S. 036–138	Other Infective and Parasitic Diseases	111	42	153	2,433	525	2,958	34,481	23,548	58,029

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

Code	Diseases	European			Asian			African		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
	New Growths									
140–205	Malignant Neoplasms	1	1	2	4	1	5	312	110	422
210–239	Benign and other Neoplasms	22	12	34	10	—	10	2,426	164	2,590
	Allergic Metabolic and Blood Diseases									
241	Asthma	17	37	54	275	79	354	2,688	992	3,680
286.6	Kwashiorkor	—	—	—	—	—	—	648	570	1,218
290–293	Anæmia	9	42	51	83	56	139	2,237	1,021	3,258
N.O.S. 240–299	Other Allergic, Endocrine, Metabolic and Nutritional Diseases	38	22	60	116	21	137	2,168	1,548	3,716
	Diseases of Nervous System and Sense Organs									
300–326	Mental Disorder	15	2	17	—	—	—	143	88	231
353	Epilepsy	2	—	2	299	4	303	175	94	269
N.O.S. 330–369	Other Diseases of the Nervous System and Sense Organs	82	83	165	563	48	611	8,246	2,783	11,029
	Disease of Eye and Ear									
370	Conjunctivitis and Ophthalmia	62	60	122	246	86	332	18,912	16,417	35,329
373	Stye	1	1	2	—	—	—	359	113	472
389	Blindness	—	—	—	—	—	—	80	30	110
N.O.S. 371–388	Other Diseases of Eye (not Trachoma)	89	74	163	121	25	146	3,202	1,609	4,811
390–398	Diseases of Ear and Mastoid Process	223	145	368	298	90	382	9,437	6,323	15,760
	Circulatory Diseases									
400–447	Disease of the Heart	26	47	73	8	1	9	225	233	458
450–468	Other Circulatory Diseases	73	83	156	21	16	37	1,434	1,461	2,895
	Respiratory Disease									
490–493	Pneumonia	19	28	47	147	46	193	2,259	2,258	4,517
N.O.S. 470–527	Other Diseases of the Respiratory System (including Coryza, Pharyngitis and Bronchitis)	846	683	1,529	6,207	1,508	7,715	128,086	78,336	206,422
	Alimentary Diseases									
530–535	Dental Caries—Other Diseases of Teeth and Gums	40	31	71	216	68	284	25,977	10,419	36,396
536–538	Stomatitis, Glossitis and Other Diseases of the Buccal Cavity and Salivary Glands	136	164	300	446	74	520	11,377	3,938	15,315
560–561, 570	Intestinal Obstruction and Hernia	8	1	9	11	3	14	794	427	1,221
571.0	Gastro-enteritis under two years	55	98	153	119	73	192	15,121	11,309	26,430
571.1	Gastro-enteritis over two years	164	165	329	461	84	545	10,725	6,243	16,968
N.O.S. 539–587	Other Diseases of Alimentary System	318	269	587	1,409	200	1,609	31,403	64,571	95,974

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

Code	Diseases	European			Asian			African		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
	Genito-Urinary Diseases									
613	Hydrocele	—	—	—	—	—	—	230	—	230
N.O.S. 590–617	Other Diseases of Genito-Urinary System and Male Genital Organs	98	41	139	137	1	138	3,826	518	4,344
636	Sterility (Female)	—	4	4	—	2	2	—	964	964
N.O.S. 620–637	Other Diseases of Uterus and Female Genital Organs	—	226	226	—	105	105	—	4,848	4,848
	Normal Pregnancy	—	65	65	—	54	54	—	5,747	5,747
650–652	Abortion	—	20	20	—	21	21	—	1,687	1,687
N.O.S. 640–689	Other Diseases of Childbirth	—	306	306	—	13	13	—	1,017	1,017
	Skin and Musculo-Skeletal Diseases									
690–698	Boils, and Infections of Skin and Subcutaneous Tissues	212	186	398	621	274	895	18,624	10,833	29,457
715	Chronic Ulcers	9	5	14	526	71	597	32,649	18,434	51,083
N.O.S. 700–716	Other Diseases of the Skin	185	208	393	580	118	698	14,702	6,767	21,469
720–759	Diseases of Bones, Joints, Muscles and Malformation	96	75	171	763	153	916	25,244	13,469	39,713
	Ill-Defined Diseases and Injuries									
760–776	Neonatal Diseases	—	9	9	—	1	1	211	81	292
788.8	Pyrexia of Unknown Origin	81	83	164	324	54	378	19,258	17,018	36,276
N.O.S. 780–795	All Other Ill-defined Causes of Morbidity	638	489	1,127	174	23	197	3,270	1,455	4,725
N.800–N.839	Fractures and Dislocations	64	27	91	31	6	37	1,333	597	1,930
N.840–N.848	Sprains	88	47	135	178	12	190	6,969	2,824	9,793
N.930–N.936	Foreign Bodies	—	1	1	11	2	13	1,835	644	2,479
N.940–N.949	Burns and Scalds	12	7	19	124	57	181	6,584	4,080	10,664
N.960–N.979	Poisoning	3	6	9	21	11	32	896	378	1,274
N.O.S. N.850–N.999	Other Injuries and Wounds	294	92	386	2,105	299	2,404	74,831	27,337	102,168
Y.00–Y.18	Examination	75	44	119	1,944	84	2,028	10,231	1,938	12,169
	GRAND TOTAL	4,457	4,264	8,721	22,249	4,691	26,940	636,955	422,601	1,059,556

