Health in the United Kingdom dependencies.

HEALTH IN THE UNITED KINGDOM DEPENDENCIES

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Health in the United Kingdom Dependencies

LONDON
HER MAJESTY'S STATIONERY OFFICE
1960

Prepared by
REFERENCE DIVISION
CENTRAL OFFICE OF INFORMATION
LONDON

First edition February 1956
Second edition August 1960

N.B. This pamphlet is one of a series produced by the Central Office of Information for the Overseas Information Services. To meet requests from inquirers in the United Kingdom, certain pamphlets in the series are being made available on sale from Her Majesty's Stationery Office.

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INTRODUCTION

'THE CENTRAL purpose of British Colonial policy . . . is to guide the colonial territories to responsible self-government within the Commonwealth in conditions that ensure to the people concerned both a fair standard of living and freedom from oppression from any quarter.'[1] A vital factor in the implementation of this purpose is the improvement of health throughout the United Kingdom dependencies.

The dependencies are geographically, economically and socially so diverse that few generalisations can be made about their health problems that will hold good for them all. Where rich natural resources are being developed, as for example in Northern Rhodesia, social provision can proceed at a much faster rate than in the less-endowed or less-developed areas, particularly in Africa (where four-fifths of the total population of the dependencies live). Most of the dependencies lie within the tropics and this fact increases the extent of the health problem, even in territories more richly endowed in natural resources than others.

From the outset, the medical departments of the dependencies were confronted with an enormous task in their endeavour to raise the standard of health of the peoples in their care. Many of these were still primitive and illiterate and unable on their own to get the better of the famine, drought, poverty and pestilence which surrounded them. Tropical diseases were widespread: malaria, sleeping sickness, filariasis, helminthiasis, yellow fever, yaws, the dysenteries, leprosy. Malnutrition was common and later, besides these so-called tropical diseases, there were tuberculosis and venereal disease. The process of inadequately controlled urbanisation further complicated the public health problem.

It should also be remembered that it is only comparatively recently that public health measures have been introduced, even in advanced countries of the world. Compulsory and comprehensive environmental health services were not developed in the United Kingdom until the second half of the nineteenth century, and child welfare services were established there only in the twentieth. The twentieth century, also, saw the establishment of British administration in many of the dependencies, including the most backward. Thus, it is only in the present century that the full-scale challenge of raising health standards in the largely tropical and under-developed territories for which the United Kingdom is responsible has had to be met. Moreover, in by far the greater part of the dependencies, particularly in Africa, there was no sound medical practice on which British administration could build; in these cases colonial governments had to take on the whole responsibility, with only such foundations as pioneering Church missions had laid.

Today there are highly developed public health organisations in the more developed territories and in most centres of population throughout the dependencies. The attack on disease meets its greatest problems in the rural areas and especially in the rural areas of the poorer territories. Here the handicaps are economic—due to the relatively low production and income per head of

[1] *The Colonial Empire (1947–48)*, United Kingdom White Paper, June 1948, Cmd. 7433.

population; physical—due to sparse populations and irregular settlement over large areas; and educational—due to lack of knowledge of proper hygiene among the population. The attack on ill health thus takes its place in the general effort to improve the physical and social environment in all its aspects, and is related to all the other programmes for economic and social development being undertaken in the dependencies.

Progress during the last quarter of a century has been appreciable, and in some instances remarkable. A large measure of control has been established over many of the diseases, particularly those peculiar to tropical countries, which have caused high morbidity and mortality rates in the colonial territories.[1] In this control, antibiotics and other drugs and insecticides have played a prominent part. Malaria is no longer the terrible scourge it once was, although its effects, especially in Africa, are still serious. The malaria campaigns in British Guiana, Cyprus and Mauritius, and, more recently, in the Taveta-Pare region of Tanganyika and Kenya, were in large part responsible for the encouraging recent improvements in health. Yellow fever, once a great killer, is now largely reduced to a few sporadic cases among people who have not been inoculated. Smallpox, though still a serious problem, only occasionally reaches serious epidemic proportions. The incidence of trypanosomiasis (sleeping sickness), hitherto particularly heavy in Nigeria, has been much reduced by special area clearance measures. The treatment of leprosy has been revolutionised by the use of drugs developed during and since the second world war.

The work of control of epidemic and endemic diseases has brought into clearer perspective the amount of ill health due to poverty, ignorance and malnutrition which exists in many dependencies. Tuberculosis, which is not in the tropics solely an urban disease, is now one of the greatest causes of sickness and death, and large-scale BCG vaccination campaigns and a series of drug trials have been undertaken, among other places in the Eastern dependencies, the Caribbean, Aden, and East and West Africa. Much research is being undertaken on nutrition and nutritional deficiency diseases, and its practical application is steadily improving the quality of diets. Moreover, although complete statistical information is not yet available, a change in the pattern of mortality and morbidity is apparent. Deaths from infectious, parasitic and other preventable diseases are falling, in relation to those due to cardio-vascular diseases, cerebral disease, malignancy and accidents. Among the causes of this are advances in curative medicine, the ageing of the population and the improvement in general health.

An example of the kind of progress that is being achieved by medical departments in a single territory is Hong Kong. Here, during the 'refugee decade' 1949–59, when the colony had to absorb an influx of over a million refugees, infantile and maternal mortality has been cut by more than half; mortality from infectious diseases has shown a considerable decline; no case of formidable epidemic disease has been reported for the past seven years; rabies has apparently been eliminated; and even tuberculosis, the present-day scourge of South-East Asia, shows signs that the control measures are beginning to take effect.

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[1]See Statistical Appendix (p. 36), Table 2.

Throughout the dependencies there has been an expansion of medical facilities, and the medical building programme is a significant part of the whole capital outlay.[1] Each year there are more and better hospitals, with improved out-patient facilities, maternity blocks, X-ray units, operating theatres and training schools. In Uganda, which has a population of 5·6 million, there are 3,886 beds in government hospitals, 2,440 beds in dispensaries built by African local authorities, and 2,758 beds in institutions under the control of missions. To take the example of Sarawak, a relatively backward territory where the difficulties of terrain are particularly great, there are in the main towns large modern hospitals offering up-to-date therapeutic services, including specialist attention. In the countryside is a complicated network of fixed and travelling dispensaries, rural midwives and dressers and mass campaigns against malaria, smallpox, tuberculosis and yaws. There are very few parts of Sarawak left, even in the deep interior, that are not within reach of some kind of medical help, and it can be said that every part of Sarawak and every inhabitant of it is, in one way or another, benefiting directly from the Government's medical and health work.

There has also been a steep rise in health expenditure by governments to provide these facilities.[1] In the last few years, health services have accounted for 9 per cent of recurrent expenditure in Aden, 10 per cent in Mauritius and 11·4 per cent (18·4 per cent of capital expenditure) in Uganda. An important part in financing increased expenditures is played by grants under the United Kingdom Colonial Development and Welfare Acts. Grants from this source for medical and health services between 1946 and 1959 totalled over £18·7 million. Grants and loans for work on nutrition for the period 1946–58 amounted to over £190,000.

As a result of improved health and the concomitant decline in death rates (including, perhaps even more significantly, infant mortality rates), populations and life expectation are increasing everywhere in the dependencies.[2] Such increases necessarily involve increased pressure on existing medical facilities. In Singapore, for example, annual out-patient attendances at the main hospitals, which were under 100,000 before the second world war, have risen to nearly two million. In Hong Kong, attendances at government clinics and dispensaries rose from 2·8 million in 1955 to 5·1 million in 1959. In Kenya out-patients at government hospitals in 1957 numbered over one million, compared with 460,000 in 1937. This popularity of the health services, although at times embarrassing, provides an indication of the growing confidence being placed in them in recent years, and is an important contributory factor to the striking improvement in health statistics.

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[1]See Statistical Appendix (p. 35), Table 1.

[2]See Statistical Appendix (pp. 36-37), Tables 3 and 4.

HEALTH POLICY

FOR MANY YEARS, health policy in the colonies remained primarily curative, and it was some time before it was realised that much sickness in tropical territories is preventable. Moreover, when preventive medicine was first introduced, most attention was given to such environmental causes of disease as insect carriers and the pollution of drinking water. Only comparatively recently has it become possible to turn attention to other important sources of ill health such as conditions conducive to tuberculosis, which in dense communities is now by far the most serious clinical and public health problem, and malnutrition. More and more importance is now being attached to preventive medicine; it is generally recognised that a primary aim of medical workers in the dependencies should be to improve health standards and to control the transmission of disease.

It follows that the planning of public health policy must be closely co-ordinated with all the other governmental activities which affect the physical and social environment. There has therefore developed the closest co-operation, not only between the government medical departments and the medical services provided by local authorities, commercial organisations and voluntary bodies, but also between medical workers, on the one side, and the staff of the Administrative Service and of such departments as Education, Agriculture, and Veterinary services, on the other.

Examples of the kind of health situations confronting the authorities are found in Aden, where the preponderance of infections of the respiratory and gastro-intestinal tracts is almost certainly due to the poor living conditions of the majority of the population; in British Honduras and Sarawak, where gastro-intestinal diseases are a major health problem in the absence of proper sanitation and clean water supplies; and in Hong Kong, where the incidence of diphtheria and typhoid is heavy owing to dense over-crowding, lack of adequate housing and shortage of water.

The improvement of health is thus part of a co-operative effort to improve general well-being. This effort involves, in addition to public services such as the provision of good water supplies, the improvement of the customary diet, special care for the health of mothers and children, and the education of adults in the principles of public health. Agriculture and veterinary departments play their part by encouraging the production of a greater variety of crops and the improvement of stock; the forestry department is concerned with the protection of forests on which water storage and soil fertility depend; and the labour department seeks to ensure suitable rations and housing conditions at centres of employment.

CONTROL OF COMMUNICABLE DISEASES

'AN OBVIOUS change in the pattern of morbidity and mortality is taking place. Many of the previously widespread tropical diseases are coming under control and, although serious problems still exist, the preventable diseases are much less prominent than they were a decade ago. There is still a hard core of ill health due to diseases in which prevailing social and economic conditions are contributory, if not actual causative, factors and which are less amenable to straightforward public health measures. Among these are disorders due to malnutrition, the gastro-intestinal diseases of infancy and early childhood, and tuberculosis, which is now perhaps the most serious socio-medical problem of all.'[1]

Most of the diseases which are present in the dependencies can be classified under the method by which the infection is transmitted. The main groups are:

(1) *Contagious diseases*, caused by direct contact between bodies, either by parasites[2] on the skin surface or venereally.

(2) *Airborne diseases.* A parasite present in the nose, mouth or lungs may be expelled into the air with minute droplets of saliva or mucus and be inhaled by another person. Diseases in this group include tuberculosis and cerebro-spinal meningitis.

(3) *Water-borne or food-borne diseases.* These are diseases caused by intestinal parasites which are passed in the faeces and are either allowed to contaminate water or food or exposed to flies which feed on them and then alight on human food. Typhoid, cholera and bacillary dysentery are among the diseases in this group.

(4) *Insect-borne diseases.* If parasites are present in the blood or tissues they cannot be transmitted unless some agent (an insect) pierces the skin, removes blood or tissue containing the parasites and infects them into another person or animal. Diseases so transmitted include malaria, yellow fever and onchocerciasis.

This classification is not exhaustive. In hookworm, for example, parasitic worm eggs are passed out in the faeces, hatch in warm, moist, shaded soil and develop into larvae, which can penetrate human skin. Thus hookworm is particularly dangerous in communities where shoes are not normally worn.

The control of contagious diseases necessitates the isolation and treatment of patients. The control of airborne diseases can be attempted by regulations for the isolation of patients and for the proper ventilation of buildings, but no regulations can prevent the public dissemination of germs from the throats of infected persons before the disease has been diagnosed in them. Methods employed in the control of water- and food-borne diseases include the supervision of foodstuffs and the careful disposal of faeces and refuse;

[1] *The Colonial Territories 1955–56*, May 1956. United Kingdom White Paper, Cmd. 9769 HMSO.

[2] The parasites concerned in tropical diseases may be grouped as worms, protozoa (single animal cells), plants (fungi or bacteria) and those of doubtful status (rickettsiae and viruses)

vaccination is undertaken where appropriate, as in typhoid and cholera. The attack on insect-borne diseases is two-pronged, involving measures, of large-scale application, directed against the insect vectors, and the drug treatment of people with the disease or exposed to infection.

The campaign against a disease usually has three stages:

(1) The incidence of the disease is determined by an examination of the inhabitants of a given area, and treatment is provided for those infected.

(2) When the causes of the disease are known, scientific knowledge is applied to their removal.

(3) A campaign is carried out to acquaint people (by lectures, films, posters and the like) with the causes of the disease and the methods of avoiding infection.

There has been enormous progress in the control of tropical diseases in the twentieth century. At the turn of the century, Ross's discovery of the cause of malaria was recent, and the causes of many of the other major tropical diseases had not yet been identified; and, with the exception of quinine, there was hardly a single effective remedy for any of them. Now, with the use of new drugs and insecticides (the development of which was considerably stimulated by the second world war) and greatly increased resources, organisation and research, many of the great killing diseases have been brought under control, and, in some cases, apparently eradicated. The campaign against others, as for example, sleeping sickness (trypanosomiasis), involves a high order of scientific and administrative organisation, including such projects as the clearing of extensive areas of bush, the movement of populations and animals, and housing and resettlement. The mass prevention and treatment of widespread debilitating diseases, such as hookworm and yaws, have demanded planned surveys and team-work on a considerable scale.

The following is a summary of some of the developments in the campaign against some of the major diseases encountered in the dependencies. The list is by no means comprehensive, but is intended to indicate the kind of work being undertaken in the eradication of disease.

Malaria

Apart from causing a large number of deaths, malaria also engenders conditions of ill health and debility which lower resistance to other diseases. It was in 1898 that the British scientist, Sir Ronald Ross, discovered that malaria was caused by a parasite carried by the female anopheline mosquito, and this discovery was followed by the pioneer control work of Sir Malcolm Watson and others in Malaya. Although the battle against malaria throughout all the dependencies has not yet been won, spectacular advances have been made in recent years. Cyprus, Mauritius, Singapore and Aden—to name but a few examples—are completely free from indigenous malaria, and in the British West Indies 'it is confidently expected that malaria will no longer exist in any of the British territories by 1961: in most, it will have been eradicated much earlier. A decade ago, each year there were thousands of cases and hundreds of deaths'.[1]

[1] *Development and Welfare in the West Indies, 1957.* Report by Sir Stephen Luke, Colonial No. 337. HMSO.

