

Health.

Contributors

Great Britain. Central Office of Information. Reference Division.

Publication/Creation

London : H.M.S.O., 1969.

Persistent URL

<https://wellcomecollection.org/works/m9r9tre6>

License and attribution

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>



Britain and the Developing Countries

TRO
pam
WA100
1969
G78h

Health

CENTRAL OFFICE OF INFORMATION REFERENCE PAMPHLET 88

LONDON

HER MAJESTY'S STATIONERY OFFICE

PRICE 6s. 6d. NET

SOME PRESS COMMENTS ON THIS SERIES

LOCAL GOVERNMENT IN BRITAIN

'Extremely good. The reader is given a comprehensive view of English local government, and the pamphlet is a miracle of condensation.'

LOCAL GOVERNMENT CHRONICLE

SOCIAL SERVICES IN BRITAIN

'Performs a valuable service in presenting the necessary information to the public in so readable and accessible form.'

SOCIAL SERVICE QUARTERLY

THE BRITISH PARLIAMENT

'Concise and helpful—few people coming to the subject for the first time could fail to profit from it.'

JUSTICE OF THE PEACE AND LOCAL GOVERNMENT REVIEW

THE POLICE SERVICE IN BRITAIN

'To be highly commended as a concise account of the development and organisation of the Service.'

POLICE REVIEW

NUCLEAR ENERGY IN BRITAIN

'A remarkably clear review of the development and research effort in the nuclear field . . . It will be invaluable for the layman trying to obtain background information.'

NUCLEAR ENERGY

HEALTH SERVICES IN BRITAIN

'Anyone who has to write or speak on health administration in this country will find this pamphlet an excellent source of reference.'

BRITISH MEDICAL JOURNAL

THE ENGLISH LEGAL SYSTEM

'The pamphlet is attractively written, and the information it contains, though of necessity brief, gives an accurate over-all picture of the legal system common to England and Wales.'

THE LAW JOURNAL

BRITISH FINANCIAL INSTITUTIONS

'This authoritative pamphlet describes the origins, functions and activities of Britain's most important financial institutions . . . such information has not hitherto been readily available in one reference work.'

JOURNAL OF THE INSTITUTE OF BANKERS

For complete list of reference pamphlets in this series see inside back cover



22200155101

Britain and the Developing Countries

Health

WELLCOME MUSEUM OF MEDICAL SCIENCE.
183, EUSTON ROAD, LONDON, N.W.1.

55

LONDON
HER MAJESTY'S STATIONERY OFFICE
1969

Prepared by
REFERENCE DIVISION
CENTRAL OFFICE OF INFORMATION
LONDON

January 1969

SBN 11 700078 7

WELLCOME INSTITUTE LIBRARY	
Coll.	weITROmec
Call	pam
No.	WA100
	1969
	G78h

N.B. This pamphlet is one of a series produced by the Central Office of information for British 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.

CONTENTS

	<i>Page</i>
INTRODUCTION	1
HISTORY OF MEDICAL ASSISTANCE	2
THE AID PROGRAMME	4
Principles of Aid	4
Training Facilities in Britain	4
Medical Education Overseas	7
Associations Between British and Overseas Medical Institutions	9
Other Arrangements	11
Recruitment of Medical Staff	11
Recruitment of Nurses and Para-medical Staff	13
Regional Programmes of Technical Assistance	14
Commonwealth Co-operation	16
United Nations Agencies	17
Medical Research	18
CONTROL AND ERADICATION OF DISEASE	19
Early British Research	19
Postwar Developments	20
Tropical Medicine Research Board	20
Diseases	21
Remaining Challenges	25
Nutrition	32
Family Planning	35
APPENDICES	35
1. British Official Disbursements of Economic Aid in Medicine and Public Health	35
2. Overseas Students and Trainees on Medical Courses in the United Kingdom	36
3. United Kingdom Publicly Financed Persons 1967 (Health)	37
4. Experts Financed from United Kingdom Public Funds in Commonwealth African Countries (Health)	39
READING LIST	40
ILLUSTRATIONS	<i>.. centre pages</i>

1	INTRODUCTION
2	HISTORY OF MEDICAL ASSISTANCE
3	THE MEDICAL ASSISTANT
4	PROFESSION OF MEDICAL ASSISTANTS
5	EDUCATION OF MEDICAL ASSISTANTS
6	PROFESSIONAL STANDARDS OF MEDICAL ASSISTANTS
7	RELATIONS OF MEDICAL ASSISTANTS TO OTHER PROFESSIONS
8	RELATIONS OF MEDICAL ASSISTANTS TO THE PUBLIC
9	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL PROFESSION
10	RELATIONS OF MEDICAL ASSISTANTS TO THE NURSING PROFESSION
11	RELATIONS OF MEDICAL ASSISTANTS TO THE DENTAL PROFESSION
12	RELATIONS OF MEDICAL ASSISTANTS TO THE PHARMACEUTICAL PROFESSION
13	RELATIONS OF MEDICAL ASSISTANTS TO THE VETERINARY PROFESSION
14	RELATIONS OF MEDICAL ASSISTANTS TO THE OPTOMETRIC PROFESSION
15	RELATIONS OF MEDICAL ASSISTANTS TO THE PODIATRIC PROFESSION
16	RELATIONS OF MEDICAL ASSISTANTS TO THE PHYSICIAN
17	RELATIONS OF MEDICAL ASSISTANTS TO THE PATIENT
18	RELATIONS OF MEDICAL ASSISTANTS TO THE COMMUNITY
19	RELATIONS OF MEDICAL ASSISTANTS TO THE FUTURE
20	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT ASSOCIATION
21	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT SOCIETY
22	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT CLUB
23	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT LEAGUE
24	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT ORDER
25	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT UNION
26	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT CONFERENCE
27	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT CONVENTION
28	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT SYMPOSIUM
29	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT SEMINAR
30	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT WORKSHOP
31	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT FORUM
32	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT JOURNAL
33	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT MAGAZINE
34	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT NEWSLETTER
35	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT BULLETIN
36	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT GAZETTE
37	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT REVIEW
38	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT CRONICLE
39	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT RECORD
40	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT HERALD
41	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT VOICE
42	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT SPECTATOR
43	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT OBSERVER
44	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT EXPLORER
45	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT JOURNALIST
46	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT WRITER
47	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT EDITOR
48	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT PUBLISHER
49	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT DISTRIBUTOR
50	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT RETAILER
51	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT WHOLESALE
52	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT IMPORTER
53	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT EXPORTER
54	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT TRADER
55	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT MERCHANT
56	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT DEALER
57	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT VENDOR
58	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT PURCHASER
59	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT CONSUMER
60	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT PRODUCER
61	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT MANUFACTURER
62	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT DISTRIBUTOR
63	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT RETAILER
64	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT WHOLESALE
65	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT IMPORTER
66	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT EXPORTER
67	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT TRADER
68	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT MERCHANT
69	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT DEALER
70	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT VENDOR
71	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT PURCHASER
72	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT CONSUMER
73	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT PRODUCER
74	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT MANUFACTURER
75	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT DISTRIBUTOR
76	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT RETAILER
77	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT WHOLESALE
78	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT IMPORTER
79	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT EXPORTER
80	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT TRADER
81	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT MERCHANT
82	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT DEALER
83	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT VENDOR
84	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT PURCHASER
85	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT CONSUMER
86	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT PRODUCER
87	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT MANUFACTURER
88	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT DISTRIBUTOR
89	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT RETAILER
90	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT WHOLESALE
91	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT IMPORTER
92	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT EXPORTER
93	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT TRADER
94	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT MERCHANT
95	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT DEALER
96	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT VENDOR
97	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT PURCHASER
98	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT CONSUMER
99	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT PRODUCER
100	RELATIONS OF MEDICAL ASSISTANTS TO THE MEDICAL ASSISTANT MANUFACTURER

INTRODUCTION

BRITISH AID in the fields of medicine and public health amounted to £4·8 million in 1967 the last year for which figures are available: of this it is estimated that £3 million was given in technical assistance (see Appendix 1). Most of Britain's medical aid is to the developing countries of the Commonwealth, and the increasing sense of need for combined action to meet the requirements of these countries led to the holding of the first Commonwealth Medical Conference at Edinburgh in October 1965. Decisions reached at that conference involved a number of new measures of assistance by Britain, notably in the training of personnel. The second Commonwealth Medical Conference was held in Kampala, Uganda, from 2nd to 12th September 1968 to review progress made in the programmes inaugurated at the first conference, and to see what further measures were possible. A third Commonwealth Medical Conference will be held in 1971.

HISTORY OF BRITISH MEDICAL ASSISTANCE

BRITAIN'S CONTRIBUTION to the effort to meet the medical needs of the developing countries has been of major importance for many decades. It should be remembered that it is only comparatively recently that public health measures have been introduced, even in the advanced countries of the world. Compulsory and comprehensive environmental health services were not developed in Britain until the second half of the nineteenth century: 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 Britain is or has been responsible has had to be met.

In many 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. Missionary work supplemented, or in many cases preceded, the services provided by governments; missions provided hospital treatment and also undertook the training of auxiliary medical staff. In many cases these hospitals were subsidised to perform allotted tasks, as in Nigeria, where the missions were linked with the government in an extensive leprosy service. Medical assistance from the British Government first took the form of grants-in-aid of administration, which were introduced in 1878. These grants were available as budget subsidies for the administration of basic services in the dependencies, including the health service: the grants were considerably increased after 1918, amounting to £100 million during the period 1920-62.