RETURN OF DISEASES—ACCIDENTS—IN-PATIENTS

Numbers treated during the year 1951

Code	No.	Diseases	European		Asian		African	
			Cases	Deaths	Cases	Deaths	Cases	Deaths
E.810–E.835	AE.138	Motor Vehicle Accidents	21	2	3	2	451	23
E.800–E.802, E.840–E.866	AE.139	Other Transport Accidents	—	—	2	—	236	4
E.870–E.895	AE.140	Accidental Poisoning	6	—	1	—	85	5
E.900–E.904	AE.141	Accidental Falls	—	—	11	—	1,505	1
E.912	AE.142	Accident Caused by Machinery ..	3	—	—	—	123	—
E.916	AE.143	Accident Caused by Fire and Explosion of combustible Material	5	1	—	—	1,161	24
E.917, E.918	AE.144	Accident Caused by Hot Substance, Corrosive Liquid, Steam and Radiation	2	—	6	—	2,013	11
E.919	AE.145	Accident Caused by Fire-arm ..	1	—	2	—	13	—
E.929	AE.146	Accidental Drowning and Submersion	—	—	—	—	11	3
E.920	AE.147	Foreign Body Entering Eye and Adnexa	1	—	4	—	72	—
E.923	AE.147	Foreign Body Entering other Orifice	—	—	2	—	92	1
E.927	AE.147	Accidents Caused by Bites and Stings of Venomous Animals and Insects	2	—	2	—	263	6
E.928 N.O.S.	AE.147	Other Accidents Caused by Animals	2	—	—	—	121	—
E.910–E.979	AE.148	All other Accidental Causes	110	—	11	—	1,808	14
E.980–E.985	AE.149	Homicide and Injury Purposely Inflicted by other Persons (not in War)	—	—	1	—	991	10
E.990–E.999	AE.150	Injury Resulting from Operations of War	1	—	—	—	—	—
		Total	154	3	45	2	8,945	102

RETURN OF DISEASES—ACCIDENTS—OUT-PATIENTS

Numbers treated during the year 1951

Code	No.	Diseases	European		Asian		African	
			Cases	Deaths	Cases	Deaths	Deaths	Cases
E.810–E.835	AE.138	Motor Vehicle Accidents	2	—	—	—	73	—
E.800–E.802, E.840–E.866	AE.139	Other Transport Accidents	—	—	3	—	75	—
E.870–E.895	AE.140	Accidental Poisoning	—	—	—	—	—	—
E.900–E.904	AE.141	Accidental Falls	3	—	8	—	1,875	—
E.912	AE.142	Accident Caused by Machinery ..	2	—	—	—	36	—
E.916	AE.143	Accident Caused by Fire and Explosion of combustible Material	3	—	—	—	470	—
E.917, E.918	AE.144	Accident Caused by Hot Substance, Corrosive Liquid, Steam and Radiation	—	—	16	—	269	—
E.919	AE.145	Accident Caused by Fire-arm ..	—	—	—	—	1	—
E.929	AE.146	Accidental Drowning and Submersion	—	—	—	—	—	—
E.920	AE.147	Foreign Body Entering Eye and Adnexa	—	—	—	—	40	—
E.923	AE.147	Foreign Body Entering other Orifice	—	—	1	—	65	—
E.927	AE.147	Accidents Caused by Bites and Stings of Venomous Animals and Insects	15	—	8	—	490	—
E.928 N.O.S.	AE.147	Other Accidents Caused by Animals	10	—	3	—	320	—
E.910–E.979	AE.148	All other Accidental Causes	62	—	35	—	1,926	—
E.980–985	AE.149	Homicide and Injury Purposely Inflicted by other Persons (not in War)	—	—	—	—	145	—
E.990–E.999	AE.150	Injury Resulting from Operations of War	—	—	—	—	—	—
		Total	97	—	74	—	5,785	—

G.P.K. 1661—325—9/52