'A word of explanation of the terms "malaria control" and "malaria eradication" is perhaps desirable. Malaria control "implies the reduction of the disease to a prevalence when it is no longer a major public health problem"; it has no definite end point since it must be continued to prevent the disease from re-establishing its former prevalence . . . Malaria eradication means the eradication of the malaria parasite, not necessarily the eradication of the vector mosquito. In certain cases, depending principally on the nature and habits of the species of anopheles involved, vector eradication has achieved malaria eradication. A recent example is the elimination of the *Anopheles darlingi* from the settled coastal regions of British Guiana, and the consequent disappearance of malaria from these areas. Control has still to be maintained at strategic points to prevent the re-invasion of the coastal regions again by the mosquito from its normal habitat in the forests.'[1]

Methods of combating the disease and its vectors which are effective in one locality or community may be quite unsuitable or impracticable in another, and, moreover, the numerous species of anopheline mosquito, which carry the disease, do not all react in the same way to control measures. There is thus no single formula, and control methods suited to the different environmental factors may consist in the use of drugs to ward off the disease (prophylaxis); control of mosquito breeding by drainage of swamps or by larvicides; reduction of the adult anopheline density by residual insecticide spraying; or a combination of all these. The second world war stimulated advances in both prophylactic drugs and insecticides, and of the former, chloroquine and Paludrine are now recognised as powerful agents for the treatment and suppression of the disease. DDT, first synthesised by a German scientist in 1874, was used for the destruction of mosquitoes both from the ground and from aircraft in the South-East Asian and Pacific war theatres, and Gammexane was evolved by British chemists in response to war requirements; both these insecticides, and others more recently introduced, have transformed the possibilities of malaria control.

The method of eradicating the mosquito by control of breeding has been successful in freeing Cyprus completely from the mosquito carrier, and no new case of malaria has been reported there since the end of the campaign in 1949; malaria cases in Cyprus in 1946 had totalled 4,500. Mosquito control by destruction of adult mosquitoes has reduced the number of cases in British Guiana to minute proportions, mostly from the hinterland, and regular treatment now affords protection to virtually the whole population. In Mauritius a campaign involving the internal spraying of all houses and buildings on the island with DDT and gammexane has almost eradicated the main mosquito carrier; malaria has ceased to be a public health problem in the colony. The mass control scheme in the Borneo territories has been particularly successful in Sarawak, where it is estimated that some 350,000 people have been freed from risk of infection: by the end of 1959 every known malarious area had been sprayed at least once. Malaria was under effective control throughout the territory, and complete eradication had now been accepted as the aim. In North Borneo, the transmission of malaria has been interrupted, and a full-scale colony-wide eradication programme is planned

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[1] *Ibid.*

for 1961. A house-spraying scheme commenced in Zanzibar in April 1958, and only one relatively small focus remains on the island.

The greatest challenges remain in the hyper-endemic areas of tropical Africa. Extensive schemes in Nigeria and Tanganyika have greatly reduced the incidence of malaria and yielded valuable scientific information. One of these, in Western Sokoto in Northern Nigeria, has been expanded to protect a population of 465,000 in an area of over 7,000 square miles. Many of the main urban areas in East and West Africa are now relatively, where not completely, free. Unfortunately, difficulty has been encountered in elimination of the main mosquito vector, *A. gambiae*, in Tanganyika; and in Nigeria a resistance of the malaria parasite to one of the drugs used in control by treatment has been demonstrated. These findings show that there is not yet a clear road to the ideal of complete eradication in Africa.

Leprosy

Leprosy—a disease as old as history—is today encountered mainly in tropical countries, and is to be found in most of the dependencies—Nigeria being by far the most seriously affected.

In this century, and particularly since the second world war, attitudes to and treatment of the disease have been transformed. The physical suffering and social ostracism which used to be the lot of those infected has to a great extent given way to a well-founded optimisim—based on the proved effects of modern methods of treatment—about the ultimate eradication of the disease, and thus leprosaria are no longer places of despair. It is now believed that only about a quarter of all cases are infective, and that the remainder, although requiring treatment, do not necessitate isolation. The incidence of the disease can be reduced by limiting isolation in leprosaria to infective cases only, and developing an out-patient and clinic service for the long-term continuation treatment. In this way, figures for in-patients have fallen considerably; in Zanzibar they have dropped from 192 to 85 in the past five years, and in the Seychelles 20 patients were discharged in 1958 leaving only 13 in the Curieuse settlement. This is the pattern also in the larger territories.

The treatment of leprosy has been revolutionised in recent years by the use of the sulphone drugs. At first, the drugs used were complex proprietary derivatives, which were extremely costly, and had to be given by daily injection under close medical supervision. A few years later, however, as a result of research carried out in Nigeria and elsewhere, it was established that the basic sulphone, diamino-diphenyl-sulphone (commonly known as dapsone or DDS), which had formerly been considered too poisonous for human use, could be given safely and, besides being as effective as other sulphone drugs, had the special advantages of being cheap to produce and easy to administer. In tablet form it could be supplied for mass out-patient treatment. The sulphone drugs are now the most widely used form of treatment in the United Kingdom dependencies, and although DDS sometimes takes many years to effect a complete cure, it gives hope to even the most desperate and advanced cases. Unlike many modern drugs, the sulphones do not lose their effectiveness, even when given over a long period of years.

The seventh International Congress of Leprology, held in Tokyo in November 1958, heard numerous reports and suggestions on the efficacy of

new drugs suitable for the treatment of leprosy. Among these was DPT, a compound of diphenyl thiourea, which was developed in a United Kingdom laboratory, and on which trials began in both East and West Africa in 1955. DPT is radically different from DDS and its various derivatives, and represents an entirely new line of research. Early experiments have been found to give results at least as good as the sulphones, and there are indications that the substance is less toxic in its effects.

In leprosy relief work, as in other forms of social service, the Christian missions were pioneers in the United Kingdom dependencies. Hospitals and settlements established and still maintained by missions, usually with financial help from governments, remain a vital part of the whole leprosy relief service, although governments are gradually taking over administrative responsibility, several of them employing their own leprologists to supervise leprosy work throughout the territory. They undertake publicity and propaganda campaigns to spread information about the new drugs and the new and hopeful outlook on the disease, and to encourage those who have contracted it to present themselves voluntarily for treatment. In addition to financial allocations made by colonial governments from their own resources, sums amounting to about £2 million have been made available from United Kingdom Colonial Development and Welfare funds for leprosy control and relief measures in the dependencies and for leprosy research.

The British Leprosy Relief Association (BLRA), formerly known as the British Empire Leprosy Relief Association, was founded in 1924 and is financed by private donations and subscriptions, in addition to receiving small grants from colonial governments. Its work includes the supply of latest information and drugs to leprosy workers, the training of doctors and others in the treatment and control of the disease, and the carrying out of research and investigation in different countries.

Nigeria, where the problem is greatest, provides a good example of the vigour with which the problem is being tackled. Control and relief measures are carried out by the Regional governments, by BLRA, by missions, by local authorities or native administrations, or by a combination of two or more of these agencies, which between them have built up a comprehensive organisation covering the whole territory. In the Eastern Region, where important pioneer work in the treatment of leprosy at out-patient clinics has been carried out, the Government Leprosy Service now maintains a number of provincial settlements, which form the basis of a service responsible for developing and maintaining local segregation villages, treatment clinics, propaganda and surveys, and for the follow-up of discharged patients and of those who have been in contact with the disease. The wave of discharges of patients which followed the introduction of sulphone treatment in 1949–50 has now subsided, and the rate remains fairly steady. During 1957, of the 14,000 patients receiving treatment, 2,500 were discharged as symptom-free, and there has since been a steady decline in the number of patients, of the order of 15 per cent annually. Uzuakoli Leprosarium, in the Eastern Region, is the centre of the Nigeria Leprosy Service Research Unit (the unit was initiated by BLRA) and has been responsible for some of the most valuable work in this field. A report for 1956 by the senior specialist in charge noted that the research unit possesses all the essential facilities for basic

leprosy research, and 'adequate numbers of highly co-operative patients are available'. The research programme includes pilot trials of new drugs (for example, dapsone was first developed here, and at present DPT is at the experimental stage), immunological studies and epidemiology. The leprosarium at Uzuakoli has given particular attention to preventive and curative physiotherapy, and has established a specialised unit for carrying out orthopaedic and plastic surgery.

In 1952, a scheme for leprosy treatment and control, modelled on the system which was already showing successful results in the Eastern Region, was introduced in Northern Nigeria. Here, there were special problems associated with the vast extent of the territory, the very uneven distribution of the population, the great variation in social and economic conditions, and the generally high incidence of leprosy. In order that the Region's resources of finance and staff may be used to the best possible effect, it is aimed at integrating the leprosy service with the general medical and health services and making out-patient treatment available throughout the Region at the local authority and government dispensaries, where leprosy clinics are being opened and the existing staff are being trained to administer dapsone. By the end of 1959 the Northern Region had a network of over 800 treatment centres, and about 170,000 patients—over a third of the number of cases—were under voluntary treatment. During 1957, 35 million tablets of dapsone were issued. The headquarters of leprosy work in the Western Region of Nigeria is at Ossiomo Leprosarium, where there are about 600 in-patients, and the Region has a chain of out-patient clinics and segregation villages. The Gambia control scheme is well under way, with, in 1959, 46 established clinics and 5,058 cases under treatment. Sierra Leone has plans for a leprosy settlement and for treatment centres in the Northern Province.

The problem is not so great in East as in West Africa, though surveys in the area have indicated that there may be as many as 100,000 active cases in Tanganyika, about 83,000 in Uganda, and about 35,000 in Kenya. In the past few years constantly increasing numbers of sufferers have been coming forward for treatment. In 1947, an inter-territorial leprologist was appointed to reorganise leprosy work in the area, and measures of treatment and control have since been intensified.

An outstanding development was the decision in 1953 to establish an East African Leprosy Research Centre at Alupe in Kenya, where a rapidly expanding leprosarium was already in existence. The centre, which began regular work towards the end of 1955, is financed partly by the governments of Kenya, Uganda and Tanganyika, and partly by BLRA, and comes under the aegis of the East African Council for Medical Research. In-patient treatment in Kenya is given chiefly in the leprosarium at Alupe, where at the end of 1956 about 300 patients were accommodated. Nearly 5,000 out-patients also receive treatment at Alupe, while, throughout the colony, out-patient treatment is provided at a network of district leprosy clinics.

One of the largest of the Tanganyika leprosy settlements—which are spread over the whole territory—is the government colony at Nakete in the Southern Highlands province; this houses about 1,000 patients and is staffed by the government and BLRA. Over 3,000 acres are cultivated by the patients, who also carry on local handicrafts. There is a school at the settlement, with a

licensed teacher recognised by the education authorities. In 1953 the Mission to Lepers made a donation of £2,000 to Makete to provide a guest house, where visitors and helpers may stay and share in the work or study the techniques of treatment.

The policy of setting up leprosy villages, to which admission is voluntary, has had marked success in Uganda, and a notable feature of this development has been the increasing interest of African local authorities, who provide funds for the up keep of the villages. By 1957, 75 of these villages had been established. There are five leprosy settlements run by missions, and outpatient treatment is given at clinics run in conjunction with dispensaries. By the end of 1959 some 61,000 patients (out of an estimated total of 83,000 cases) had either been treated or were receiving treatment, mainly by the administration of dapsone.

In addition to leprosy work in the African dependencies, much is being done also in the Eastern dependencies, the British Caribbean and the Western Pacific. In Sarawak particularly good progress is being made in re-absorbing discharged patients into the community. In the Western Pacific the principal leprosy settlement is on the island of Makogai, one of the most beautiful in the Fijian island group. Makogai serves the dependencies of New Zealand and the United States as well as those of the United Kingdom.

Trypanosomiasis

Trypanosomiasis, or sleeping sickness, is one of the many diseases over which mastery is being obtained. A disease which formerly decimated African villages and caused dangerously decreased food production has now been reduced to manageable proportions, while earlier diagnosis and more effective treatment have succeeded in lowering the death rate to a relatively small figure. Progress has stemmed largely from the pioneer work of David Bruce in Uganda in the early years of this century, when he discovered, after numerous experiments, that sleeping sickness in man and nagana in cattle were caused by similar parasites—trypanosomes introduced into the bloodstream by the bite of infected tsetse flies; and from the work of C. F. M. Swynnerton in Tanganyika in the 20 years before his death in 1938. Swynnerton discovered that certain deadly types of tsetse could not live permanently in dense, continuous thicket, or in the open. He therefore divided the fly-infested belts by long corridors which the fly could not pass, and then progressively cleared the fly from the separate blocks. The best method of doing this proved to be burning their breeding places or growing such thick vegetation that the tsetse could not live in it. As a result of the efforts of Swynnerton and his assistants, the tsetse fly was driven out of 15,000 square miles of Tanganyika, and the land thus reclaimed put under cultivation.

The experience gained in Tanganyika was applied in the village resettlement scheme at Anchau, in what is now the Northern Region of Nigeria. The market town of Anchau, whose population was ravaged by sleeping sickness, was selected by the Nigerian Sleeping Sickness Control Branch in 1937 as the site for a large-scale experiment in the control of the disease. Subsequently a tsetse-free corridor 70 miles long and 700 square miles in area was created, and within ten years the population had been resettled in villages

in the corridor with improved water supplies, village hygiene and agricultural methods. Clearance schemes have been extended to other areas, especially in Nigeria, since the successful Anchau experiment. Work has also proceeded with the eradication of tsetse flies by the use of insecticides and by the destruction of game harbouring trypanosomes.

Sleeping sickness control by clearance and resettlement provides an excellent example of inter-departmental co-operation. Medical and veterinary activities are supplemented by those of agriculturists, foresters and engineers in bush clearance, soil conservation, agricultural development, irrigation and the provision of housing and water supplies. The resettlement of population involves the services of administrative, educational and welfare workers.

In Nigeria treatment is legally compulsory. It is provided by teams of trained workers who, upon entering a new area, make a survey of the population and give a full course of treatment. The work of the sleeping sickness teams has now been extended to include the treatment of other epidemic diseases. During the years 1931–40, over three million people in Nigeria were examined and nearly 400,000 cases of sleeping sickness treated; in the period from 1946 to 1952 five and a half million examinations were made, and over 70,000 cases treated. This work has continued steadily, and, during the first nine months of 1958 alone, in Northern Nigeria, 1,519,143 people were examined for sleeping sickness during routine surveys, and 4,902 cases were diagnosed. The goal of eradication of the vectors—the riverine species of tsetse—has been brought appreciably nearer by growing evidence that a single application of insecticidal spray (5 per cent DDT or 40 per cent Dieldrin) applied to riverine vegetation at the height of the dry season will eradicate the fly.