Research Aid

In addition, the first general approach to the health problems of tropical territories was made with the establishment of the Bureau of Hygiene and Tropical Diseases by the Colonial Office in 1908. The Bureau's main publication—*Tropical Diseases Bulletin*—first published in 1912, has retained its form and high standard for over half a century. Research in tropical medicine was also undertaken by the London and Liverpool Schools of Tropical Medicine, which were founded at the end of the nineteenth century; and in 1919 a Colonial Research Committee was authorised to spend £100,000 to sponsor research for the benefit of colonial territories.

Development Aid

In 1929, under the Colonial Development Act, a Colonial Development Fund of up to £1 million a year was established. During the period of validity of the Act (1929-40) £1.5 million was recommended for public health projects. In 1940 the first of a series of Colonial Development and Welfare Acts (CD & W) was enacted; subsequent legislation amended the financial provisions of the original Act, so that during the period ending 31st March 1967 nearly £29 million was committed to medical and health services in the dependent territories. During 1966-67, expenditure of £1.4 million was approved for medical and health services: of this over £54,000 was given to extend the medical services in Swaziland; over £4,000 for tubercu-

losis control in the Gilbert and Ellice Islands and nearly £62,000 for the provision of a new hospital for St. Kitts-Nevis-Anguilla.

Postwar Developments

After the second world war the rapid growth of medical assistance for the developing countries was accelerated by the creation of regional, Commonwealth and international schemes concerned with the welfare of these countries. Britain has been one of the main contributors to such regional schemes as the Colombo Plan and the Special Commonwealth African Assistance Plan (SCAAP), (see p. 15), and to United Nations agencies such as the World Health Organisation (WHO) and the United Nations International Children's Emergency Fund (UNICEF) (see p. 17).

The increasing importance of technical aid has required both a general view of this work by one department, and a single main channel for government assistance to all overseas countries, whether dependent or independent. In July 1961 the Department of Technical Co-operation (DTC) was established, with responsibility for 'co-ordinating, promoting and carrying out arrangements for furnishing countries outside the United Kingdom with technical assistance'. In the medical field, the DTC recruited doctors and specialists for service with overseas governments, sponsored the training of overseas students in British medical schools, provided experts for short-term appointments overseas and supplied specialised equipment for projects of outstanding importance. Other forms of medical assistance were introduced as a result of the *Report of the Working Party on Medical Aid to the Developing Countries (1962)*, headed by Sir Arthur Porritt, including the creation of 'British Academic Fellowships in Medicine' (see p. 6).

In order that the recommendations of the working party might be implemented in close consultation with the medical profession, and that the DTC might have available continuing professional advice on the problems of medical aid, the department established a Medical Advisory Committee, representing a wide range of professional experience. The committee is now responsible to the Ministry of Overseas Development and its terms of reference are: (a) to review at appropriate intervals the technical assistance provided by the Ministry in medical and allied fields, and to make recommendations to the Minister, and (b) by means of sub-committees and panels to assist the Ministry in its work in these fields and advise on particular problems. The Secretariat is provided by the British Council's Medical Department.

Ministry of Overseas Development

In 1964 the administration of aid was further centralised by the establishment of the Ministry of Overseas Development (ODM), which absorbed the technical aid functions, including medical assistance, previously discharged by the overseas departments, the Treasury and the DTC. The ODM supplements the activities of other agencies, and co-ordinates ideas and activities for the benefit of developing countries; it also administers economic and capital aid, and finances schemes of technical assistance for which requests are submitted by the governments of developing countries.

THE AID PROGRAMME

PRINCIPLES OF AID

Britain's policy on medical aid to the developing countries was reviewed by the report of the Working Party in 1962 (referred to on p. 3). Briefly, the conclusions were:

1. The report spoke of 'the need to recognise and accept that, however great the medical deficiencies of the developing countries may be, the advice and help which is given to them must be given in the form in which they request.
2. 'As a general principle, the best and most economical way of helping the developing countries to improve their medical services is to raise the standards of teaching at their own teaching centres, and to train their own teachers, so that this central influence may permeate the whole of their medical systems.'
3. These governments must normally make some contribution towards the projects selected. The first Commonwealth Medical Conference in 1965, whilst examining ways to overcome the inequalities that exist between the health services of developed and developing countries, recognised that the demand for medical services is virtually unlimited and world wide. The shortage of doctors and nurses, which is particularly acute in the developing countries, is felt in the more developed countries as well. Britain, for example, relies heavily on overseas doctors and nurses training and working in Britain to help staff her National Health Service. The conference therefore concluded that the main hope of significant progress in the long term lay in efforts by the developing countries to train their own personnel by establishing their own medical and nursing schools and other training institutions. Following the conference, Britain has maintained a policy of giving the highest priority in its medical aid programme to the development of educational systems and training institutions within the overseas countries. This policy was reaffirmed at the second Commonwealth Medical Conference, at Kampala in September 1968, when Mr. Kenneth Robinson, the British Minister of Health, stated the Government's intention of maintaining the number of awards to Commonwealth medical students and of improving the system of undergraduate and postgraduate education in the medical field. Since the first conference the policy has been implemented in the following ways.

TRAINING FACILITIES IN BRITAIN

Medical training at all levels, from that of medical auxiliaries to doctors or surgeons engaged in postgraduate studies, has been made available in Britain for students from developing countries under various technical assistance programmes supported by the British Government.

At the end of 1967 there were 608 publicly financed students of the medical sciences and 162 trainees in health on courses in Britain (see Appendix 2). Both the students and trainees come from a wide range of countries: students

arrived from Nigeria (24), Kenya (9), Ceylon (19) and India (72); the trainees come from countries such as Ghana (18), Kenya (8) and Argentina (70).

Un-sponsored Medical Postgraduates

By far the greatest number of overseas doctors come to Britain on their own initiative and without sponsorship, to seek training in British hospitals: during 1967 there were over 5,000 doctors from overseas, mainly from the Commonwealth, holding training appointments. They have the same opportunities for employment and training as British doctors. At the first Commonwealth Medical Conference the Ministry of Health and Scottish Health Department suggested a scheme, which became effective in July 1966, offering unsponsored entrants a short period of attachment to an appropriate clinical unit in order that they might be assisted to find the correct channel of training in the hospital service and that they might be introduced to the training opportunities available. The scheme has already helped over 200 doctors in this way.

Sponsored Postgraduate Training for Doctors

At the postgraduate level, in recent years, at any one time, there have been approximately 500 officially sponsored medical students from developing countries in Britain who were receiving further training and experience in the form of courses, or attachments of more than one year's duration, and who were destined for employment in the medical services or medical teaching institutions of their own countries. Among these medical scholars are those assisted under various bilateral technical assistance programmes (see p. 6), under the Commonwealth Scholarship and Fellowship Plan, those financed by the governments of dependent territories, the British Council, and fellowships awarded by the World Health Organisation, of whom there were 491 in 1967. The majority of WHO fellowships are in the medical and public health field, but they include awards in nursing, the basic medical sciences and medical technologies.

Commonwealth Scholarship and Fellowship Plan

The Commonwealth Scholarship and Fellowship Plan was first drawn up at the Commonwealth Education Conference (1959) to enable students of high intellectual promise to study in Commonwealth countries other than their own. Britain offered to provide 500 of the 1,000 awards, and 50 British medical scholarships have always been included in the plan. At the first Commonwealth Medical Conference Britain announced that she was increasing the number of awards for postgraduate medical education by 100, under an extension of the plan; the new awards came into operation in April 1966. There are three types of awards: medical fellowships, senior medical fellowships and visiting professorships in medicine. The scholarships are offered on similar terms to the others under the plan, but the fellowships are an entirely new element in British medical awards. They are basically for medical and dental teachers who have already obtained a postgraduate qualification but would benefit substantially from a specialised course of study or training, though research workers, teachers in basic medical sciences and

medical administrators are also eligible. The senior fellowships and visiting professorships are comparatively rare awards for established medical teachers.

During 1966-67 52 medical scholars, 29 fellows and 8 senior fellows from developing Commonwealth countries held awards in Britain; and at 1st April 1968, 41 senior fellowships and 128 fellowships had been awarded under the new scheme.

Another group of postgraduate medical trainees consists of doctors who, having already reached a marked degree of competence in their own field, come to Britain to bring themselves up to date in their own techniques or to widen their experience. The majority receive 'ordinary' awards under the various regional programmes of technical assistance; however, some receive 'British Academic Fellowships in Medicine'. Twenty-five of these special bursaries were created by the Government, following a recommendation of the Working Party on Medical Aid to the Developing Countries in 1962 (see p. 3); they attract the maximum stipends and allowances, and are generally limited to one year's study.