During 1957–58 in Uganda, where there was a local outbreak, control measures included spraying 76 miles of river with a power spray mounted on a dinghy.

Although human trypanosomiasis no longer occurs in classical epidemic form, the search for new methods of cure and control is always in progress. Research into the disease is organised in both East and West Africa on a regional basis (see p. 32), and in West Africa the epidemiology of the disease has been completed. A number of established drugs have proved effective in the treatment of both *Trypanosomiasis gambiense* and *Trypanosomiasis rhodesiense* infections. A recent addition which is still undergoing trials is Furacin, which has been tried in Tanganyika and Uganda, and may prove to be of particular value in cases of advanced *Trypanosomiasis rhodesiense*, which has seemed resistant to other drugs. Considerable success was achieved, during 1958–59, in using pentamidine as a prophylactic in a selected area in Benin Province, Nigeria. An incidence of 2·8 per cent in a population of 7,500 was thereby reduced to ·006 per cent. Consideration has also been given to the use of prophylactic drugs for groups especially exposed to continuous risk of infection, such as railway workers, forestry staff and hunters.

Yellow Fever

Yellow fever is found in some districts of Africa, the West Indies, South America and in a few other parts of the world. As the disease is localised, international regulations exist to prevent its spread—especially by airborne passengers—to other parts free from it. It is mosquito-borne and many of

the measures taken against malaria are applicable also to the insect transmitting yellow fever. In Freetown, Sierra Leone, few cases have occurred since the introduction of a piped water supply. DDT has been used extensively to destroy the disease vector. Prophylaxis has progressed side by side with measures for the destruction of the vector, and an effective vaccine has been produced. Much of this work has been undertaken by the Rockefeller Foundation (see p. 33), in co-operation with the United Kingdom Colonial Office, at the research institutes in Uganda and Nigeria. As a result of this progress, yellow fever now seldom reaches epidemic proportions and is virtually confined to sporadic cases among unvaccinated persons. The two serious yellow fever epidemics which have occurred since the second world war were both in Nigeria. The first, in 1946, was brought to an end after 400,000 inoculations and the extensive use of DDT; the second, in November 1951, was brought under control early in 1952 after an intensive vaccination campaign, and no further case has been reported in the area affected. In recent years there has been no significant incidence of confirmed cases. Strict control measures have been enforced and a great deal of vaccination has been done in territories where there is a risk. In British Honduras, for example, this has covered the entire population. There have also been effective measures against the common mosquito carrier, *Aedes aegypti*, and in Trinidad these have achieved its reduction below the critical level above which transmission is possible. *Aedes aegypti* resistance to DDT has retarded the campaign, but good results are being achieved by residual spraying with Dieldrin. After examination of close on 300,000 breeding places in British Guiana during 1957–58, the coastlands and the city of Georgetown were accepted as free for the purpose of international regulations. In tropical Africa, *Aedes* control has of necessity been included in general public health routine.

Early in 1957 the World Health Organisation approved the yellow fever vaccine produced in the government laboratories at Lagos, Nigeria, for purposes of international certification of protection. This was only the seventh laboratory in the world to have such approval.

Yaws

This disfiguring skin disease is prevalent in many of the dependencies, and often attacks children. Health authorities have been handicapped by lack of precise knowledge of the epidemiology of the disease, since the fundamental factors which influence its regional incidence have not yet been scientifically ascertained. However, investigations have tended to show that the germs (spirochaete) that cause both syphilis and yaws are structurally identical, although yaws is not a venereal disease. Yaws is spread mainly by contact with infected persons (the spirochaete entering only through broken skin), but it seems possible that the spirochaete can remain alive on the floors of native huts and also that there may be an insect vector.

With the introduction of modern hygiene and sanitation, yaws is fast disappearing from closely settled areas. It is still prevalent in rural areas, where, however, special treatment campaigns, employing modern drugs and antibiotics, and treatment provided both by mobile and static rural health units, are having marked success. Well over three million of the population

of Eastern Nigeria have been treated, and a re-survey of close on two million persons disclosed only ·3 per cent to be infectious cases. In the British Solomon Islands Protectorate the entire population has received penicillin treatment and in that territory and in Fiji, Trinidad and other Caribbean islands complete eradication is practically achieved, and all that now remains is to ensure against spread in the future. The disease is becoming rare in Zanzibar, and the signs are that it will be eradicated from Sierra Leone at the end of the current campaign.

Venereal Diseases

Venereal diseases are not, of course, confined to the dependencies, nor to the tropics. But, in the less-developed areas, the problem of treatment is increased by difficulties in communications and in following up results among scattered and often transient people. More widespread and effective treatment has been made possible by the use of sulphonamides and antibiotics of the penicillin group, but venereal disease is essentially a social problem and the long-term solution is largely educational. This long-term preventive aspect is not being neglected in the dependencies, but it cannot be claimed that, statistically, significant results have been achieved so far.

Among examples of the kind of work being undertaken in places with a high population density are the Caribbean medical centre in Trinidad, which combines treatment with training of staff and a base for field clinics, and the special centres in Hong Kong and Singapore. In many of the dependencies, the number of cases suffering from infectious forms of venereal disease who present themselves for treatment has continued to decline, and it is believed that this reflects a falling incidence in the general population. In Hong Kong, for example, 11,722 patients received treatment for various venereal infections in 1959, compared with 18,129 in 1955. In the small towns and rural areas generally, treatment by modern methods is mainly in the hospitals and by rural health personnel.

Tuberculosis

Tuberculosis is one of the greatest problems faced by health departments in all the United Kingdom dependencies, except in a few of the non-tropical territories, and a very substantial portion of their resources is devoted to coping with this infection. Speaking at the opening, in London in July 1958, of a Commonwealth Chest Conference, organised by the National Association for the Prevention of Tuberculosis (NAPT) (now renamed the Chest and Heart Association), which has affiliated organisations in 12 of the dependencies, the then United Kingdom Secretary of State for the Colonies, Mr. Lennox-Boyd (now Viscount Boyd), said that satisfaction and some credit could be taken from the fact that 'in many of our overseas territories, tuberculosis death-rates are now falling. . . . We are applying', he said, 'the technical methods worked out in Europe and North America' to the problem among races of incredible variety, under many different governments.

Throughout the dependencies, numerous campaigns and surveys have been carried out, often with the assistance of the World Health Organisation and the United Nations Children's Fund (see p.33); help has also been given under the provisions of the Colombo Plan for Co-operative

Economic Development in South and South-East Asia[1]. Many of the surveys have taken the form of tuberculin testing followed by BCG vaccination of those found to be susceptible, and in Hong Kong, where at one period almost 40 per cent of deaths from tuberculosis occurred before the age of 5 years, facilities exist for the vaccination of new-born children with BCG before they have a chance to become infected (approximately 60 per cent of children born receive this vaccination on a voluntary basis within two or three days of birth). Mass X-ray procedure has also been adopted in some of the territories. In Singapore, for example, where a separate Tuberculosis Control Unit was established in 1957, a free mass X-ray programme was initiated in July 1958 with the assistance of Australian experts provided under the terms of the Colombo Plan.

The surveys and campaigns leave no doubt as to the seriousness of the problem, although a great deal of encouraging progress is now being made. In Trinidad, for example, notifications are falling despite intensive case-finding, and in Hong Kong, where, in 1959, just over two per cent of the adult population had the disease in an acute form, the death rate has now fallen to 76·2 per 100,000 persons, as compared with 208 per 100,000 in 1951. In 1958 the BCG campaign in Barbados was concluded; 88,336 persons were tested and 41,464 were vaccinated. In 1957–58 there was a 100 per cent response to the offer of BCG vaccination in the Lagos area of Nigeria. The expansion of services in Tanganyika is reinforced by the very active co-operation of mission hospitals. Also in that territory a local authority financed BCG vaccination of 10,776 children.

The general approach to control in the overseas territories is intensive treatment of acute cases in hospital as soon as possible, with prolonged follow-up work and treatment on a domiciliary or ambulatory basis. Clinical facilities are being rapidly expanded and chronic cases are, where possible, segregated. These measures are, of course, backed by BCG vaccination of vulnerable groups and routine public health procedure. The full range of modern drugs is available and their efficacy under varying conditions studied. Facilities for thoracic surgery exist in a number of the main centres. A thoracic surgery team, sponsored by the Colombo Plan, arrived in Brunei in 1959.

Hospital facilities vary from territory to territory. In Singapore there is a modern hospital with over 1,000 beds, and in Hong Kong about 1,800 beds are now available for the treatment of tuberculosis. In both territories elaborate clinic and out-patient therapy systems are in operation. Much of the curative work throughout the dependencies at the present time is based on general hospitals, and planning, notably in Africa, tends to emphasise the provision of small well-distributed units rather than large central sanatoria.

Departmental work has been greatly assisted by voluntary organisations. Of these, the Chest and Heart Association (formerly the National Association for the Prevention of Tuberculosis), in the United Kingdom, does work of the greatest importance. Besides arranging periodical international conferences, the Association awards scholarships to enable medical workers from the dependencies to go to the United Kingdom to study the disease; it

[1]See COI *Fact Sheets on the Colombo Plan*, R.4253/1–7, and reference paper *The Colombo Plan: A Short Account*, R.4407.

has also published a general survey of tuberculosis in independent and dependent countries of the Commonwealth and has conducted detailed sociological and clinical surveys of the disease in the West Indies and Cyprus. In addition, local anti-tuberculosis associations have been formed in many territories and these are active in raising funds and maintaining public interest.

In some of the territories schemes exist for providing financial help for patients who have been advised to give up work to undergo treatment for tuberculosis. This is so in Aden and Hong Kong. In Singapore the Tuberculosis Treatment Allowance Scheme is operated by the Department of Social Welfare.

Diseases Causing Blindness

An inquiry was initiated in 1946 by the (United Kingdom) Royal National Institute for the Blind and the Colonial Office, into blindness in the dependencies. It was estimated that 75 per cent of this blindness was avoidable, for example, by observing simple rules for the care of the eyes, and that a great deal of it could be cured by surgical operation. As a result of this inquiry it was decided to set up a voluntary organisation to supervise the work both of preventing and curing blindness and of training of blind people. This organisation, the Royal Commonwealth Society for the Blind (formerly the British Empire Society for the Blind), has been in operation since the beginning of 1950 and co-operates closely with the Colonial Office, colonial governments and voluntary organisations throughout the dependencies.

Two major diseases which can lead to blindness are onchocerciasis and trachoma. Onchocerciasis is caused by a filarial worm transmitted by the bite of species of the *Simulium* fly, which breeds in streams and rivers. Onchocerciasis is a serious and increasing menace in Nigeria and is also prevalent in East Africa, in parts of Kenya and in Uganda. Sufferers have been treated with modern drugs such as Hetrazan and Suramin, but, as with malaria, the chief hope lies in prevention through the control of breeding, and DDT has been used extensively on the riverine breeding places of the *Simulium* fly.

Trachoma is even more serious than onchocerciasis in its total effect and is regarded by many authorities as the greatest single cause of blindness and poor sight. It is a type of conjunctivitis which is highly contagious and is due to a virus; the disease causes corneal ulcers and scars and, at worst, total blindness. A survey conducted by the Kenya branch of the Royal Commonwealth Society for the Blind confirmed that trachoma was the most widespread eye disease in Kenya, as it was in the whole of East Africa (where there were estimated to be at least 120,000 blind people). The incidence of the disease was estimated at about 70 per cent among the Wakamba tribe of Kenya, 80 per cent among the Kikuyu and almost 100 per cent among the Suk. A travelling clinic in 1954 restored sight by surgical operations to 300 of Kenya's blind population of 35,000.

In the first stage of the Royal Commonwealth Society's work, the heaviest item of expenditure was the financing of surveys required to ascertain the extent and causes of blindness in particular areas and what resources to cope with it existed or could be mobilised. The impressive progress made in these years

was summed up in the report of the then British Empire Society for the Blind in the report for 1954–55 in these words: 'Surveys to reveal the extent and causes of blindness have been conducted in areas containing twenty-four million inhabitants. New eye clinics have been established by governments in many territories and the number of eye treatments has increased dramatically. International interest has been focused on some of the main causes of tropical blindness, and important research and control measures are now being successfully undertaken'. A (United Kingdom) Medical Research Council group working in the Gambia, to which Colonial Office funds contribute substantially, is studying very successfully several strains of the causal virus isolated by tissue culture.

In 1959 the Royal Commonwealth Society for the Blind estimated that there were 600,000 blind in the dependencies and the society formulated a five-year plan aimed at doubling educational provision for the 50,000 blind children in the dependencies, further field trials of new vaccines against trachoma, experiments with a new type of mobile dispensary, a scholarship fund, and major emphasis on training centres for rural employment. The cost of the plan is estimated at about £250,000 and the society hopes to double its annual income with aid from Commonwealth countries.

Other Diseases

Hookworm, while not directly the cause of many deaths, is responsible for much debility, anaemia and ill health. Proper sanitation is the real answer to hookworm, as it is also to typhoid and other enteric diseases. While there have been typhoid outbreaks in recent years, especially in Hong Kong, East Africa and the West Indies, the experience of most other territories has shown that personal prophylaxis, improvement of water supplies and other preventive measures are slowly reducing the incidence of enteric diseases. Outbreaks of plague still occur, particularly in East Africa, but treatment of early cases with streptomycin have proved remarkably successful. Smallpox is still endemic in Africa although it is kept well under control by vaccination campaigns (281,000 vaccinations in Sierra Leone in 1959). Tick-borne relapsing fever was once extremely common in East Africa but insecticidal spraying of individuals, baggage and buildings has greatly reduced the incidence of the disease.

Acute anterior poliomyelitis is becoming a disease of more general epidemiological significance in the dependencies. There have been recent outbreaks in Mauritius, Malta, Fiji, and elsewhere. The general epidemiological picture still needs clarification but some important studies have been made, and these have shown that in some islands, for example the Seychelles and St. Lucia, there is a very high degree of natural immunity among the locally born population. In Singapore, where an outbreak occurred in the latter part of 1958, there were some 400 cases and an intensive vaccination campaign was started and Sabin type oral vaccine was used to immunise over 200,000 children. Salk type vaccine from United Kingdom, Canadian or United States sources has been used freely elsewhere. In Mauritius, in particular, a recent outbreak (1959) has indicated the success of Salk vaccine given during the preceding year or two.

PREVENTIVE AND SOCIAL MEDICINE

'PREVENTIVE MEDICINE, particularly in its social aspects, presents two distinct problems. One is that of the heavily populated territories such as Aden Colony, Gibraltar, Hong Kong and Singapore and the large towns elsewhere. The other is that of the vast areas, especially in Africa, where not only is the population widely and thinly scattered, but the people are usually less sophisticated and it is often a serious problem to maintain close contact with them.

'Under urban conditions, health services have generally become highly organised under government or municipal auspices. In Singapore, Hong Kong, Nairobi and other large population centres, the system of health administration tends to follow the United Kingdom pattern with close co-ordination between hospital, clinic and domiciliary services. It is possible under these conditions to develop a social hygiene service, and this is particularly well organised in Singapore and Hong Kong, where the diagnosis, treatment and prevention of venereal disease have an important relation to the shipping using the ports.

'Rural areas call for different treatment, and various systems have been designed to meet local circumstances. North Borneo now has a mobile dispensary fitted up in a specially designed railway coach, to serve out lying communities on the railway line, In West Africa, medical field units-have the triple function of dealing with epidemics, carrying out surveys and conducting mass campaigns against such diseases as smallpox and yaws.'[1]

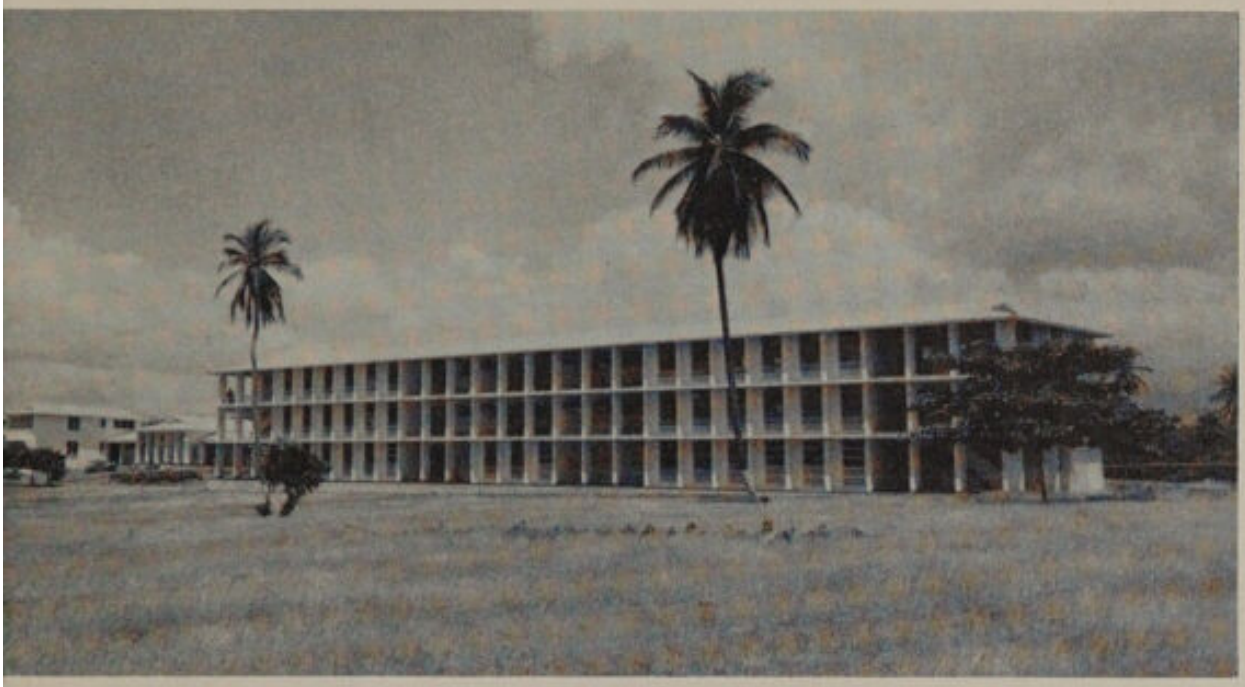
Health Centres

A feature of public health services in recent years has been the development in urban and rural areas of health centres, staffed and equipped to co-ordinate preventive and curative services. In urban areas the tendency has been for such health centres to perform such specialised functions as maternity and child welfare services and treatment of chest and venereal diseases. In rural areas, on the other hand, health centres fulfil a more comprehensive role, since they have been developed from rural dispensaries by the addition of preventive functions to their hitherto predominantly curative functions. Staffing arrangements at these centres vary according to local conditions, but the typical complement is a medical assistant, a sanitary assistant and a midwife.

Examples of urban health centres are the Lagos (Nigeria) Polyclinic, built at a cost of £120,000, which was opened in April 1959 to provide out-patient treatment for all classes of patients, and the Singapore Institute of Health, opened in 1958, which houses the city council out-patient clinic, the government school health services and the university's department of Social Medicine and Public Health, in addition to providing training facilities for public health personnel.

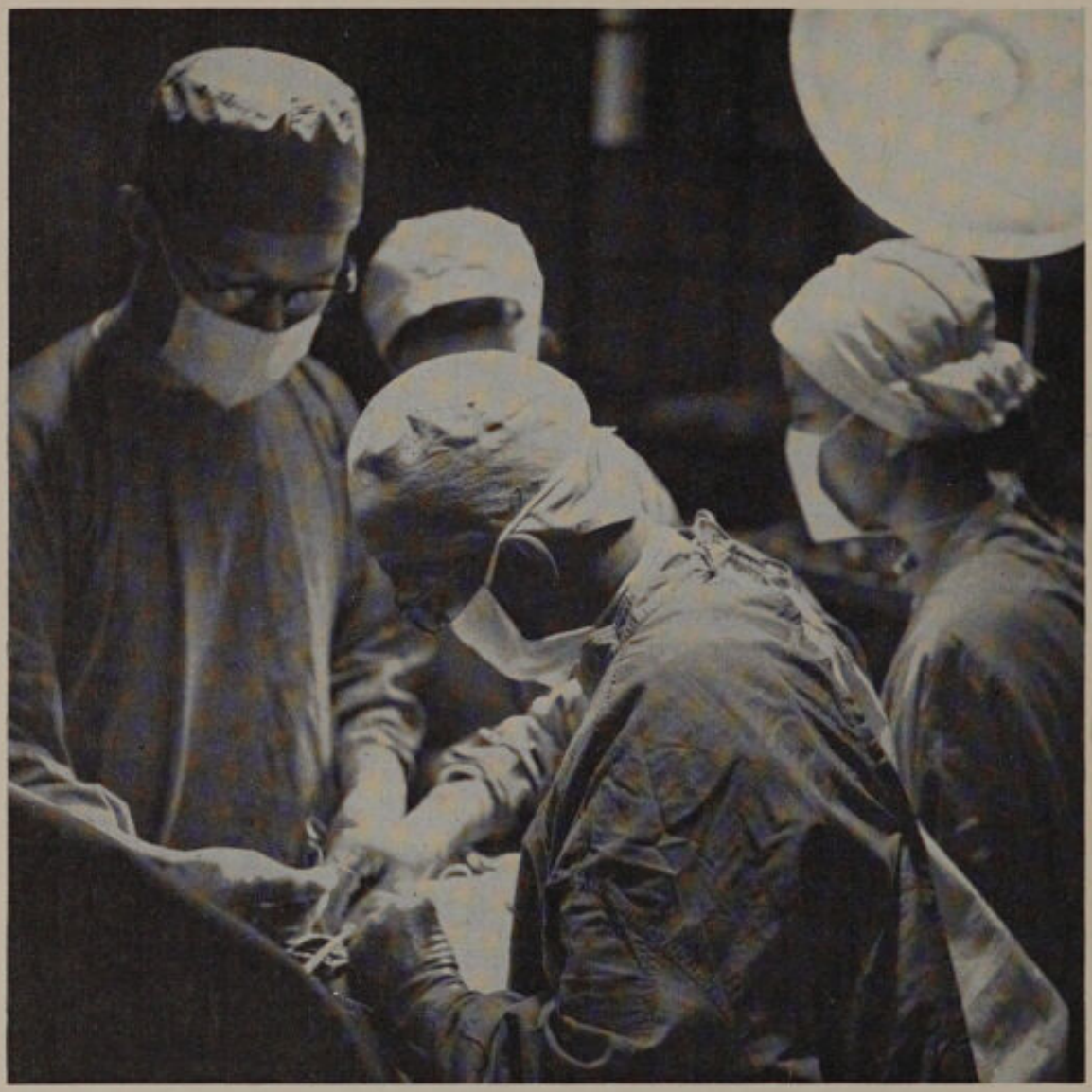
Kenya has a particularly effective network of rural health centres, with efforts in the field of long-term preventive and promotive medicine concen-

[1] *The Colonial Territories 1955–56.* United Kingdom White Paper Cmd. 9769. HMSO.



The Princess Margaret Hospital, Morant Bay, Jamaica.

Llewellin Hospital, Kitwe, Northern Rhodesia.



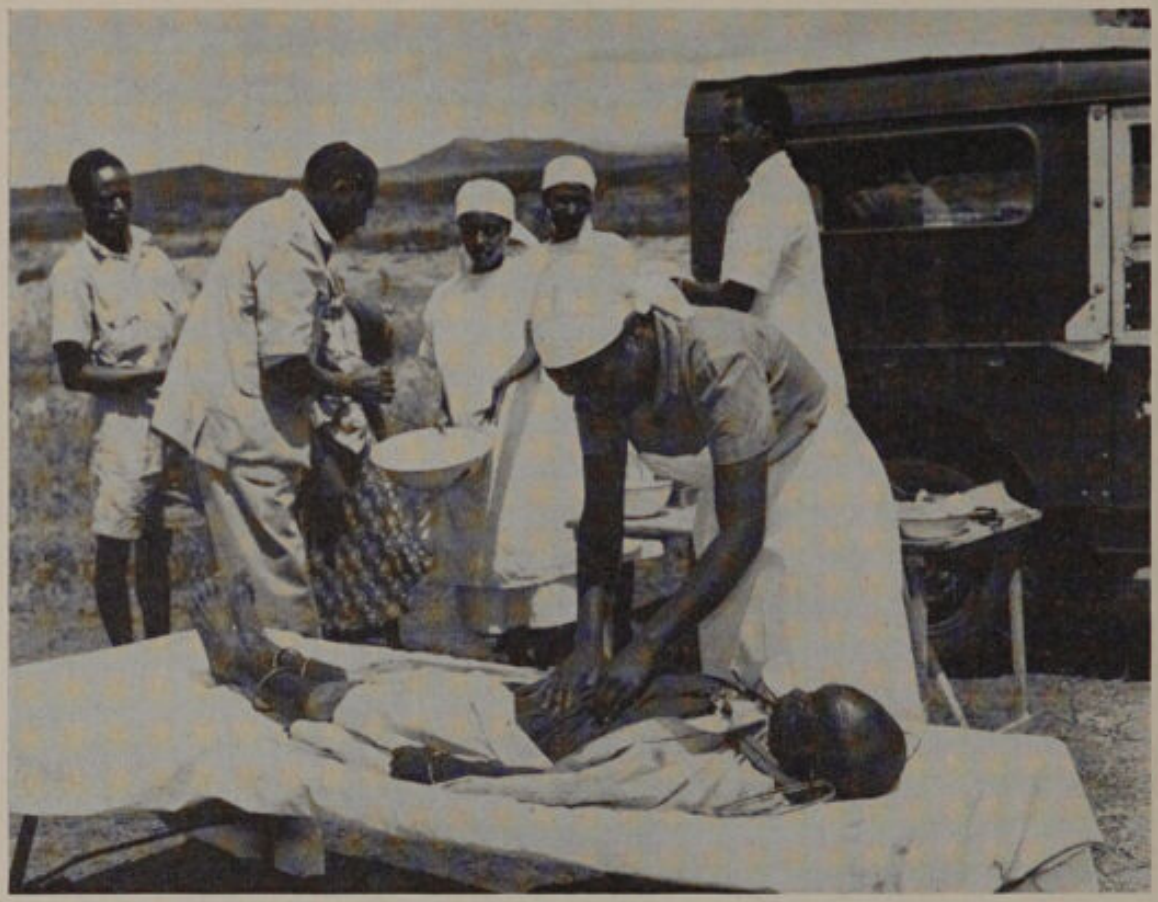
Malay, Chinese and Indian staff performing an operation in the theatre of Singapore General Hospital.

The Marampa health centre, Sierra Leone. This is maintained by the Sierra Leone Development Company for its employees and their families.

The Singapore Institute of Health which houses the city council out-patient clinic, the government school health services and the university department of social medicine and public health.

One of the floating clinics in Hong Kong. The deck is lined with people waiting to see the doctor.

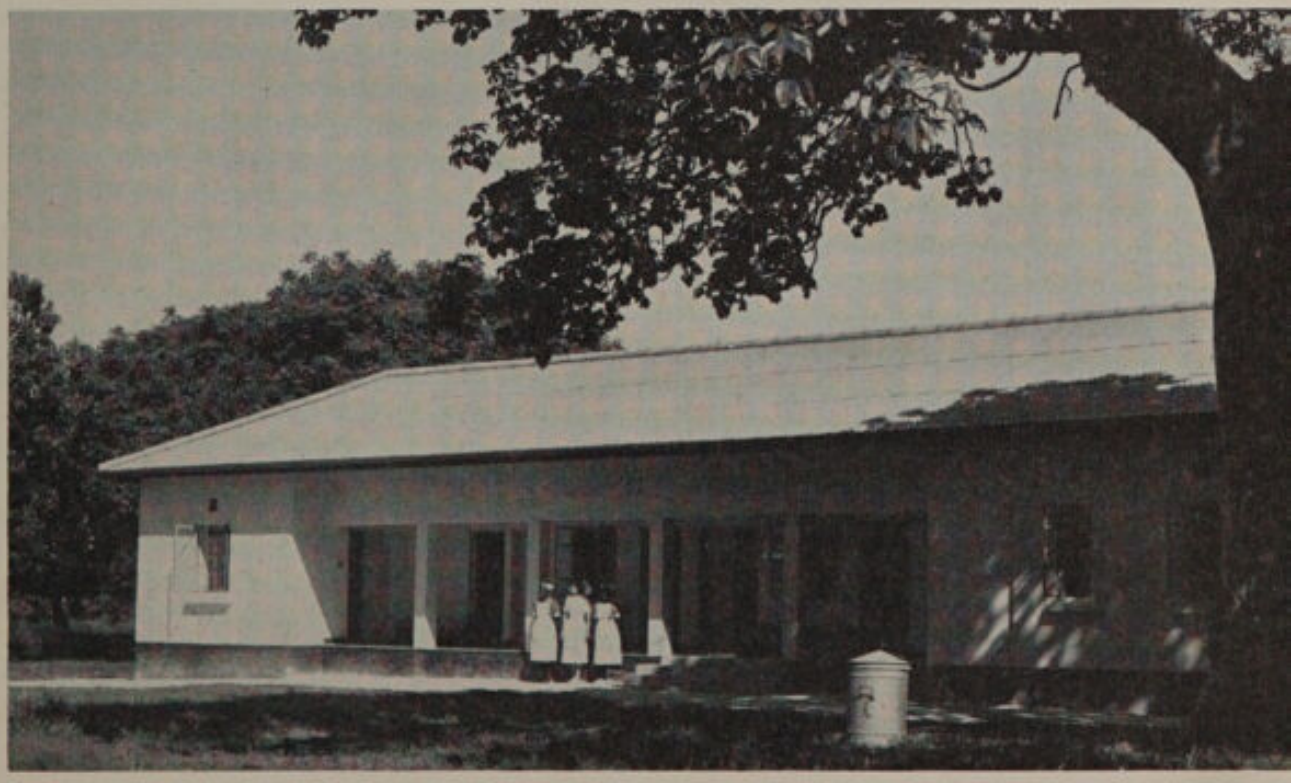
Hong Kong child being immunised against diphtheria.