British Council

The British Council's medical work is guided by its medical advisory panel, which consists of a number of distinguished members of the profession. It maintains offices and centres, mainly in university cities but covering the whole country, to provide services for overseas visitors and students. It is responsible either wholly or in part for the administration of scholarship or training schemes financed from British Government sources, such as the Commonwealth Scholarship and Fellowship Plan, the Foreign and Commonwealth University Interchange Schemes, Commonwealth Education Co-operation (CEC) and the council's own scholarships and bursaries. It also administers the fellowships, tenable in Britain, awarded by the UN Specialised Agencies, e.g. WHO. This responsibility includes placing in universities and other institutions of higher education many of the postgraduate scholars and study fellows who come to Britain under the various official schemes. In the medical field, however, the council for the most part places only its own scholars and bursars, other medical students being placed by the British Medical Postgraduate Federation, the Ministry of Health and Social Security, or the Association of Commonwealth Universities.

Undergraduate Training

In June 1967 there were 865 overseas students studying in medical and dental faculties in British universities for a first degree. Since 1964, the ODM has used CEC funds to enable some of the most promising pre-clinical students from the University of the West Indies medical school to come to Britain to study for degrees in basic medical sciences.

Training Nurses and Midwives

Over 16,700 student and pupil nurses and midwives from overseas, of whom some 15,000 are from Commonwealth countries, were training in Britain in 1967. The great majority come to Britain unsponsored by their

governments, but the ODM, in consultation with the Ministry of Health and Social Securities, has introduced a small number of sponsored schemes, under which it has agreed to place qualified government nominees in approved schools of nursing in Britain for training leading to State registration. In 1962 it was arranged for some 200 nurses from Malaysia to come to Britain over a three year period. The final total was 417 of whom the last completed their courses in 1968. There have been similar schemes with Mauritius and Jamaica (who also required to expand their nursing services more rapidly than could be achieved through their own training schools) and on a much smaller scale with Ethiopia.

Britain's main effort to develop nursing services overseas is through the post-registration training courses now available to qualified Commonwealth nurses. The number of places available for training at this level was doubled at the first Commonwealth Medical Conference from 100 to 200. A special course in teaching methods for overseas nurses who do not possess the entrance qualifications for the British Nurse Tutor Diploma has been set up and is proving very valuable. Courses at the lower levels, such as preparation of ward sisters for midwife duties, are normally arranged only for trainees from those countries which have no appropriate institutions of basic training of their own. Since 1965, some 15 Commonwealth nurses have been assisted to enter courses for the nurse tutor or midwife teacher diplomas, and there has also been a demand for the clinical instructor's course. Since 1959 there has been a special arrangement under which 12 nurses from Ghana are absorbed annually by the Radcliffe Infirmary, Oxford, for training in the acceptance of responsibility prior to becoming ward sisters. Of the more advanced courses that have been provided, a matron, sister and nurse from Ceylon received 6-9 months instruction in the nursing of cancer cases. Annual courses are also given for Nursing Administration (Hospital) and Nursing Administration (Public Health). At the request of Commonwealth countries, the ODM, in consultation with the Royal College of Nursing, is planning senior courses especially devised to meet overseas requirements.

Medical Technologists

It is generally accepted that efficient ancillary medical services are vital to the development of medicine in the developing countries. On 1st April 1967 there were 278 para-medical personnel studying in Britain, on government-financed training awards, and a further 112 candidates were under consideration. Arrivals for training in Britain have risen from 34 in 1964 to 121 in 1967, of whom 92 were from Commonwealth countries.

MEDICAL EDUCATION OVERSEAS

The main goal remains the teaching locally of doctors, nurses and technologists in numbers far beyond anything that can be achieved through the colleges and schools of the more developed areas. Britain is therefore helping to staff and re-equip existing medical schools overseas, and to establish new ones.

Supply of Medical Teachers

The Government, through the ODM, does not normally recruit teaching staff for individual vacancies in overseas medical schools. Where, as is normally the case, these schools are university faculties, recruitment is undertaken by the Inter-University Council for Higher Education Overseas, the British Council or the Association of Commonwealth Universities. The Inter-University Council is now co-operating with nearly 30 overseas university institutions (other than in the Indian sub-continent, which is served by the British Council), which include 15 faculties or Schools of Medicine. British Council recruitment has included the Medical Dean of the recently established Institute of Postgraduate Medicine at Dacca, in Pakistan, whose appointment was subsidised by the British Government from CEC funds, and by one of the Special Commonwealth Awards used to facilitate service by eminent academicians. The ODM does contribute to the costs of a number of both long- and short-term appointments, from CEC funds. It operates on the advice of the Committee for University Secondment, which is also concerned with fostering informal links and exchange between British and overseas universities.

Development of Postgraduate Medical Education

Britain is particularly interested in co-operating with schools of medicine in the developing countries to develop postgraduate medical education as a means of improving the quality of undergraduate teaching. In India, for example, the ODM is financially supporting an association between the Royal Postgraduate Medical School of the University of London, Hammersmith, and the Institute of Postgraduate Medical Education and Research, Chandigarh.

With the long-term objective of increasing the number of medical teachers available to India's undergraduate medical colleges, a pilot project was introduced in 1967, to operate for five years. Already there have been a number of visits in both directions at professional level and other short visits by senior members of the Hammersmith staff to Chandigarh. Five senior members of the Chandigarh teaching staff spent a year at Hammersmith, and were followed in October, 1968 by another group. A small team of Hammersmith staff visited Chandigarh in April 1968 to discuss with the Institute's staff the detailed academic programme of the association, and to consider the extent to which it necessitated additional equipment. Britain is also co-operating with Makerere University College, Uganda, in its plans for developing postgraduate medical education through the gradual introduction of specialised medical facilities. With British Government financial assistance two specialists visited Makerere in 1967 to advise respectively on the establishment of a Cardio-Thoracic Surgery Unit and a Radiotherapy Centre, and a third has visited to advise on the setting up of a Urological Unit, possibly in association with the Institute of Neurology of the University of London. Another example of help in local training is the new Institute of Para-Medical Sciences in Rangoon, which Britain is supplying with teachers in physiotherapy, radiography, pharmacology and laboratory technology.

ASSOCIATIONS BETWEEN BRITISH AND OVERSEAS MEDICAL INSTITUTIONS

Student Exchanges

An important development has been the award by the Nuffield Foundation of travelling scholarships in tropical medicine, to enable British medical students in their pre-registration year to spend three months at a Commonwealth Medical School, and to enable senior students from overseas to spend a similar period in Britain. The scheme began in 1962-63 with some 20 British students from 14 medical schools holding scholarships; there are now 24 British medical schools linked in pairs to an overseas medical institute with a two-way flow of senior students: for example, Aberdeen University and Newcastle upon Tyne University are linked to the Central Medical School, Suva, Fiji, and King's College Hospital Medical School and Manchester University are linked to the University of Ceylon.

Tropical Medicine Research Studentships

The ODM has also recently introduced full-time training studentships for Commonwealth graduates who wish to train with the intention of making a career in medical research in the tropics. These are not confined to medical or veterinary graduates; other graduates may apply, provided that the research training required is directed towards medicine in the tropics.

Informal visits

Informal arrangements for the supply of British teachers or for the advanced training of overseas doctors have long existed between some medical schools and hospitals in Britain and in the developing countries. Their value and effectiveness derive largely from personal contacts between the staffs of the medical schools or departments concerned. In some cases they do not require any financial assistance from public funds, but in others the ODM assists by the supplementation of salaries overseas, the payment of passages and in other ways. In 1967 the ODM provided financial assistance for some 70 professional visits or tours within the Commonwealth, including consultation and advice on general or specific matters, specialist teaching and external examiners.

The British Council organises specialist tours and advisory visits by British experts, including holders of awards under Commonwealth and Foreign University Interchange Schemes. The council arranged for 141 of these visits in medicine in 1966-67, of which 36 went to Commonwealth countries. It also attempts to collect systematically and to supply to ODM advance information about visits abroad which senior members of the medical profession may be undertaking. The Commonwealth Medical Association encourages professional contacts and exchanges of ideas over the whole field of medicine, as do such organisations as the International Federation of Surgeons and of Obstetricians and Gynaecologists, and the Association for the Study of Medical Education.

Ad hoc Secondments

Ad hoc secondments and appointments of staff between British and overseas medical schools, hospitals and research organisations are made to meet a

particular need and are assisted by the Inter-University Council for Higher Education, the Association of Commonwealth Universities, the British Council and the ODM. Examples are the secondment of a sister tutor from King's College Hospital, London, to the University of Ibadan, Nigeria; and the assistance of the London School of Hygiene and Tropical Medicine in the establishment of the Nukumbita Hospital and Training Centre in Tanzania.

Standing Arrangements for Staff

A number of standing arrangements for the provision or exchange of senior trainees and staff have developed in which British medical institutions have undertaken to meet a specific overseas staffing or training need for a number of years. An example of a major undertaking on this basis is the association between the medical faculties of the University of Glasgow and of the University of East Africa. Initially the scheme, then known as the University of East Africa Medical School, Nairobi, Extension, which was inaugurated in April 1965, aimed at enabling Kenya undergraduates who had spent the previous two years of the clinical part of their medical course at Makerere University College, Uganda, to do their final year at Nairobi. The University of Glasgow undertook to second small teams of three or four experienced teachers in medicine, surgery, obstetrics and gynaecology, pathology and anaesthetics, together with supporting technicians, to University College, Nairobi, for periods varying from three months to two years. By the end of 1967, 47 members of the staff of the Glasgow medical faculty, assisted by the hospitals in the area, had served in Nairobi. Financial support is provided by the Ministry of Overseas Development. The cost of the team in 1966 was about £45,000, and had probably increased to about £60,000 in 1968. In July 1967 the Government of Kenya opened a new medical school in Nairobi, which has taken the place of the Nairobi extension and has admitted its initial intake of first year pre-clinical students. To co-ordinate the planning of this school the British Government financed a three-month visit by an eminent British academician in 1966, and also financed an initial visit to Kenya by a consultant architect, and is meeting the cost of the two-year appointment of a hospital planner in connection with the building programme of the school campus and at the Kenyatta National Hospital, which will serve as the teaching hospital of the medical school. A British Government loan of £31,000 and part of a loan of £51,600, have been approved for the purchase of equipment for the school: and a loan of £1 million provides for capital works at Kenyatta National Hospital and for other buildings required by the school. The school hopes also to receive assistance in the provision of teaching staff from other British and also Commonwealth universities.

Another standing arrangement is between the Hospital for Sick Children, Great Ormond Street, London, and Mulago Hospital, Kampala, which is the teaching hospital for Makerere University College, Uganda. The medical school at Great Ormond Street has the responsibility of training postgraduate doctors in all aspects of the medical care of children, and a consultant visits Uganda regularly as an official liaison visitor. The new 900-bed Mulago Hospital, containing two well-equipped children's wards, was opened in 1962. Great Ormond Street hospital, with financial support from the ODM,

provides a senior registrar and two nursing sisters to take charge of these wards.

Other links include that between the Royal Postgraduate Medical School, London, and the Institute of Postgraduate Medical Education and Research, Chandigarh, India (see p. 8); the secondment of staff from the Royal National Orthopaedic Hospital, London, to Kano Orthopaedic Hospital, Nigeria, and the prospective arrangement for the exchange of staff between King's College Hospital Medical School, London, and the Christian Medical College, Vellore, India.

OTHER ARRANGEMENTS

(a) Technical Assistance Lectureships

The ODM has established 14 senior technical assistance lectureships at the London and Liverpool Schools of Tropical Medicine and the Department of Tropical Medicine of the Medical Faculty of Edinburgh University. Their object was to ensure that men with considerable overseas experience of tropical medicine should not be lost to that field when their service came to an end; to ensure the maintenance in Britain of a continuing stream of first hand knowledge of tropical health conditions; to enable the three schools to add to and develop their existing associations with overseas medical teaching and research institutions; and to facilitate the secondment of medical teachers to posts in developing countries. Among other places, lecturers have been seconded to the Faculty of Tropical Medicine, the University of Medical Sciences, Bangkok; the Dar-es-Salaam Medical School; the Ghana Medical School; the Medical School of the University of Ibadan; the Medical School of Makerere University College; and to the Government of Kenya.

(b) 'Home Base' Appointments

Subsequent to the first Commonwealth Medical Conference in 1965 the ODM created a number of additional appointments (known as 'home base' appointments) at British institutions in order to strengthen their capacity to release staff for overseas service. The appointments are made on the understanding that the person appointed, or another member of staff, will serve abroad for at least 75 per cent of their duration (which is usually five years). At present 14 such posts have been allocated to medicine; four of them have been filled and the holders are serving abroad at the University of the West Indies (one from Bristol University Radiology Department and one from the Royal Free Hospital's (London) Pathology Unit); at the Royal University of Malta (from the Institute of Obstetrics and Gynaecology) and the Institute of Postgraduate Medical Education and Research, Chandigarh (see p. 8). Apart from these 14 posts there are 12 others at the disposal of the Ministry of Health and Social Security for pathologists, radiologists, psychiatrists and morbid anatomists.

RECRUITMENT OF MEDICAL STAFF

One of the most important projects operated by the ODM is the Overseas Service Aid Scheme (OSAS), begun in 1961, under which the governments of

the newly independent Commonwealth countries and those approaching independence are helped to meet the cost of retaining or employing the British professional staff required to maintain their public services until qualified local people are available to replace them. The aim of the scheme is to reduce the cost to the receiving government of employing such staff, to that of employing local civil servants, by meeting the inducement and education allowances, the passage costs and certain other expenses involved. In 1967 there were about 10,000 British personnel serving overseas under this scheme, of whom about 1,000 were medical staff. About 100 more were also serving under other supplementation schemes, such as the British Expatriates Supplementation Scheme (BESS) and the Public Service Supplementation Scheme (PSSS).

Under these schemes and regional programme arrangements, the ODM recruits general duty doctors, specialists and technicians, mainly but not exclusively for the British dependent territories, and for those Commonwealth countries which have no recruiting organisation of their own. Appointments in this category are usually made on contract to the receiving government, for periods of 18 months to 3 years; in 1967 they totalled 156 for medical personnel (OSAS); 31 under the Colombo Plan; 13 under SCAAP; and 11 for multilateral agencies. (See Appendix 3).

UNITED KINGDOM PERSONNEL, BY VARIOUS SCHEMES (HEALTH)

Programme	Recruitment during 1967	Overseas on 31.12.1967
OSAS	156	971
PSSS	—	57
BESS	—	60
Colombo Plan	31	42
SCAAP	13	13
TANCA*	3	4
CENTO	2	3
Caribbean TA†	1	1
TA other countries	—	5
TOTAL	206‡	1,156‡

*TANCA = Technical Assistance to Non-Commonwealth Countries in Africa.

†TA = Technical Assistance.

‡These figures exclude 154 volunteers who were recruited during 1967 and were serving abroad on 31.12.1967.

Some examples of the wide range of medical projects assisted and duties undertaken by this staff include a family planning administrator for Mauritius, an instructor in prosthetic dentistry in Burma, and a consultant paediatric surgeon in Vietnam.

Supply and Demand

The recruitment of medical staff for service in developing countries has been limited to a considerable extent by the severe shortage of such staff in Britain,

as is evident from the large numbers of doctors from overseas serving in the National Health Service: during 1967, there were over 5,500 doctors from overseas, mainly from the Commonwealth, holding junior, or training, appointments in British hospitals. Despite the ODM's efforts to follow up enquiries from members of the profession about opportunities for service overseas, the gap between the supply of and demand for medical staff persists.

RECRUITMENT OF NURSES AND PARA-MEDICAL STAFF

The ODM provides nursing and para-medical staff for service overseas under the Overseas Service Aid Scheme and regional technical assistance agreements. Some appointments of this type have included: midwifery tutors, nursing tutors, and a mental nursing adviser to Ghana; a nursing supervisor (cholera research work) to Pakistan; a nursing education adviser to Kenya; medical laboratory technicians and pharmacists to Burma; and advisers in radiography to Turkey and the Philippines.

The supply of nursing candidates from Britain obviously varies in accordance with the qualifications and experience required by the receiving country. As local candidates overseas become available for appointment as nursing sisters, the demand upon British staff becomes increasingly for nurse tutors and other senior and specialist grades of nurses, in which the shortage is most acute, and for para-medical personnel for teaching and supervisory duties.

At the first Commonwealth Medical Conference the British Government undertook to create and finance 15 supernumerary nurse teaching posts to enable hospitals to release staff for service overseas; two appointments have been made to Cameroon, i.e. one tutor and one ward sister under the 'home base' scheme.

Visiting Doctors

Short-term visits to developing countries by medical advisers and consultants concentrate on demonstrating techniques in a particular discipline or on advising on a specific problem. An example of this type of visit was that by an ophthalmologist, in early 1967, to the Caribbean where he demonstrated new techniques and performed several complex and sophisticated operations.

A scheme for the visits of medical specialists to East and West Africa, financed for the first six years by a grant of £30,000 from the Nuffield Foundation, was approved by the Colonial Office in 1948. When this scheme was coming to an end, the Colonial Office approached other territories to invite their participation. The African governments had agreed to continue the scheme at their own expense and the other territories were offered a free period of three years, during which visits would be paid for from CD & W funds provided by the British Government on condition that, at the end of the period, they would continue participation at their own expense. Apart from African territories this scheme eventually covered dependencies in the West Indies, the Far East and the Western Pacific.

The ODM has continued the scheme of arranging visits by leading British medical advisers to groups of adjacent Commonwealth countries.

Such visits, averaging two or three a year, have helped to strengthen professional relations between British teachers and former pupils now practising in Commonwealth countries; and have provided an opportunity for informed and constructive criticisms of local medical services.

At the second Commonwealth Medical Conference the British Minister of Health, Mr. Robinson, indicated his government's willingness to continue and develop this type of aid with short-term visits to overseas institutions by experienced academics or consultants from Britain who would carry out intensive teaching programmes, organise special courses or advise on particular problems.

Volunteers

Since 1964 an important and growing contribution to the staffing of overseas health services has been made by British doctors, nurses and members of the para-medical professions who are recruited by voluntary agencies in Britain under the officially sponsored British Volunteer Programme. Under this programme trained personnel are recruited by four voluntary societies, acting on requests from overseas governments, for service in the public health field. The ODM meets 75 per cent of the costs incurred by the voluntary societies and some other expenses. In 1967 there were 154 volunteers serving overseas in the public health field.

REGIONAL PROGRAMMES OF TECHNICAL ASSISTANCE

The major part of British technical assistance is provided under a number of regional programmes.