Mobile clinic on tour in Kenya. A Kikuyu midwife examining a Masai patient.

At the health centre, Jesselton, North Borneo, trained nurses and health workers give advice to mothers.

Mothers receiving instruction at a baby clinic in Uganda.

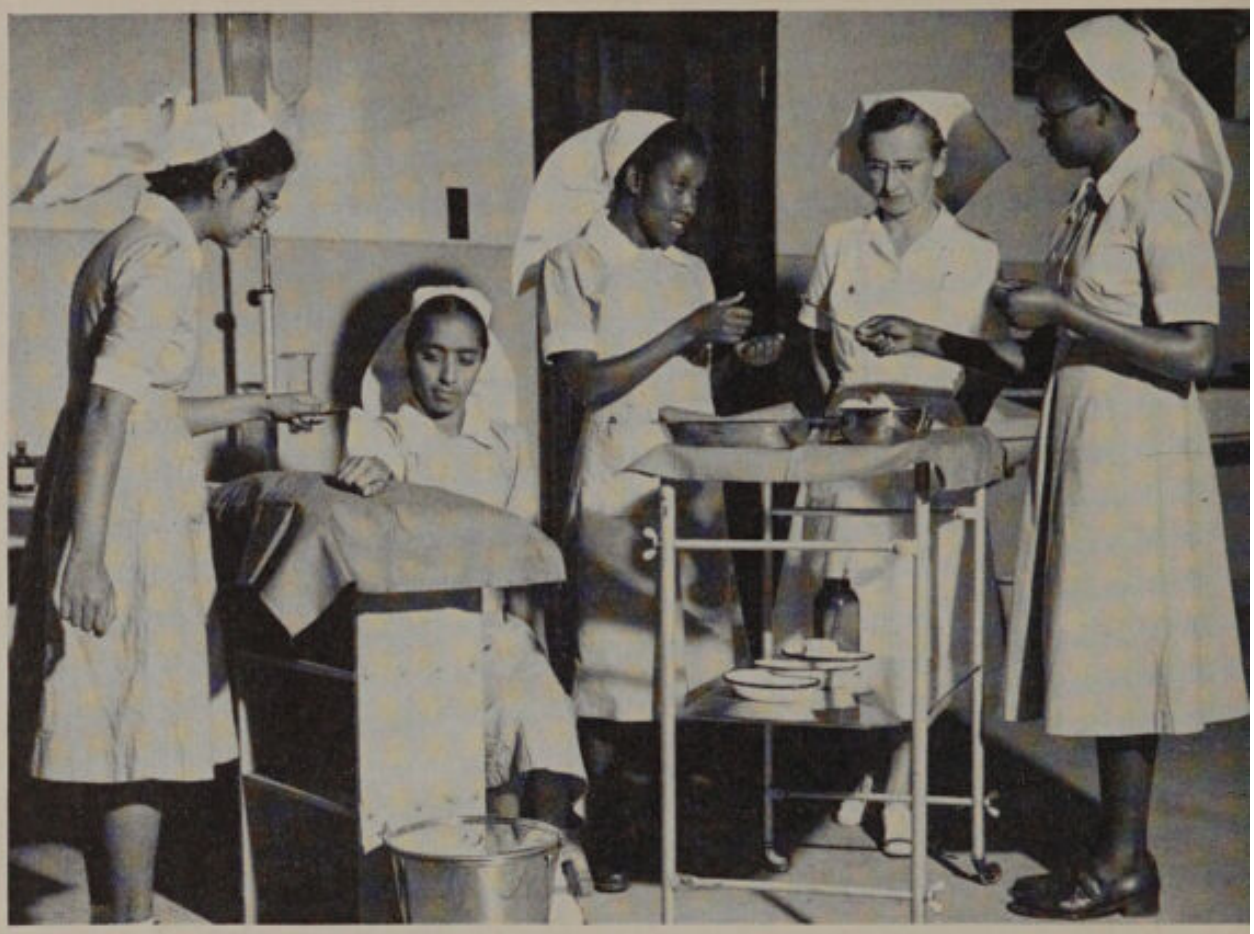


A district council maternity unit in Kenya.

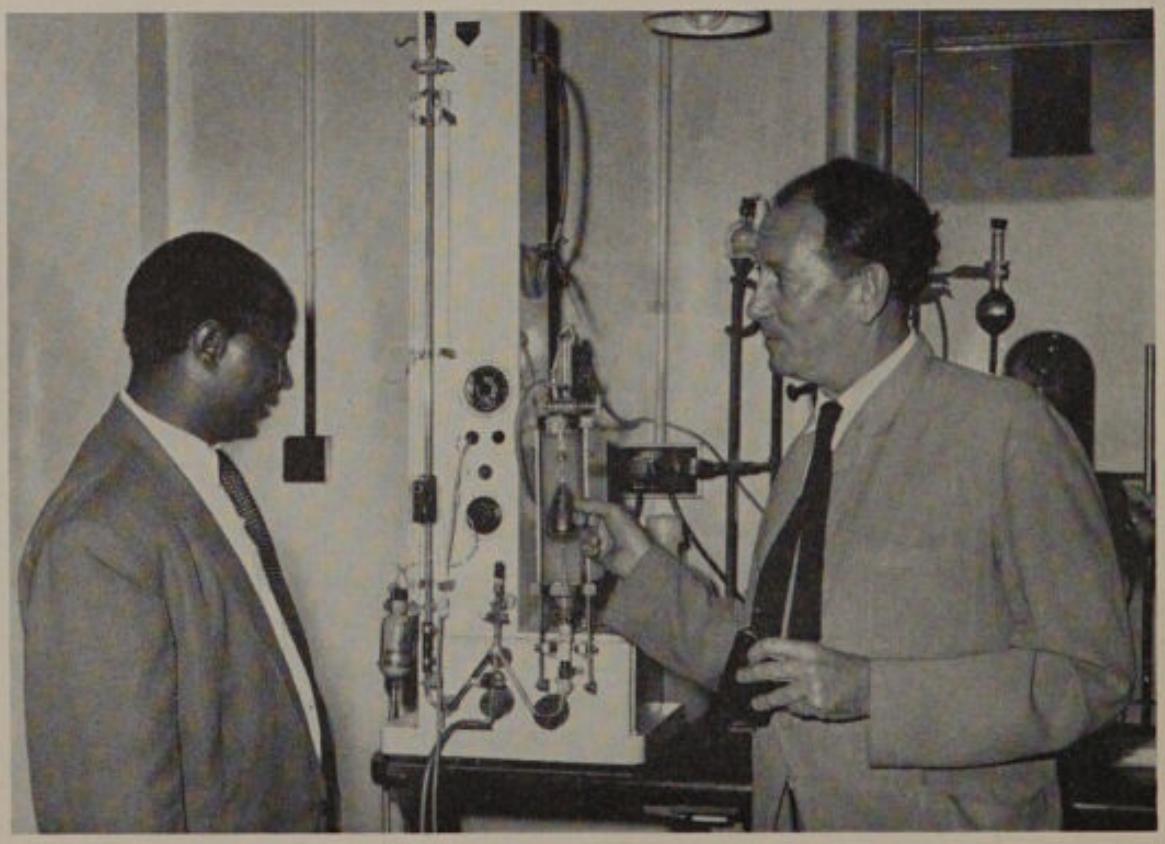
The Singapore anti-tuberculosis clinic—laboratory research workers.

Malaria control in Mauritius. Field worker asking leave to enter a house with the spraying gang.

Routine inspection of the children's teeth at a Mauritius school.



Nurses undergoing a two-year training course in Kenya.



A biochemist at Nairobi's medical research laboratory demonstrates a piece of apparatus to the Kenya Minister of Health, Mr. J. N. Muimi.

trated on a relatively small area round each health centre. This ensures adequate follow-up and genuine results, which have the effect of stimulating the population outside the development area.

Some of the rural health centres are fairly elaborate; the Tsun Wan centre in Hong Kong for example cost £31,250. Amongst its many other services the Hong Kong medical department runs two mobile dispensaries which pay regular visits to outlying villages. Since 1958, two floating clinics have been in service, thus making it possible to reach out-of-the-way districts and islands whose inhabitants would not otherwise easily secure medical care; other ways of evacuating serious cases from isolated centres are by helicopter and by fast police launch. Many other rural health units throughout the dependencies are necessarily mobile. In Nigeria mobile field units are responsible for a great deal of preventive health work and also for morbidity surveys. For isolated farms in the Falkland Islands the government air service, which can be contacted by radio-telephone, provides medical transport and air ambulances when needed. In the Aden Protectorate health services are largely rural and mobile sanitation units are available to visit localities seriously affected with endemic or epidemic disease.

Maternal and Child Welfare

Much attention is paid in all health work to the care of expectant mothers, infants and young children. This, for the most part, is regarded as an integral part of public health generally, rather than as the responsibility of a specialised branch of the medical department. In all territories the work of health visitors and home midwives is rapidly expanding, and attendances at maternity and child welfare clinics are increasing to a remarkable extent. In Uganda there are now 253 such clinics in the protectorate. The rural work in Fiji is covered by 7 health sisters and 132 district nurses, and mobile clinics operate from the two larger towns. It has been possible in Singapore to maintain 20 main clinics with a resident staff and a further 25 centres which are visited regularly. There are clinics manned by voluntary agencies in some territories (for example, Barbados) and by local government staff in others (for example, Northern Nigeria). This clinic work, of which the foregoing are examples, is generally linked with institutional or domiciliary midwifery and positive results are shown in falling maternal and infant mortality rates. The infant mortality rate in Hong Kong, now 48·3 per 1,000 has been practically halved in the last decade and the maternal mortality rate at 0·73 per 1,000 total live and still births is the best ever recorded in the Colony. In Singapore, where, in 1920, there were 265 infant deaths for the first year of life per thousand live births, and 81·3 in 1947, the figure descended steeply to 41·1 in 1957. The Barbados figure fell from 139 in 1953 to 82 in 1958.

The issuing of milk products and supplementary feeding is a function of many clinics. In St. Helena, for example, it has been possible to ensure that skim milk and fish-liver oil capsules are available for all pre-school children. UNICEF supply dried skim milk to needy children in many territories—Kenya distributed 200 tons in 1958.

In 1959 Kenya received a grant from the Nuffield Foundation for the establishment of a health and husbandry family training centre. While the husband is receiving instruction in better husbandry his wife will receive

instruction in better feeding habits, better baby and child care, house hygiene, management and budgeting.

Health of School Children

In most dependencies the health of school children is part of the general responsibility of medical officers, but in some there is a specially constituted schools medical service. Wherever possible routine examinations of school children are carried out. Some territories, for example the Falkland Islands, have been able to have all school children individually examined once a year. In others—British Guiana, for example—inspections by school nurses are co-ordinated with the work of health visitors and there is a close link with social health work as a whole. It has been possible to ensure medical examination on entering and leaving school in Aden, Zanzibar and elsewhere. During 1958–59, 24 per cent of all school children in Singapore were examined, and in Mauritius school nurses examined 98,362 children.

Nutritional work (see p. 22) is of great importance in the health of school children, and in many of the territories a free school-feeding service, providing essential dietetic supplements, is operated. The United Nations Children's Fund (UNICEF) has given much material assistance by supplying skimmed milk powder, enabling, in Trinidad during 1957–58, to quote one example, 29,083 school children and nursing mothers to have dietary supplements in this way. Efforts are being made to devise alternatives for supplementary feeding derived from products available locally. In the South-West Pacific area much use is made of the coconut and indigenous fruits and vegetables.

In many territories school children have priority in BCG campaigns. Thus in Hong Kong tuberculin testing and vaccination of negative reactions with BCG vaccine is undertaken on a large scale; 18,500 children were tested in 1958.

Dental Health

Most territories have some dental surgeons and dental clinics and special attention is given to the schools. In many of the territories economic considerations have so far precluded a comprehensive dental service operated by qualified dentists. The scope of dental care has, however, been widely extended by the training of dental hygienists, dental nurses and dental assistants. The new School of Dental Hygiene in Lagos, Nigeria, has been completed and the dental centre there is now operating. Dental nurses, trained in New Zealand, work in health centres in North Borneo. The fluoridation of water supplies has been carefully studied and treatment of the supply in Singapore, which has now been completed, is expected to reduce the incidence of dental caries.

Mental Health

Appreciable advances have been made towards complete modernisation of mental treatment centres. Many new hospitals are planned or being built and the psychiatric clinic system is being developed. In Singapore, for example, four new clinics were opened during 1957. Adapting such clinics to fit in with local traditions and beliefs in the rural areas of Western Nigeria is progressing under the direction of a specialist psychiatrist. Barbados has a

mental hospital which is particularly up to date. The new mental hospital in Sarawak, completed in 1958, includes out-patient clinics, open wards and many types of occupational therapy. There is still much leeway to make up; but the introduction of modern treatment and a general improvement in mental hospitals is bringing about a change in the outlook of patients and relatives. A policy of peripheral extension of treatment to clinics and district hospitals is in accordance with modern trends.