(a) Colombo Plan

The Colombo Plan for Co-operative Economic Development in South and South-East Asia was conceived at a meeting of Commonwealth Foreign Ministers in Colombo in January 1950. Present regional members are: Afghanistan, Bhutan, Burma, Cambodia, Ceylon, India, Indonesia, Iran, Laos, Malaysia, the Maldives, Nepal, Pakistan, Philippines, Singapore, South Korea, South Vietnam and Thailand. Member countries outside the region are: Australia, Britain, Canada, Japan, New Zealand and the United States. During 1966-67 Britain spent £2.45 million on technical assistance to this area.

Countries of the region regard medical and sanitation services as vital, and emphasis is given to their improvement in both urban and rural areas. To help develop these services, Britain offered 136 new training places in medicine and health in 1966-67 and sent 28 experts to the area under the plan.

Examples of Aid

In June 1966 it was announced, in response to a request from the Vietnam Government, a British paediatric team would start work in the Nhi Dong children's hospital in Saigon. The project is expected to run for five years, and the team will also provide medical and nursing care, undertake training and the demonstration of modern paediatric practice. A fully equipped

pathology laboratory has been provided for the demonstration of micro-chemical techniques; the cost of the project was estimated at about £125,000. In February 1968 the British Government announced a further grant of £250,000. This will be used to double the numbers in the medical team, and to expand and construct permanent facilities for their work.

A project for the rehabilitation of the physically handicapped through the services of a Pakistan Central Training Centre at Lahore, West Pakistan, which trains personnel in the manufacture of artificial limbs and orthopaedic appliances is being assisted by a British prosthetics consultant. A British expert from the Liverpool School of Hygiene and Tropical Medicine, who is attached to the Department of Medical Services, Sabah, Malaysia, is carrying out a general survey of filariasis to ascertain the incidence of the disease in the State.

The Colombo Plan is the main method of channelling official aid to South-east Asia, but there are, however, other forms of aid to the region, such as the bilateral arrangements under the South-East Asia Treaty Organisation (SEATO), CEC (see p. 17) and CD & W funds, and international arrangements under such agencies as WHO, which supplied 324 experts to the area in 1966, and 664 fellowships. Under SEATO auspices a general Medical Research Laboratory and a Clinical Research Centre are in operation in Bangkok and a Cholera Research Laboratory in Dacca. Britain contributed much of the equipment for both laboratories and some expertise for the Cholera Research Laboratory.

In addition to the assistance referred to above, Commonwealth countries in the region participate in the Commonwealth Scholarship and Fellowship Plan. In 1967, 17 medical scholars from the region took up awards in Britain; there were 41 medical fellows, 12 senior medical fellows and 2 visiting professors holding awards in Britain in 1966-67.

(b) Special Commonwealth African Assistance Plan (SCAAP)

The Special Commonwealth African Assistance Plan (SCAAP) was initiated at a meeting of the Commonwealth Economic Consultative Committee, in 1960, as a result of a proposal by the Commonwealth Prime Ministers Meeting of that year for co-operative action in the development of Commonwealth countries in Africa.

In 1967 the cost of British technical assistance to the Commonwealth countries in Africa was £18.2 million. The most substantial part of this assistance was provided under OSAS (see p. 12), which enables the governments to retain and recruit administrative, professional and technical staff from Britain until local staff can be trained to take over (see Appendix 4). Training was a major part of Britain's technical assistance effort: in 1967, 45 trainees in health arrived in Britain, under SCAAP, and there were 72 on courses in 1968. However, it is still true that far larger numbers come to Britain from Commonwealth countries in Africa unofficially and without scholarships.

Britain continues to give financial support to research in Commonwealth African countries. By far the largest part of the grants for overseas research is disbursed in East Africa, where the regional research organisations established with help from CD & W funds have been maintained under the East

African Common Services Organisation. The British Government contributes to the East African Medical Research Council's work on virus research, malaria, vector borne diseases, leprosy, tuberculosis and trypanosomiasis; in 1967-68 the grant amounted to over £95,000. The ODM also supports other East African medical research schemes at a cost of over £19,000 during 1967-68. The research projects supported in West Africa are based mainly in The Gambia. A grant of £20,000 per annum is given to the Medical Research Council's Laboratory at Fajara, and the ODM gives 60 per cent of the cost of the council's Trachoma Research Unit, which will be a maximum of £33,000 in 1968-69.

COMMONWEALTH CO-OPERATION

Commonwealth Medical Conferences

In 1965 the first Commonwealth Medical Conference was held in Edinburgh. The decision to hold the conference was taken at the Commonwealth Prime Ministers Conference in July 1964, when it was agreed in principle 'that an initiative similar to that which was launched in the field of education by the first of the Commonwealth Education Conferences several years ago should now be taken in the field of medicine'.

Adequate medical services are an essential foundation of social and economic progress in the developing countries. The conference therefore took as its purpose a thorough review of the existing co-operation between Commonwealth countries in the fields of medicine and health, and an examination of how this co-operation could be strengthened and extended. Britain's main offers to the conference concerned medical education and the supply of medical personnel.

Medical Education

Britain decided to introduce a scheme to help place in suitable appointments doctors who come to Britain without official sponsorship in order to seek further training and higher qualifications (see p. 5). The number of medical awards for senior postgraduate studies in Britain was increased under an extension of the Commonwealth Scholarship and Fellowship Plan (see p. 5); the number of places at British medical institutions for post-graduate students supported from funds under Regional Programmes of Technical Assistance was increased from 120 to 200. It was also decided to encourage the development of associations between medical schools in Britain and medical centres in developing countries (see p. 9).

Supply of Medical Personnel

The ODM is offering newly registered doctors an inducement of £200 per annum while they undertake one year's further training in hospital appointments and a short course in tropical medicine, on the understanding that they will in turn agree to serve in general duty medical officer posts overseas for at least two years. The scheme has not yet reached its target of 50 young doctors a year, but it is providing a useful nucleus for recruitment. The Government also offered to increase to 200 the total number of places

available to Commonwealth nurses for post-basic training (see p. 7) and promised to encourage more nurses and midwives to take posts overseas.

The second Commonwealth Medical Conference, which was held at Kampala in September 1968, reviewed progress made in implementing the schemes adopted at the first Commonwealth Medical Conference and agreed that there had been an encouraging response. However, it emphasised the need for more regional planning and co-operation, pointing out that in the long run only local training could fill the manpower gap, even if expatriate services would be needed for the foreseeable future. It also stressed a need for improved communications between governments and recommended that the Commonwealth Secretariat be used as a focal point for co-ordination. In the field of family planning the conference made no general recommendations on national policies, which, it agreed, were for individual governments to decide, though the news that Britain was establishing a Population Bureau was welcomed. Mr. Kenneth Robinson, the British Minister of Health, said that in accordance with the decisions of the first medical conference it was 'the keystone of the British Government's medical aid to offer people from overseas such training as it could in Britain and also to send British medical teachers and doctors overseas to help in the organisation of medical schools and similar institutions'. A third Commonwealth Medical Conference will be held in 1971.

Commonwealth Education Co-operation

As a result of the first Commonwealth Education Conference in 1959, the Government agreed to allocate funds especially to promote co-operation among Commonwealth countries in education. This provision, known as Commonwealth Education Co-operation (CEC) is drawn on to cover the costs of the British contribution to the Commonwealth Scholarship and Fellowship Plan. It is also the principal source of government funds for the support of links between British and 'developing countries' universities, and for financing the cost of staff recruitment, examiners visits and other schemes for the promotion of educational facilities. Education in the health field, particularly the education of doctors, falls within the scope of this programme, and particular attention is paid to assisting overseas universities and non-government teaching hospitals.

UNITED NATIONS AGENCIES

As a member of the United Nations, Britain contributes to the work of the two main international organisations concerned with improving health standards and eradicating disease throughout the world—the World Health Organisation (WHO) and the Children's Fund (UNICEF). In 1967, the British contribution to WHO, assessed at 6.43 per cent of its budget, was £1,223,830, and the contribution to UNICEF (a voluntarily supported organisation) was £400,000. The technical assistance programmes of WHO are financed from its regular budget and from allocations from the UN Development Programme.

The work of WHO encompasses many health problems of the developing countries, whereas UNICEF, whose funds are applied mainly through WHO

and the Food and Agriculture Organisation (FAO) (in the case of nutritional projects), is concerned more specifically with programmes of long-term benefit to children and youth. The primary efforts of both these organisations are directed towards the control or elimination of diseases, e.g. malaria, smallpox and leprosy; to extending basic health services; and to improving environmental health and nutritional standards. Both WHO and UNICEF recognise the importance of trained medical and health personnel to the developing countries by providing staff for teaching institutes and fellowships for overseas training (see p. 6).

MEDICAL RESEARCH

Expenditure by the ODM on medical research in or for the benefit of the developing countries is incurred on the advice of the Tropical Medicine Research Board, which took over the work of the Colonial Medical Research Committee. It is a board of the Medical Research Council (MRC), established in 1960 to (1) advise the Minister, through the MRC, on all medical research overseas or in Britain financed from official funds, and (2) advise the MRC on all medical research in or for tropical or subtropical countries financed from their own budget. The ODM is also advised by a specialist Trypanosomiasis Panel, which advises the Minister on all matters concerning human and animal trypanosomiasis.

Under a scheme put forward by the MRC, with the support of the Overseas Research Council, provision has been made, (1) to encourage a number of senior men overseas to continue their research work by providing them with a home base when their posting overseas would normally expire, (2) to encourage senior specialised staff recruited to a home-base cadre to work overseas, and (3) to encourage young research workers to take posts overseas while holding an appointment with the council.

Expenditure specifically for medical research projects during 1967-68 amounted to more than £300,000. The money was allocated to specific research projects:

1. Basic research in tropical medicine, undertaken in universities in Britain, e.g. research on tropical viruses at the London School of Hygiene and Tropical Medicine. The ODM has given £172,000 to the MRC in 1967-68 for research.
2. Basic research in overseas universities.
3. Research institutes in overseas territories, e.g. Virus Research Institute in East Africa, and the East African Trypanosomiasis Research Organisation (see p. 27).
4. Certain MRC units overseas, e.g. the Tropical Metabolism Research Unit (Jamaica) and the Infantile Malnutrition Research Unit (Kampala, Uganda).
5. Specific research projects in the field, e.g. research on leprosy and cancer in East Africa.

At Zaria General Hospital, Nigeria, a tutor at the Nurses' Training School, who was recruited under the Britain/Nigeria Technical Assistance Agreement, discusses equipment with a group of students.

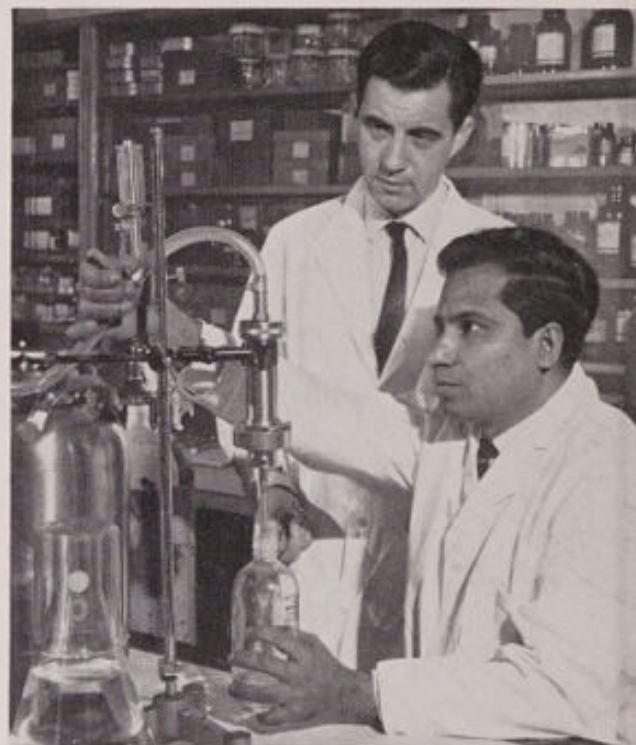


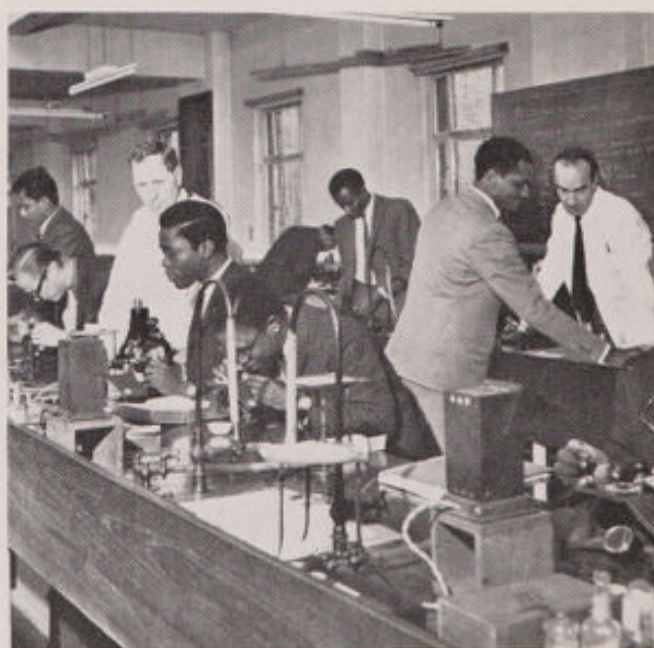
Bottom left Doctor from Swaziland working at a hospital in Swindon, South-west England on a World Health Organisation scholarship.

Top right A gift of medical and surgical equipment is presented to the General Hospital at Ondo, Western State, Nigeria, on behalf of the British Government.

Middle right Ceylonese pharmacist studying advanced pharmaceutical chemistry at University College Hospital, London, under Colombo Plan Technical Assistance.

Bottom right An instructor in laboratory techniques at the Medical Research Centre, Kuala Lumpur, who was recruited from Britain through the World Health Organisation.





Top left Nurses recruited through the Ministry of Overseas Development at work in Kitwe, Zambia.

Top right Some delegates at the Commonwealth Medical Conference in Kampala in 1968 inspect an exhibit.

Middle right A blind Nigerian studying to become a physiotherapist at the school run by the Royal National Institute for the Blind, London. He is in Britain under the Special Commonwealth African Assistance Plan.

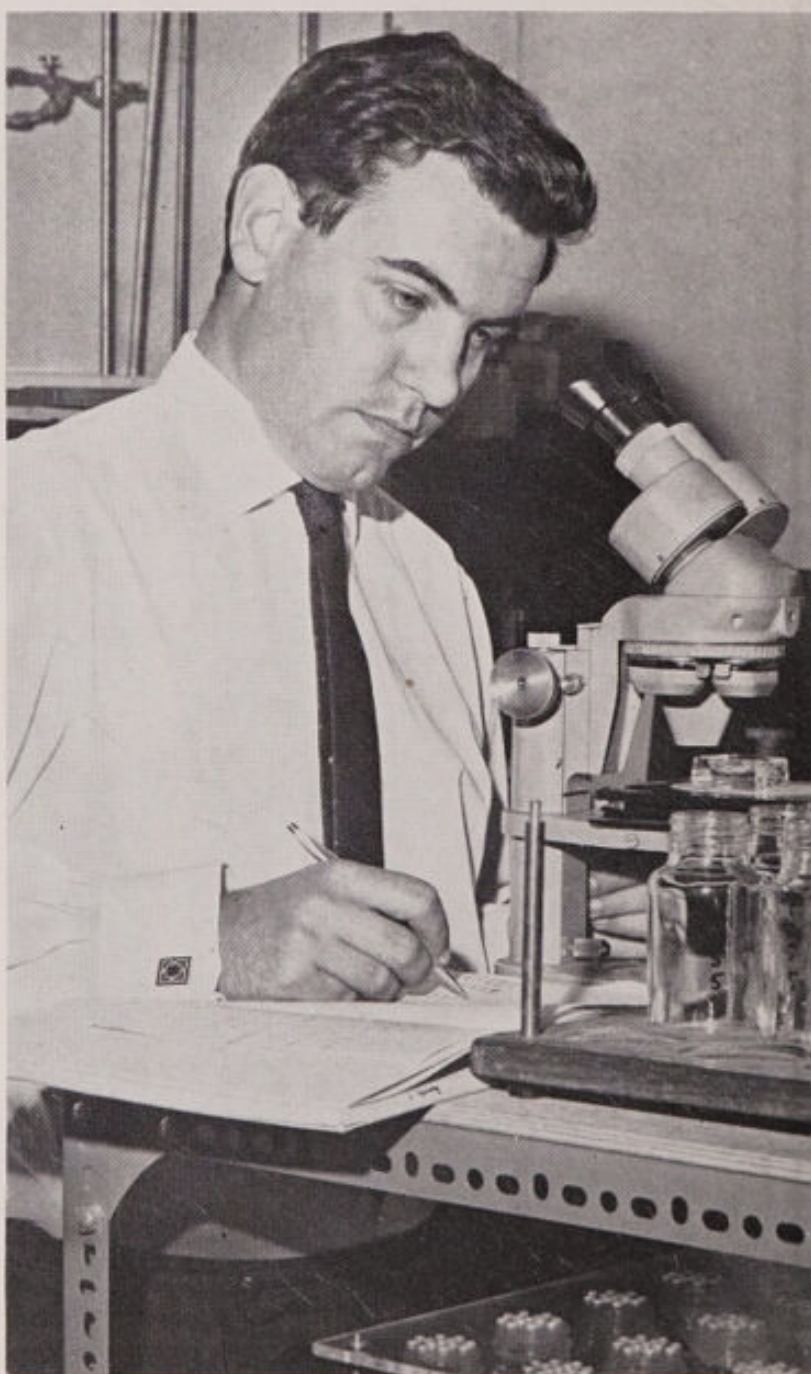
Bottom right Some of the many postgraduates from overseas who study at the London School of Hygiene and Tropical Medicine, working in the Department of Parasitology.



Top right The Deputy Medical Adviser to the Scottish Council for Health Education working in Swaziland under the Overseas Service Aid Scheme. He is supervising sampling of stream water for evidence of bilharziasis.

Middle left Some members of the British medical team at the Children's Hospital in South Vietnam. The cost of the project is met by the Ministry of Overseas Development as Colombo Plan Technical Assistance.

Bottom right A member of the Ministry of Overseas Development's Tropical Pesticides Headquarters and Information Unit, who is working in Ethiopia to help control bilharziasis.