Health Education

Increasing attention is being devoted to programmes of health education. Health centres and the medical staff generally are producing excellent results in educating the public about such matters as sanitation, nutrition, maternal and child hygiene, vaccination, venereal disease control and tuberculosis control. The organisation varies from simple arrangements in the smaller territories like the Gambia and British Honduras for Health Inspectors to explain basic hygiene in everyday living to the elaborate effort in a highly developed urban community like Hong Kong, where a wide field of health education is covered by many sub-departments of the Medical and Health Services as well as by the Urban Services and the Labour and Social Welfare Departments. School Health Services also conduct health teaching on a large scale in schools, school clinics and teacher training colleges. In many of the larger territories a special branch of the health department dealing with health education has been established for some years; Tanganyika, for example, has a section in headquarters under the charge of a senior medical officer which is *inter alia* responsible for training the health staff of the territory in health education work.

A variety of media are used—handbills, booklets, posters, films, film slides, exhibitions, radio talks and dialogues as well as lectures and practical demonstrations. In Hong Kong, during 1957–58, some 270,000 individuals attended talks and demonstrations. A 'Clean Food Campaign' in Mauritius in 1959 broke new ground; concentrated on one idea it resulted in some 10,000 food handlers voluntarily having a chest X-ray examination. Interest and co-operation in an intensive rural sanitation campaign in 54 villages in Singapore was aroused by a house-to-house system of local persuasion. Generally it has been found that with improvement in techniques the public reacts well to the personal approach: propaganda preliminary to intensive campaigns has proved particularly valuable.

NUTRITION

'THE GUIDING principle in the work taking place on colonial nutrition is the need both for investigations to obtain a better understanding of present-day colonial diets and of their relation to health and disease and for active measures to teach and apply existing knowledge in order that colonial peoples may attain a better and more balanced level of feeding.'[1]

In 1936 the then United Kingdom Secretary of State for the Colonies requested all colonial governments to submit reports on the standard of nutrition in their territories, and subsequently these reports were studied by a committee of experts, which published its report and recommendations in 1939.[2] The committee found that the dietaries in colonial territories were, with some exceptions, predominantly vegetarian and that relatively small quantities of animal products were consumed. The carbohydrate content was high and the fat, protein and vitamin content low. Few of the constituents found necessary in Europe for a nutritionally adequate diet were generally present in the diets in the colonial territories, and these lacked variety and protective value as well as being frequently insufficient in quantity. The effects of malnutrition were to be seen not only in specific deficiency diseases such as beri-beri, pellagra and kwashiorkor,[3] but also in deficiency states which, while not resulting in manifest disease, prevented the full enjoyment of health.

The main causes of malnutrition in the colonies were, in the committee's view, the often low standard of living; the existence of great ignorance coupled with prejudice both with regard to diet itself and to the use of land; and the influence of other diseases, particularly those caused by parasites, which reacted upon the individual's nutritional state.

Effective measures to improve nutritional standards in the colonial territories thus call for combined operations by many departments, and especially those concerned with health and medical services, social welfare, agriculture and education. Medical departments in many territories arrange supplementary feeding for needy cases among mothers and young children at clinics and emphasise in health and hygiene talks the part which a proper diet plays in the maintenance of good health. Agricultural departments undertake food production schemes and encourage vegetable-growing and school gardening activities. Education departments supervise the teaching of agriculture and domestic science and, with the social welfare and labour departments, make arrangements for the feeding of special groups. Much help is given also by independent organisations, such as Jamaica Welfare Ltd., now the Jamaica Social Welfare Commission. Local materials of high nutritive value such as shark oil and red palm oil, formerly often wasted, are now being used as feeding supplements in a number of territories. To remedy

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[1] *The Colonial Territories (1949–50)*, May 1950. United Kingdom White Paper Cmd. 7954. HMSO.

[2] *Nutrition in the Colonial Empire, 1939.* United Kingdom White Paper Cmd. 6050, 6051. HMSO.

[3] A disease in children probably due to a protein deficiency.

protein deficiencies, increasing use is being made of both sea and freshwater fish, and attention is also being given to the use of vegetable protein.

Nutrition committees, or committees whose functions include nutrition, are in operation in several of the dependencies—Uganda, for example, has a Scientific Committee on Human Nutrition—and nutrition officers have played an important part in carrying out surveys, undertaking nutrition teaching and giving advice on school feeding and other group-catering arrangements. The organisation varies from territory to territory. Tanganyika has a medical officer on full time duties in connection with nutrition. In the Windward Islands the nutrition officer operates under a United Kingdom Colonial Development and Welfare scheme. Trinidad has a Nutrition Unit with nutrition officers and a medical officer; here the work done includes cookery demonstrations at ante-natal and child welfare clinics with special emphasis on the preparation of low-costing local foodstuffs of high nutritional value. The Uganda Medical Department also has a Nutrition Unit which has recently undertaken a number of Nutrition Surveys of Uganda schools and in the same territory the United Kingdom Medical Research Council maintains an Infant Nutrition Research Unit at which it has been conducting during recent years investigations into infant growth and nutrition, with special reference to protein deficiency diseases. In Northern Nigeria a Nutrition Clinic opened at Kaduna in 1958 with the aid of a grant from the Rockefeller Foundation, a feature of its work being the treatment of cases of protein malnutrition with Nigerian groundnut flour. Under a grant from the Carnegie Foundation important work has been undertaken at the University College of Ibadan, Nigeria, in the study of Yoruba diets and food preparation methods.

A notable contribution to the health of needy children in many dependencies has been made by the World Health Organisation (WHO), the United Nations Children's Fund (UNICEF) and the Food and Agriculture Organisation (FAO) (see p. 33). UNICEF provides many territories with free supplies of dried skim milk for milk feeding programmes designed to benefit school children, pre-school children, pregnant women and nursing mothers. Thus in the Gambia the dietary supplement consists of two ounces of dried milk daily, distributed to these categories of recipient through the maternity and child welfare clinics and the schools. With the same object an FAO/UNICEF dried milk plant started operation at Vom in Northern Nigeria in 1958.

One of the major functions of the Applied Nutrition Unit, which was set up in London in 1952 as a joint undertaking of the London School of Hygiene and Tropical Medicine and the Colonial Office, is to provide facilities for training personnel from the dependencies in nutrition work. Its other functions include the study and exchange of information on colonial nutrition and food technology[1] and the provision of advice and assistance in field work and investigations. The Unit has a great deal of information about tropical food stuffs, based on samples sent to it by nutrition workers in the territories. This is being arranged for publication, with notes on the part played by the various foods in the diets of the territories and on the effects of

[1]This covers techniques for the preparation, processing, preservation, storage, handling and transport of food, including milling, enrichment, extracting and drying.

tropical methods of processing. The cost of the Unit is met by contributions from a number of the governments of the dependencies.

During 1957–'58 about fifty officers from African territories, and some from the other territories, visited the Unit's permanent exhibition. In addition to the usual one-week courses for nurses and domestic science teachers serving overseas and the summer vacation course for colonial students, a new one-week course in tropical nutrition and dietetics was held in 1957 for teachers from domestic science schools and polytechnics in various parts of the United Kingdom whose overseas students were anxious to study these subjects. In the course of 1958–59 the Unit was asked to advise the Tanganyika Government on the value of the various techniques used in the preparation of rice before milling; and, at the request of the Sierra Leone Government, a number of samples of rice were analysed to establish the effect of such factors as parboiling and storage on their vitamin content. With its considerable experience of tropical food problems, the Unit has also been able to assist WHO (see p. 33) nutrition workers who have made surveys in Mauritius, Uganda and St. Helena.

While not itself concerned with fundamental research, the Applied Nutrition Unit has close links with the Department of Human Nutrition at the London School of Hygiene and Tropical Medicine and the United Kingdom Medical Research Council's Human Nutrition Research Unit. With the help of these bodies the Applied Nutrition Unit was able to provide data which formed the basis for discussion at a technical meeting on legumes in agriculture and human nutrition, held under the auspices of the United Nations Food and Agricultural Organisation (FAO) and the Commission for Technical Co-operation in Africa South of the Sahara (CCTA) (see p. 34) in November 1958.

ORGANISATION OF HEALTH SERVICES

THE HEALTH SERVICES, like other services in the dependencies, involve the work of organisations in the United Kingdom and in the dependencies themselves, both individually and inter-territorially. In addition, since disease knows no boundaries, there is co-operation with the international organisations which have been established to further the common effort to improve health.

United Kingdom Organisations

At the Colonial Office, the Secretary of State for the Colonies is advised by a Chief Medical Officer and his staff. The Colonial Advisory Medical Committee, which has been in existence since 1909, was reconstructed in 1952 so as to provide both a forum for the discussion of general medical and health problems affecting the dependencies and a panel of specialist advisers.

Among other official and semi-official bodies are the Colonial Medical Research Committee, the Bureau of Hygiene and Tropical Diseases and the Commonwealth Institute of Entomology.

The Colonial Medical Research Committee was constituted in 1945 by the Secretary of State, jointly with the Medical Research Council. Its terms of reference, as revised in 1953, are to advise the Secretary of State for the Colonies and the Medical Research Council on all matters of medical research in and for the benefit of the Colonies, and in particular regarding

(a) medical research in the Colonies financed from United Kingdom Colonial Development and Welfare funds;

(b) the promotion of such basic and long-term work as is required to be based on the United Kingdom and the supervision of workers engaged for this purpose;

(c) the promotion of work in and for the Colonies by workers in home universities and research organisations.

The main function of the Bureau of Hygiene and Tropical Diseases is to collect and disseminate information regarding hygiene and tropical diseases. It is partly maintained from United Kingdom funds and from funds provided by contributions from other governments, principally those of other Member countries of the Commonwealth and of individual Colonies; other income is derived from private subscribers and from the sale of its publications. The Commonwealth Institute of Entomology, originally set up in 1913, encourages and co-ordinates entomological work in relation both to human and animal diseases and to agriculture.

Unofficial organisations include the London School of Hygiene and Tropical Medicine and the Liverpool and Edinburgh Schools of Tropical Medicine. These schools are of great importance as centres both of research and training. The Liverpool School of Tropical Medicine maintained a laboratory at Freetown in Sierra Leone until it was closed in 1941. Another example of the way United Kingdom teaching institutions are helping medical work in the dependencies is the agreement by the Imperial College of Science and Technology, London, the University of Durham and the Royal Technical

College, Glasgow, to adapt the syllabuses of their postgraduate courses in Public Health to meet the needs of the dependencies.

An experimental scheme, establishing a panel of consultants to the Colonial Medical Service, was launched in 1948 with the assistance of a grant of £30,000 from the Nuffield Foundation. It ran for six years and was confined to the African territories. The consultants selected to make visits to these territories represented the more important branches of medicine, surgery, radiology, and gynaecology, and the primary object of the scheme was to keep medical officers in the field abreast of developments in medical and other research in the United Kingdom. Other aims were to provide a stimulus to official and unofficial colonial medical staffs, particularly those working in isolated posts, and to establish a body of expert opinion in the United Kingdom well informed about conditions and problems in the dependencies. The scheme proved most valuable and provision was made for its continuance and for its extension to include all the dependencies. The African territories have for some years financed it themselves and the majority of non-African territories have now agreed to do the same. During 1958–59 visits were made to East and West Africa; to Singapore, Hong Kong and the Borneo territories; to Fiji and the Western Pacific High Commission; and to the territories of the Federation of The West Indies and other territories in the Caribbean region.

Medical Departments in the Dependencies

The various medical services, which had previously been separate services attached to the separate territories, were unified in 1934, when the Colonial Medical Service (now the Oversea Medical Service) was established. Sir Charles Jeffries (later a Deputy Under-Secretary of State at the colonial Office), writing in 1938, summed up the development of colonial medical departments. 'Until comparatively recent times', Sir Charles wrote, 'the function of the medical services in the Colonies was primarily that of "garrison" services which existed mainly for the purpose of looking after the health of government officials. But during the last thirty or forty years the medical departments have developed into highly organised State public health services devoted to the prevention and cure of disease and the preservation of health amongst the general population of the Colonies. It must be remembered that in these territories the government had, perforce, to undertake tasks which in this country [i.e. the United Kingdom] were carried out by voluntary organisations, by private enterprise, or by local and municipal authorities. In many areas of the Colonial Empire it was the government alone which was in a position to erect and maintain hospitals and to organise public health activities. Not only this, but in all except a comparatively few centres, where there were sufficient inducements to private practitioners to establish themselves, there would be no medical attention available for the public were it not for the presence of the government medical staff.'[1]

The medical department of each dependency is administered from a central medical directorate and, through the Director of Medical Services

[1]Sir Charles Jeffries, *The Colonial Empire and its Civil Service.* (Cambridge University Press, 1938.)

(or the Senior Medical Officer), is responsible to the Governor, or, in dependencies where the ministerial or member systems have been introduced, to the minister or member concerned. In some territories, for example in Uganda, the medical department has been amalgamated with the Ministry of Health. Except in the smaller dependencies, medical departments are decentralised into regions and districts. Three main sections are usually included:

(1) the treatment service, which is responsible for hospitals and dispensaries;
(2) the public health service, concerned with general sanitation and preventive measures; and
(3) the laboratory service, which deals with the examination of biological material, water and food and with medico-legal work.

In certain territories the responsibility for some health expenditure is devolved upon local health authorities. Thus in Uganda and Tanganyika they are responsible for dispensaries and health centres and in Singapore for rural health services.

The medical departments of certain territories also include special branches, such as an entomological branch, nutrition units, survey units, and sleeping-sickness teams. Health units, which may be stationary (attached to a hospital or in smaller buildings of their own) or mobile, have also been developed in several of the dependencies (see p. 19).

Voluntary Organisations and the Missions

A great deal of medical work in the dependencies would be incomplete without the complementary services rendered by voluntary organisations and missionary bodies. Missions of all denominations were in many instances the pioneers of health services, and they continue to play an important part. Mission hospitals not only cater for the sick but also often undertake the training of auxiliary medical staff, particularly midwives and nurses. In many cases such hospitals are subsidised by government to perform allotted tasks; in Nigeria, for example, the missions are linked with the government in the extensive leprosy service there.

Among voluntary organisations working in the health field, the Order of St. John and the British Red Cross provide first-aid training and other services, the latter society being particularly helpful in providing amenities for in-patients, in assisting with the distribution of milk and the operation of blood transfusion services. In Kenya a special arrangement at the beginning of the state of emergency (which existed from 1952 to 1960 as a result of the Mau Mau terrorism) established a field service operated by the St. John Ambulance Brigade and the British Red Cross Society in the villages to supplement the Ministry's health services. This field service provides instruction to parents and children in nutrition, hygiene, mothercraft and the care of the aged and sick. Nursery schools have been established and home visitors have been trained to help in this field work.