Left A lecturer at the University of Medical Science, Thailand, who was recruited by the British Council under the Colombo Plan. Here he is demonstrating the use of ROTARY film evaporator in the laboratory.

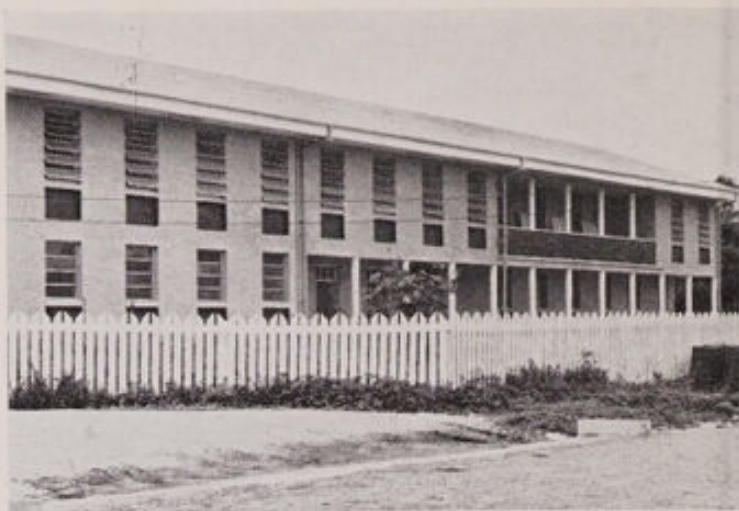
Below Part of a gift of ophthalmic equipment valued at £7,000 presented to a hospital in Rio de Janeiro, Brazil, by the Ministry of Overseas Development. The equipment is a donation to the Chair of Ophthalmology at Guanabara University.



Right The New Hospital at Punta Gorda, British Honduras; built with CD & W funds and completed in 1964.

Middle Ward blocks at Mulago Hospital, Kampala. The cost of the Infant Malnutrition Unit is borne by the British Medical Research Council and staff are seconded from the Children's Hospital in Great Ormond Street, London.

Bottom Land-Rovers ready for shipment to Mauritania as a gift from the British Government to the Mauritanian Ministry of Health.



Right The leader of the British medical team in South Vietnam examining a child at the Nhi Dong Hospital in Saigon.

Bottom left A member of the British medical team in Laos examining a patient. The project is financed by Colombo Plan Capital Aid.

Bottom right A Medical Officer for the Government of the Virgin Islands, West Indies, who was recruited for this post by the Ministry of Overseas Development. His duties include holding regular clinics for children and old people and working at the General Hospital. Here he is shown in a maternity ward.



Two nurses at Queen Elizabeth Hospital, Blantyre, Malawi, who were recruited under the OSAS.



CONTROL AND ERADICATION OF DISEASE

EARLY BRITISH RESEARCH

Medicine has for many years been one of the most effective branches of British research for developing countries.

In 1877 Sir Patrick Manson (1844–1922) demonstrated the cause of elephantiasis and other lesions whilst staying in Hong Kong. On retirement he resumed his research in London, as Medical Adviser to the Colonial Office, and in 1897 he founded the London School of Tropical Medicine.

In 1894 Manson met the young doctor who became Sir Ronald Ross (1857–1932), to whom he showed the parasite malaria in the blood. In 1898 Ross discovered the malarial parasite in the stomach of the spotted winged mosquito, *Anopheles*, which was later proved to be the only genus capable of transmitting malaria. Gradually the parasite's life cycle in man and mosquito was clearly traced, conclusive evidence being supplied by Manson in 1900 (see p. 24).

In 1894 Sir David Bruce (1855–1931) discovered a protozoal parasite of trypanosome, and showed that it was conveyed by the bite of a tsetse fly. Bruce showed that the tsetse fly was the carrier of the disease trypanosomiasis, or 'sleeping sickness', and that the spread of the disease might be limited by the destruction of the flies and their breeding places, and by checking the movements of infected inhabitants. As a result of this work, and of chemotherapy, sleeping sickness is no longer a major scourge in Africa (see p. 26).

Since the foundation of the London and Liverpool Schools of Tropical Medicine at the end of the nineteenth century, continuous research on tropical medicine has been carried out at the schools' laboratories. From 1900, medical research in the dependencies was also financed by British learned societies, institutes for higher learning, and research foundations and trusts. The Royal Society, at the beginning, organised commissions whose research laid the foundations of modern knowledge of the cause of trypanosomiasis. The Liverpool School of Tropical Medicine, assisted by the Rockefeller Foundation, maintained the Sir Alfred Jones Laboratory at Freetown, Sierra Leone, where continuous medical research was carried on until 1941. The London School of Hygiene and Tropical Medicine conducted a series of medical research projects in Africa and the Pacific islands. The Medical Research Council (MRC), appointed in March 1920 to continue the work of the former Medical Research Committee, financed and assisted a number of research projects into health problems in East Africa, Nigeria and other tropical territories. Unofficial bodies, such as the Leverhulme Trust and the Rhodes Trust, financed individual medical research and the Wellcome Bureau of Scientific Research carried out investigations into yellow fever and other tropical diseases.

During the second world war medical research workers from Britain, the Commonwealth and America collaborated to achieve rapid progress in the control of communicable diseases. Some of the most significant examples of the results of this co-operation were: the development of penicillin and the insecticide DDT; the mass production of the epidemic typhus vaccine; and

the intensive field experiment with *Atebrin* and *Paludrine* in the prophylaxis of malaria.

POSTWAR DEVELOPMENTS

The rapid progress in medical research achieved as a result of the intensive collaborative efforts during the war did not come to a halt with the end of hostilities. In 1945, a Colonial Medical Research Committee was created to advise the Secretary of State for the Colonies and the Medical Research Council on the promotion of medical research projects. In addition, the availability of CD & W funds after the war greatly increased the extent to which Britain was able to help the governments of the developing countries by research work in tropical medicine.

During the period of the Colonial Medical Research Committee's existence (1945-60) nearly £3 million was allocated for research in tropical medicine in ways recommended by the committee. The funds spent in developing countries were on projects ranging from assistance to large research units, self-contained or attached to existing organisations and universities, to projects providing fully or partially for single investigations in the field or laboratory and to departments of universities in the territories for appropriate basic research.

The postwar programme was begun with the recruitment of medical research workers, the establishment of medical research bases and the creation of the Overseas Research Service under the Secretary of State for the Colonies. During this period universities and medical schools also came into existence in the developing territories of the Commonwealth. However, it was soon evident that no single territory contained sufficient resources for medical research to deal with more than a small proportion of its problems. It was therefore suggested that neighbouring territories might combine their efforts, and the result was the creation of a West African Council for Medical Research, an East African Council and a Standing Advisory Committee for Medical Research in the Caribbean. Each of these organisations contained two members from Britain, nominated by the Secretary of State for the Colonies, and was thus related to the Colonial Medical Research Committee.

As a consequence of these developments, the role of that committee began to alter. It became less concerned with individual schemes of research overseas, and more concerned with co-ordinating policy, including the integration of home based and overseas research programmes. By the end of the committee's first ten years of work, two new factors had emerged. One was the transition from colonial to independent status of a large number of the tropical territories; the other was a change in the type of diseases prevalent in these territories. While conditions such as malaria, viral infections and helminthic diseases were dominant when the committee began its work in 1945, new health problems, such as tuberculosis, were developing as a result of urbanisation.

TROPICAL MEDICINE RESEARCH BOARD

In 1960, the Overseas Research Council, set up in 1959 in conjunction with the MRC, agreed proposals whereby the MRC should take over general

responsibility for promoting and co-ordinating medical research for the tropics as far as concerned Britain. To this end the Tropical Medicine Research Board was set up, to take over the work of the Colonial Medical Research Committee, thus widening its scope to include non-Commonwealth countries. Its functions are:

1. to advise the ODM on all medical research in or for the dependencies financed from CD & W funds;
2. to advise the MRC on all medical research in or for the independent Commonwealth financed by the Government;
3. to advise the MRC on all medical research in or for tropical or sub-tropical countries financed from their own budget.

DISEASES

Leprosy

This disease is a world health problem that affects between 12 million and 15 million people, particularly in the newly developing countries in Asia, Africa and South America. In most countries a high proportion of all leprosy patients are little or non-infective, and do not require rigid isolation. Suffering from the disease can be reduced by limiting rigid isolation to infective patients only and developing an out-patient and clinic service for the long-term continuation treatment.

Early Discoveries

Leprosy is caused by the *Mycobacterium leprae*, identified by the Norwegian scientist, Doctor Armauer Hansen, in 1874. It belongs to the same family as the *Mycobacterium tuberculosis*, but affects more particularly the skin, mucus membranes and nerves. There are two main forms of leprosy: the malignant or lepromatous form, which has many bacilli and is therefore the chief means of spreading infection, and the milder benign or tuberculoid form, which chiefly affects limited areas of skin and some of the nerves, has few bacilli and is generally regarded as less infective. In the lepromatous type, characteristic patches and swellings appear on the skin and may spread over the whole body; in the benign type, there are skin patches of a somewhat different appearance, the functions of the nerves are affected and paralysis and deformities may occur. In most cases, leprosy does not kill, but patients may die of complications or accompanying diseases.