The British Leprosy Relief Association (see p. 9) has a traditional interest in the colonial territories. The New Zealand Leprosy Trust Board with its incorporated branch in Fiji assists leprosy patients in the island territories of the South-West Pacific. The (United Kingdom) Chest and Heart Association

(formerly the National Association for the Prevention of Tuberculosis) (see p. 15) annually provides scholarships enabling selected medical, health and nursing personnel from the colonial territories to study various aspects of tuberculosis work in the United Kingdom. The Royal Commonwealth Society for the Blind (see p. 16), in addition to having sponsored a medical survey of causes of blindness in West Africa, is active in other welfare work to bring relief to the blind.

There are also very many instances of public-spirited co-operation and generosity by Rotary Clubs, anti-tuberculosis associations, associations for the deaf and dumb and the physically disabled, and other voluntary organisations in individual territories. Notable among many local examples in Hong Kong is the Tung Wah group of hospitals operated by a Chinese charitable organisation, which comprises four hospitals accommodating 1,647 beds. In 1959 30 per cent of all babies born in institutions in this dependency were born in Tung Wah maternity beds. Also in Hong Kong, the Kai Fong neighbourhood associations run clinics and co-operate very fully and actively with the government in vaccination campaigns and in work to educate the people in environmental hygiene and the control of diphtheria.

Recruitment and Training

In 1957 there were in colonial medical departments some 800 administrative, public health and clinical posts for officers holding a qualification registrable in the United Kingdom. Of these about 50 were available to women, mainly, but not exclusively, in maternity, child welfare and school health activities. Medical staffs are supplemented by a large number of nursing sisters, health visitors, health inspectors, pharmacists, laboratory workers and other skilled staff recruited from outside the individual territory and by many locally trained auxiliaries of every grade.

In some Eastern dependencies, especially Hong Kong and Singapore, the medical services can now be maintained almost entirely by the intake of graduates from the Universities of Hong Kong and Malaya (the latter serving Singapore as well as the Federation of Malaya). Other territories such as The West Indies and Mauritius have also lessened their demands on recruitment from the United Kingdom. In Nigeria, the Eastern and Western Regions have become practically self-supporting, except in the specialist grades. Under a new scheme in Uganda for the election of Registrarships, five of the six Registrars appointed in 1959 were Africans.

Medical education to a degree standard recognised by the (United Kingdom) General Medical Council as registrable in the United Kingdom is available in the Royal University of Malta, the University of Hong Kong, the University Colleges of The West Indies, East Africa (Makerere) and Nigeria (Ibadan). Dental degrees, also registrable in the United Kingdom, are conferred by the Royal University of Malta. Both forms of qualification are also available at Singapore at the University of Malaya. The first woman to graduate in Medicine at Makerere did so in 1959, and had her degree conferred by Her Majesty Queen Elizabeth the Queen Mother.

In December 1959, 1,004 medical students from the dependencies were in training in the United Kingdom and the Irish Republic.

Training is an important part of the work of medical departments and the increasing scope and complexity of medical health services has increased the need for auxiliary personnel of a progressively higher standard in a large variety of branches. These include pharmacists, health inspectors, radiographers, laboratory technicians and medical assistants, for whom training has been available for many years. Personnel are also trained for such duties as field work in malaria control, leprosy and tuberculosis follow-up duties and sleeping-sickness work. Many aspects of social medicine (see p. 18) are covered by training almoners and health visitors, almoners' training being particularly well-developed in Hong Kong and Singapore. In all these categories Kenya had in 1959 a total of 542 students in government training institutions, exclusive of nurses and midwives. In East Africa, West Africa and the Caribbean regional training boards exercise control over the examination of Health Inspectors to standards recommended by the United Kingdom Royal Society of Health.

For advanced training full advantage is taken of the facilities for post-graduate study in the United Kingdom. Generous study leave is granted to enable locally born and expatriate officers to gain experience in specialised clinical subjects. Many have been successful in obtaining higher specialised qualifications in clinical subjects and in public health. In the Far East the Colombo Plan (see p. 15) has enabled practical help to be offered by New Zealand and Australia. Thus in 1959 Hong Kong had 26 dental students studying abroad with the assistance of government scholarships—20 in Australia and 6 in Singapore. Through the generosity of the Australian Commonwealth Government it has been possible under the Colombo Plan for the Australasian College of Singapore to conduct a Primary examination for the Fellowship in Singapore.

A great deal of useful work has been done throughout the dependencies by Assistant Medical Practitioners, who have received a thorough basic training in local medical centres, although they do not hold a qualification registrable in the United Kingdom. One of the oldest training establishments for this purpose in the dependencies is the Central Medical School in Suva, Fiji. It was opened in 1886 as a medical school for Fiji; in 1928 it was reorganised as a medical training centre for the British Pacific Islands, and now serves the whole of the Western Pacific, including islands under the administration or trusteeship of Australia and New Zealand. The School provides a five-year course for Assistant Medical Practitioners, a three-year course for Assistant Dental Practitioners, and shorter courses in laboratory technique, pharmacy, sanitation and radiography. There are plans for a course in public health. In Uganda a new Medical Assistant Training School and a new School of Hygiene have been opened. In Tanganyika 82 medical assistants were in training in 1957 and a policy has been adopted of concentrating training resources of auxiliary medical personnel at the Princess Margaret Training Centre at Dar es Salaam. In the Aden Protectorate two Health Service Training Centres for sub-professional staff were equipped in 1954, in part by a generous grant from the Nuffield Foundation of the United Kingdom. In the Northern Region of Nigeria the Kano Medical School, opened in 1955, provides a five-year course for Assistant Medical Officers.

Nursing

At the earliest stage the only nurses in the dependencies were nurses trained outside the territories, but it was soon realised that it would be necessary to draw largely on the local population if the need for nursing was to be met. At first it was found almost universally impossible to obtain female volunteers for training and the normal arrangement was to make use of male nurses. Later, female nurses came to replace the male nurses, who, with some added training, became dressers, medical orderlies, or, at the highest level, medical assistants. To day the great majority of the nurses in the territories are women.

The present position is that a large number of qualified nurses are still recruited from the United Kingdom for service in the dependencies. However the main emphasis is on the training of locally domiciled nurses both in the territories and in the United Kingdom. In the territories the general picture is one of improving standards and increasing numbers of students. The shortage of tutors is a difficulty, which is being partly overcome by the return of locally domiciled nurses who have obtained the Tutor's Diploma in the United Kingdom and by the appointment of more male nurses. Reciprocal State Registration with the General Nursing Councils in the United Kingdom remains the ultimate goal in all territories and has now been achieved for general trained nurses in Hong Kong, Singapore, Jamaica, Trinidad and Kenya, and for psychiatric nursing training in Singapore. Partial recognition towards State Registration has been granted to several training schemes in various dependencies and this acts as an incentive to the nurses themselves to work for higher standards and towards complete reciprocity. In Tanganyika the government Princess Margaret Training Centre had at the end of 1959, 215 nurse pupils and there were 344 in mission training schools. In Uganda the figures were 222 certificated nurses and 23 mental nurses, with 171 nurses in training in mission hospitals. In the same territory a course training girls to State Registered Nurse (SRN) standard was due to start in 1960. Hong Kong, like Singapore, has a course in mental nursing and also a course for registered nurses who are registered midwives to qualify as health visitors.

At the same time the number of student nurses from the dependencies in training in the United Kingdom is increasing rapidly and 2,915 were taking general nursing, mental nursing or midwifery courses in January 1959. They include those from territories in which local training cannot at present be developed to a standard acceptable for recognition in the United Kingdom—for example, Aden and Gibraltar—who are assisted financially to come to the United Kingdom for their basic training. Others come for such senior and specialised courses as those for Overseas Ward Sisters, Sister Tutors, the Public Health Tutors' Diploma and the Health Visitors' Diploma. In a number of territories, for example Trinidad, Barbados and Singapore, government scholarships are awarded annually for such purposes and others are awarded by such organisations as the British Red Cross Society. A recent development has been the organisation of a special course in the United Kingdom for locally domiciled nurses to receive special training and practical instruction and observation in the administration of a hospital ward or department. The first group of these students have now returned to

their own countries and are already demonstrating the value of this course in the improved service they are rendering and in their greater assistance in nurse-training schemes. Many other nurses who have completed their basic nursing training in the United Kingdom have returned to their own territories as nursing sisters, and in Sierra Leone out of a total establishment of 85 senior posts only 2 are filled by expatriate staff; an African Senior Nursing Sister was recently promoted Matron. The first Tanganyika nurses passed the SRN examination in 1959 and are returning to Tanganyika as nursing sisters, the first Tanganyika nurses to do so. Other higher posts, such as those of sister tutor, midwife teacher and health visitor tutor are being filled by promotion in the same way.

In both nursing and midwifery extension of services into the homes of the people continues and public health nursing is developing rapidly in many territories. In Singapore a full domiciliary midwifery service has been established. Community nurse/midwives are being trained for work in rural areas in Tanganyika and Eastern Nigeria, and in Zanzibar a scheme for training midwives for rural work is being planned. In British Honduras, public health nurses are now carrying out ambulatory and home treatment of patients with pulmonary tuberculosis. In British Guiana the work of school nurses, health visitors, infant welfare and tuberculosis nurses is being combined, saving time and staff and producing a better community nursing service.

Inter-Territorial Organisations

The South Pacific Health Service: In 1946 an agreement to establish a South Pacific Health Service was signed by the Government of Fiji, the Western Pacific High Commission (on behalf of the British Solomon Islands and the Gilbert and Ellice Islands) and the Governor-General of New Zealand, acting in respect of New Zealand's Island Territories. The agreement was later extended to include the Government of Tonga.

The South Pacific Health Service is supervised and controlled by the South Pacific Health Board. The board's chief administrative officer and chairman is the Inspector-General, South Pacific Health Service, who is appointed by the United Kingdom Secretary of State for the Colonies in consultation with the New Zealand Government. Also on the board are representatives of Fiji, the New Zealand Department of Health, the Western Pacific High Commission and the International Health Division of the Rockefeller Foundation (see p. 33).

The South Pacific Health Board helps participating administrations by, among other things, advising on all health matters within their territories; collecting and transmitting information regarding the incidence of disease and encouraging medical research; assisting in maintaining adequate medical, nursing and sanitary staff and advising on their training.

Full use is made by participating administrations of the Central Medical School, Suva (see p. 29), and the Medical Department of Fiji, for the training of assistant medical practitioners, laboratory technicians, sanitary inspectors, pharmacists and other auxiliary health personnel, and of the leprosy settlement at Makogai for the treatment of leprosy patients. A pool of medical officers, from which participating administrations draw on a system of

transfer or secondment, is based on the headquarters of the South Pacific Health Service in Suva and a pool of nurses is based on New Zealand. Nurses of local origin trained in hospitals in their own islands are sent in limited numbers for special courses at the Nurses Training School, Suva.

The East Africa High Commission: Much of the work of the East Africa High Commission,[1] which was established in 1948, is concerned with the health of the people of East Africa. The Medical Research Division includes the East Africa Leprosy Research Centre at Alupe in Kenya, the Virus Research Institute at Entebbe in Uganda, the Institute for Medical Research based on Mwanza in Tanganyika, and the Institute of Malaria and Vector-borne Diseases at Amani in Tanganyika. The Institute for Medical Research seeks to obtain a complete assessment of the state of health and disease in East Africa, carries out research into the more important diseases and has launched pilot schemes of disease control. The Virus Research Institute is associated with the World Health Organisation in work on yellow fever in Africa and has also conducted research of international importance on poliomyelitis and a wide range of newly recognised virus diseases.

The East African Trypanosomiasis Research Organisation, with headquarters at Tororo in Uganda, has four branches: Tsetse research, formerly based on Shinyanga with sub-stations in each of the East African territories; trypanosomiasis research, animal and human, based on Tororo in Uganda with (until 1959) a sub-station (Tinde) in Tanganyika; practical and experimental reclamation in the three territories.

West Africa: Following a reorganisation of medical research in West Africa, the West African Council for Medical Research was established in 1954 with headquarters in Yaba, Nigeria. The Council has absorbed the former West African Virus Research Institute and has assumed responsibility for the Helminthiasis Research Unit at Kumba, Southern Cameroons. In addition to the expansion and development of the work of those units, a Tuberculosis Research Unit has been established at Kumasi in (the independent State of) Ghana, and preparations are being made for an Onchocerciasis Research Unit are Bolgatanga in Ghana.

The West African Institute for Trypanosomiasis Research, which was formally opened in 1951, undertakes research into all aspects of human and animal trypanosomiasis. The Institute is situated in Northern Nigeria, with headquarters at Kaduna and a large sub-station at Vom.

International Organisations

The Health Section of the League of Nations, created in 1923, carried out work of value to the colonial territories on malaria, sleeping sickness, leprosy, hookworm, the organisation of public health services, the standardisation of vaccines and in other fields. Similar functions, with greatly increased resources, are performed by the specialised agencies and other bodies of the United Nations.

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[1]The East African High Commission is a body corporate with Headquarters in Nairobi, Kenya, which administers a wide range of inter-territorial services for Kenya, Uganda and Tanganyika.

United Nations Bodies: The World Health Organisation (WHO) and the United Nations Children's Fund (UNICEF) give valuable assistance to the colonial territories, mainly in the form of technical advice, expert staff, supplies and equipment, in connection with many projects concerned with health, and particularly maternal and child health. WHO assistance is provided both within its regular budget and the United Nations Expanded Programme of Technical Assistance. The dependencies benefit also from the efforts of the Food and Agriculture Organisation (FAO) to raise levels of nutrition and standards of living. The United Kingdom is a member of these bodies and is represented at the conferences held under their auspices.

An impression of the scope of activities of United Nations bodies in the United Kingdom dependencies can be gained from a selection of the projects initiated or carried forward in 1959. British Guiana had assistance from WHO and UNICEF over an evironmental sanitation programme, a malaria eradication programme, an anti-filarial campaign, a milk feeding scheme for toddler age groups in rural areas and the interior, and a poliomyelitis campaign. WHO also provided as consultants a public health engineer, a veneral disease consultant, a laboratory consultant and a public health nursing adviser. In the Gambia WHO have undertaken or are undertaking a mental illness survey, a tuberculosis survey and, in conjunction with UNICEF and the Gambia Government, a leprosy control scheme. In Kenya UNICEF and WHO are helping with the further development of the maternity and child welfare service, and with rural sanitation and are undertaking a tuberculosis survey. The WHO Tuberculosis Co-ordination Centre is closing in Copenhagen and reopening in Nairobi. A final example is Mauritius, where WHO has undertaken a nutrition survey, a tuberculosis survey, a nursing education programme, a malaria eradication programme and work on bilharziasis and environmental sanitation.

Governments of the dependencies continued to use the facilities for WHO Fellowships, and for attendance at conferences and seminars on health subjects in the WHO Regions. They, in turn, are themselves contributing to WHO's international health work by making available to the WHO Expert Advisory Panels the services of experts in medicine and medical research, and by co-operation, for example, in measures introduced by WHO through the International Sanitary Regulations for preventing the spread of disease.

During the period 1959–60, UNICEF made grants for supplies and equipment to twenty-three projects covering fourteen territories. This includes supplies for the supplementary feeding programmes of which mention has already been made (see p. 23). A new feature of UNICEF assistance is the endowment of Chairs of Paediatrics in universities and colleges. Such an endowment has been approved in principle for the University College of East Africa (see p. 28).

The Rockefeller Foundation: The International Health Division of the Rockefeller Foundation has rendered great service to the cause of medicine throughout the tropics. Among many schemes in United Kingdom dependencies financed and executed by the Foundation before 1945 were hookworm campaigns in Malaya, Fiji and the Pacific Islands, work on yellow fever in Nigeria and Uganda, anti-yaws, anti-malaria and anti-venereal work in the West Indies, and the support given to the Medical School in Singapore

(now part of the University of Malaya), to the Central Medical School in Fiji and to the establishment of a Health School In Jamaica. A Yellow Fever Research Institute was established in Uganda by the Rockefeller Foundation in co-operation with the East African territories and in Nigeria in co-operation with the West African territories. The Colonial Office took over the administration of the Uganda institute in 1949 and of the Nigeria institute in 1950 and the institutes have been renamed respectively the East African Virus Research Institute and the West African Virus Research Institute. In 1953 the Rockefeller Foundation established, again in co-operation with the territorial government concerned, a Virus Research Laboratory in Trinidad; it is designed to serve the Eastern Caribbean region. In 1955 the Foundation made a five-year grant to the University College of the West Indies to expand the work of its medical faculty. An anti-malaria campaign in Tobago and studies of rabies in Nigeria and filariasis in West Africa have been among other projects assisted by the Foundation since the second world war.

The Commission for Technical Co-operation in Africa South of the Sahara (CCTA[1]*):* CCTA was established in 1950 with headquarters in London; the Joint Secretariat was transferred to Lagos, Nigeria, in April 1960. The members are the United Kingdom, France, Belgium, Portugal, the Union of South Africa, the Federation of Rhodesia and Nyasaland, Ghana, Guinea and Liberia, and the Commission holds half-yearly meetings in the territory of each of its members. The main function of the CCTA is to further the exchange of information, technical equipment and staff; it co-operates closely with the specialised agencies of the United Nations and with the Overseas Committee of the Organisation for European Economic Co-operation (OEEC), but unlike the United Nations agencies CCTA does not put additional funds at the disposal of its members.

The Commission has set up, in Leopoldville in the Congo, a Permanent Inter-African Bureau of Tsetse and Trypanosomiasis. The Bureau disseminates information about tsetse and trypanosomiasis, facilitates the interchange of visits between experts of different nationalities and maintains close contact with interested national and international bodies.

Much of the work of the Commission has a direct or indirect relevance to the development of public health. Activities sponsored by CCTA have included three meetings of the Inter-African Conference on Medical Co-operation (1946, 1951 and 1955), an Inter-African Conference on Medical Education (1951), surveys of developments in nutrition, three meetings of the Inter-African Conference on Nutrition (1949, 1952 and 1956), and the first meeting of the Inter-African Phyto-Sanitary Commission (1956).

An extraordinary session of the Commission was held in Accra in February 1958 to inaugurate a scheme to promote technical assistance in Africa: the Federation for Mutual Assistance in Africa South of the Sahara (FAMA). The purpose of the Foundation is to assist in the provision of technical assistance either by exchange within the region or from outside sources.

[1]The abbreviation is that of the French title of the Commission.

STATISTICAL APPENDIX

THE FOLLOWING TABLES, prepared by the United Kingdom Colonial Office, illustrate the progress made in recent years. Vital statistics are not available for the African territories but Table 1 shows the expansion of health facilities since 1950.

Table 2 illustrates the decline since the war in the number of deaths due to parasitic and infectious diseases, and in particular the fall in the number due to malaria. Over the last 25 years crude death rates have about halved (Table 3); these rates also reflect the effect of rising birth rates in reducing the average age of the population. A more sensitive indicator of health conditions, the infant mortality rate, is seen to have substantially declined since before the second world war (Table 4). Existing expectation of life is shown in Table 5.

TABLE 1

Expansion of Health Facilities in Colonial Territories

	Mid-year Population		*Expenditure of Health Department*		*Number of Hospital Beds*		*Number of Registered Physicians*	
	1958	*Increase on* 1950	1958 *or* 1958/59	*Increase on* 1950	1958	*Increase on* 1950	1958	*Increase on* 1950
	'000	%	£'000	%	£'000	%		%
SIERRA LEONE	2,260	16[a]	1,024	338	1·6	55	85[a]	55
NIGERIA	34,634	19[a]	5,895	301	13·0	30	600[a]	74
KENYA	6,351	13[a]	2,086	167	9·1	44	607	72
UGANDA	6,356	25[a]	1,890	239	8·4	47	409	91
TANGANYIKA	8,916	16[a]	2,065	202	13·9	54	460	85
NORTHERN RHODESIA	2,300	24[a]	1,398[b]	167	6·5	100[a]	281	111
HONG KONG	2,748	22[a]	2,487	241	6·9	77	897	82
BRITISH GUIANA	532	31	1,117	99	3·3	69	131	45
TRINIDAD	789	25	2,691	159	3·8	34	291	73
JAMAICA	1,630	16	2,760	248	7·2	84	550[a]	61
CYPRUS	549	13	883	309	2·7	100[a]	57	8
MAURITIUS	622	34	1,111	275	3·1	54	139	60

(*a*) Estimated.

(*b*) 1957/1958.

TABLE 2

Deaths due to Parasitic or Infective Diseases

	1947	1950	1957
MAURITIUS			
Malaria	1,782	388	—
Other	584	481	417
JAMAICA			
Malaria	626	427	(*a*)
Other	2,716	1,770	(*a*)
TRINIDAD			
Malaria	217	141	6
Other	1,012	768	714 (*b*)
BRITISH GUIANA			
Malaria	290	66	1
Other	737	205 (*c*)	(*a*)

(*a*) Not available.

(*b*) Including 440 cases of diarrhoea.

(*c*) Tuberculosis only.

TABLE 3

Decline in Crude Death Rates over Twenty-five years, 1930–55

Crude Death Rate per Thousand

	1930	1955
MAURITIUS	35·4	12·9
BAHAMAS	16·9	10·0
BARBADOS	24·9	12·6
BRITISH HONDURAS	19·7	10·8
JAMAICA (*ex-dependencies*)	17·3	9·9
LEEWARD ISLANDS	24·4	11·2
TRINIDAD AND TOBAGO	19·1	10·4
WINDWARD ISLANDS	15·8 (*a*)	13·4
CYPRUS	16·4	7·2 (*b*)
MALTA AND SOZO	23·0 (*c*)	8·5
HONG KONG	28·1 (*d*)	8·2
FIJI	22·3	8·2

(*a*) 1932.

(*b*) 1954.

(*c*) 1931.

(*d*) 1938.

TABLE 4
Infant Mortality Rates per 1,000 Live Births

	Average 1935–39	*Average* 1950–54	1958
CYPRUS	121·8	56·3	*
MALTA	233·9	78·4	40·0
BAHAMAS	113·8	81·5	62·7
BARBADOS	209·6	131·0	82·4
BRITISH GUIANA	129·2	80·1	61·1
BRITISH HONDURAS	140·0	92·1	83·0
JAMAICA	127·4	72·8	62·3
TRINIDD	103·6	75·6	62·7
FIJI	93·1	56·8	39·4
MAURITIUS	151·2	83·1	68·0

*Not available.

TABLE 5
Expectation of Life in Colonial Territories

Territory and date	*Age in Years*								
	0	5	10	20	30	40	50	60	70(*c*)
CYPRUS (1948–50):									
Male	63·6	64·9	60·3	50·9	41·8	32·9	25·0	16·9	11·0
Female	68·8	70·1	65·4	55·8	46·4	37·2	28·2	19·5	11·7
MALTA AND GOZO (1948):									
Male	55·7	61·8	57·5	48·4	39·7	30·8	22·4	15·9	10·5
Female	57·7	63·5	58·8	49·6	40·7	32·2	23·4	16·7	11·1
BARBADOS (1945–47):									
Male	49·2	56·4	51·8	42·7	34·2	26·0	18·8	13·2	8·8
Female	52·9	60·4	55·8	46·8	38·5	30·4	22·8	15·8	10·0
BRITISH GUIANA (1945–47):									
Male	49·3(*a*)	51·9	47·6	38·7	30·7	23·0	16·5	11·1	7·5
Female	52·0(*a*)	54·0	49·8	41·3	34·4	27·3	20·2	14·2	9·2
BRITISH HONDURAS (1945–47):									
Male	45·0	50·7	46·9	38·8	31·7	25·3	19·0	13·2	7·8
Female	49·0	53·7	50·0	42·2	35·7	29·2	22·6	15·9	10·0
JAMAICA (1945–47):									
Male	51·2	55·0	50·8	41·9	34·0	26·4	19·5	13·6	8·4
Female	54·6	57·8	53·6	45·1	37·8	30·3	23·0	16·3	10·2
LEEWARD ISLANDS (1946):									
Male	50·0	(*b*)	50·2	41·2	33·2	26·1	19·2	(*b*)	(*b*)
Female	54·8	(*b*)	54·4	45·6	37·8	29·9	22·7	(*b*)	(*b*)
TRINIDAD & TOBAGO (1945-47):									
Male	53·0	54·5	50·1	41·2	33·1	25·3	18·3	12·5	8·2
Female	56·0	56·9	52·4	43·8	36·2	28·7	21·5	15·4	10·1
MAURITIUS (1952):									
Male	49·8	53·7	49·2	40·1	31·6	23·6	16·7	11·2	6·7
Female	52·3	56·5	52·2	43·7	36·2	28·8	21·2	14·6	9·1

(*a*) An approximate calculation for 1952 gives an increase of four years.

(*b*) Not available.

(*c*) These statistics are unreliable.

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by Cox & Sharland Ltd., London and Southampton

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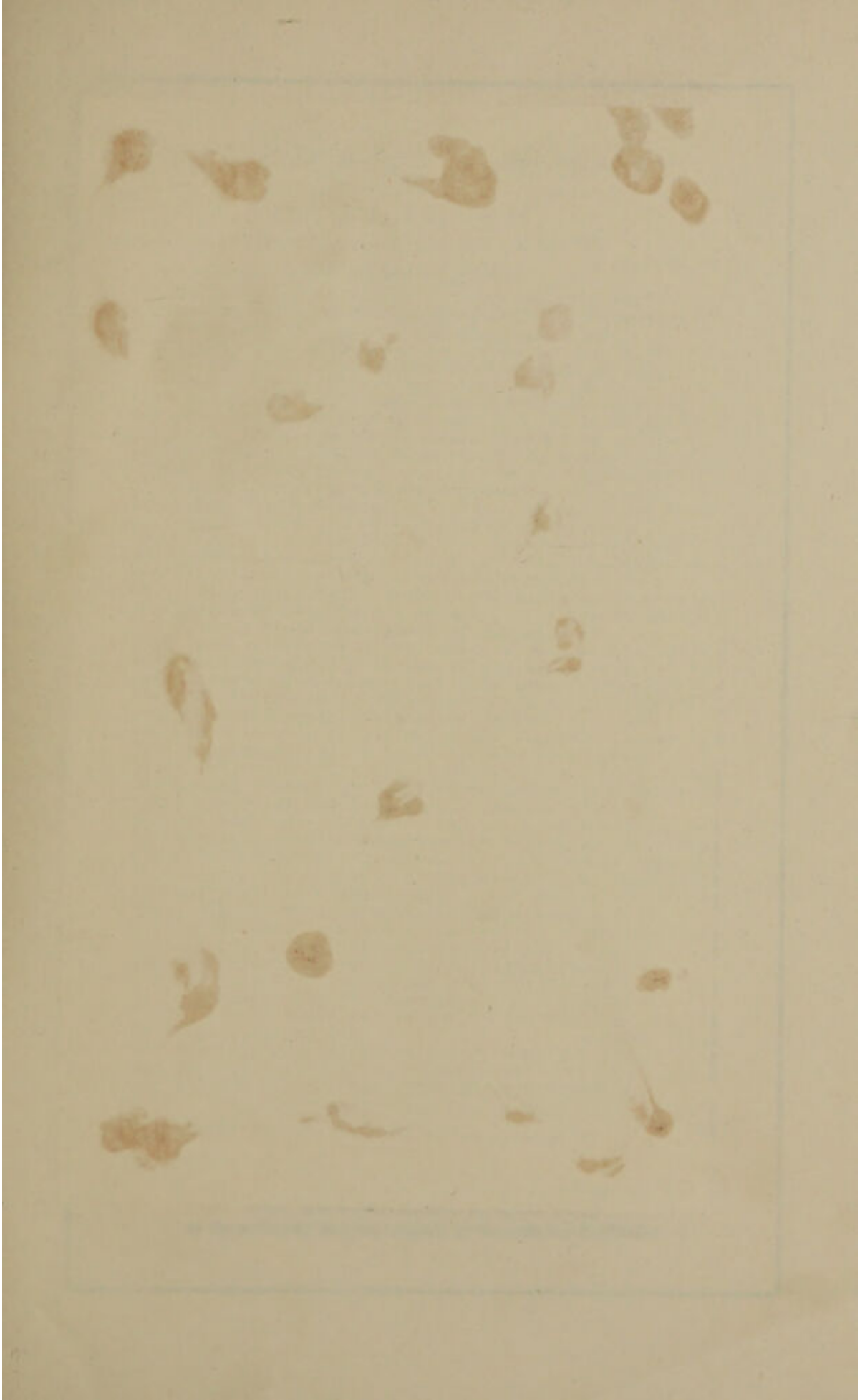

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