Although the precise method of transmission of leprosy is not known, it is generally believed that close contact with a lepromatous patient is usually, but not always, necessary before infection can take place. Susceptibility to leprosy and virulence of the disease appear to vary widely in different regions and among different races. Although leprosy flourishes where there is poverty, malnutrition, overcrowding and a low standard of living, it can also occur where some, or even all, of these conditions do not prevail. However, it is now generally accepted that the disease is curable and that the benign types of leprosy are only slightly infective and can be treated at little cost in the patient's home, in a village clinic or in the outpatient departments of hospitals. It is also accepted that most infections are derived from long contact with highly infective patients, so that those in contact should be

examined early for signs of the disease, and children should be separated as early as possible from an infected parent.

Treatment

British doctors, missionaries and research workers have played an important part in the development of treatment of this disease, and in recognition of Britain's contribution to leprosy work, the International Leprosy Association, formed in 1931, held its ninth congress in Britain in September 1968.

Until the first world war, the standard treatment of leprosy was by injections of hydnocarpus oil, which for centuries had been used externally by leprosy victims in Asia. In 1916, Sir Leonard Rogers made the first major breakthrough to a cure for the disease by preparing a compound of hydnocarpus oil and its salts suitable for injection. This work, continued by Dr. Ernest Muir, resulted in the provision of treatment centres for hundreds of thousands of victims of the disease.

The research work of Sir Leonard Rogers was extended in 1920 with the foundation of the Calcutta School of Tropical Medicine, which was supported after 1927 by the former Indian Council of the British Empire Leprosy Relief Association (BELRA) (see p. 23). This later became the Indian Leprosy Relief Association. In 1924 Sir Leonard Rogers was one of the founder members of BELRA, and since then BELRA experts have visited nearly all the leprosy-infected countries of the Commonwealth.

Postwar Progress

Since the second world war, great advances have been made in the treatment of leprosy, particularly through the use of the sulphone drugs, which have a definite effect in suppressing the more infective types of the disease not usually responsive to hydnocarpus oil. The mass use of dapsone, which is diamino-sulphone (DDS), proved to be particularly successful when used in conjunction with the 'special villages', built by the local population, that were pioneered by Kinnear Brown. Kinnear Brown used these special villages in Uganda when he began a treatment service in 1951. He estimated that there were 80,000 leprosy patients in Uganda, and it was he who instituted the large scale trial of BCG vaccine as a preventive measure in 1960. These trials were held under the auspices of the MRC Leprosy Committee, and the follow ups in 1963-64 and 1966 have shown that BCG vaccination reduced the incidence of leprosy by 80 per cent.

Research

The Research Unit of the Nigerian Government at Uzuaki, Nigeria, established in 1947, has made significant advances by experimenting with an oral method of treatment, thus establishing a safe, cheap, and effective routine of treatment using dapsone, which is easily manufactured at low cost. The unit has gone on to investigate new drugs, for example long acting sulphanomides, which can be taken once a week, and the phenazine derivative B663, which was pioneered in Nigeria in 1961.

With the introduction of the dapsone series of drugs, the active manifestations and mutilations can now be reduced in intensity and clinically

cured in over half the patients after a treatment of three to five years. However, there is still the need for more effective drugs, prophylactic measures and methods of laboratory culture. The trials of new drugs and of the prophylactic vaccine BCG (see p. 22) have been made possible by grants from CD & W research funds to provide the necessary additional laboratory apparatus, photographic equipment and reagents for patients under research observation. Of the whole series of drugs assessed, none has yet been shown to surpass DDS, although diphenylthiourea (DPT) and diethyl-dithiolisophthalate (*Etisul*) have been shown to have a place.

There has been a restriction on the scope of fundamental and applied research due to the failure of attempts to cultivate the bacilli in the laboratory. However, in 1967 the National Institute for Medical Research, London, made an important breakthrough when they discovered how to produce generalised infections of the disease in experimental animals; this opens the way to a more effective search for new drugs, and makes possible laboratory study leading to a greater understanding of the disease.

Voluntary Organisations

In 1964 BELRA changed its title to the Leprosy Relief Association (LEPRA). The Pilot Leprosy Control Project in Malawi (set up in May 1966) is the model for LEPRA's approach to the eradication of leprosy. Its aim is to find, by comprehensive surveys, and to treat, every infectious case of leprosy, if possible before the onset of deformity, and to protect those likely to contract the disease. The project, which has been endorsed by WHO, emphasises prevention, rather than cure. It will try to use BCG vaccine on everyone under 20, in an area of 2,000 sq. miles, and hopes to eradicate the disease in ten years.

The Leprosy Mission, formerly 'The Mission to Lepers', is supported by voluntary contributions and has been in existence for 90 years. With an annual budget of £600,000 (1966) it runs homes and hospitals, and supports 75 other missionary societies working in 30 countries. In India, Pakistan and Nepal the mission treated nearly 100,000 outpatients in 1966; it maintains leprosy control units in several countries, e.g. Korea, Thailand and Papua/New Guinea; and in all, 54 leprosy centres have received help from the mission.

Apart from Britain's contribution to international organisations such as WHO, leprosy organisations in Britain are helping to finance the All-Africa Leprosy Rehabilitation Centre (ALERT), at a cost of £150,000. ALERT, which was founded in 1965, has been set up in Addis Ababa to act as the focal point for attack against the disease in Africa, and it was expected to become fully operational during 1968.

Malaria

Although malaria control has been revolutionised in recent years by the development during the second world war of cheap synthetic drugs and a series of synthetic insecticides, where the disease has not been eradicated it still presents a serious threat to health and development, particularly in the areas of tropical Africa where it is highly endemic.

Cause and Control

It was in 1898 that a British scientist, Sir Ronald Ross, first discovered that malaria was caused by a parasite carried by the female anopheline mosquito. Sir Malcolm Watson and others, in Malaya and elsewhere, went on to develop the classic method of control, such as drainage and the oiling of breeding places, which still have their uses today. Much has been achieved since the fight against malaria was able to proceed on the basis of scientific knowledge. In a number of formerly malarious areas—Cyprus, Mauritius and Guyana—malaria has either been eradicated or reduced to such negligible proportions that it has ceased to be a serious public health problem.

However, methods of combating the disease and its vectors which are effective in one locality may be quite unsuitable or impracticable in another, and the numerous species of anopheline mosquito, which carry the disease, do not all react in the same way to control measures. Since there is no single formula, control methods suited to the different environmental factors may consist in the use of drugs to ward off the disease; 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 methods.

Anti-malaria Methods

The second world war stimulated advances in both prophylactic drugs and insecticides: the development of the insecticide DDT in America and of chemotherapy and chemoprophylaxis in Britain. One of the most successful anti-malarial drugs was *Paludrine*, introduced in 1945 by Imperial Chemical Industries (ICI), and this has been followed by others such as Pyrimethamine (*Daraprim*), a product of joint British and American research.

The insecticides opened up an entirely new method of control, the destruction of adult mosquitos by residual spraying. By this method, malaria can not only be controlled over wider areas than was practicable by earlier measures but total eradication may be achieved, as in Singapore and most of the Caribbean islands. However, a serious challenge has been the development by anophelines of resistance to insecticides. There also remains the problem of controlling or eradicating the highly endemic malaria of tropical Africa, where methods used elsewhere have not succeeded in preventing new cases of the malaria carried by *Anopheles gambiae*, the main African vector.

As modern anti-malaria measures developed it was found possible, not least on account of the development in anophelines of resistance to insecticides, to aim not merely at reducing malaria to a stage where it was no longer a serious public health problem, but at eradicating it altogether. The aim of most of the residual spraying campaigns carried out in the 1940s was the reduction of malaria until it was no longer a serious public health problem. The concept of malaria eradication came to the fore in the 1950s as a result of the effects of continued and fully effective control, for instance in Sardinia, Cyprus and the United States. It was discovered that malaria could be totally eradicated from a given place if the spraying could be kept up long enough for the infection to disappear from the blood of its earlier victims. The two main varieties of malaria die out within three years, if the

cycle can be broken for this period; thereafter anti-mosquito measures can be discontinued, leaving the vector anophelines in existence but without the possibility of spreading infection.

REMAINING CHALLENGES

The great challenges remain in the hyper-endemic areas of tropical Africa, particularly the rural areas in the East and West. While there is no drug which can be widely distributed without medical supervision to secure the radical cure of *vivax* infections, there are such drugs available for *falciparum* infections, and there have already been indications that in some countries of Africa control may be obtained by a combined attack with insecticides and drugs. Extensive schemes in Nigeria and Tanzania have greatly reduced the incidence of malaria and yielded valuable scientific information. Despite difficulties in achieving complete eradication, many of the urban areas of East and West Africa are now relatively free of malaria due to larviciding, drainage, residual spraying and other measures.

The Medical Research Council has an advisory committee on malaria research, and maintains laboratories at Fajara, in The Gambia, where it has undertaken a scheme involving groups of Gambian children and the use of the drug *Daraprim*. Important additions to knowledge of immunity to malaria have come from collaborative work between the council's laboratories in The Gambia and the National Institute for Medical Research in England.

Blindness

The two most common diseases which can lead to blindness are trachoma and onchocerciasis. Trachoma, the more serious of the two diseases, is a type of conjunctivitis which is due to a virus and is highly contagious. It is regarded by medical authorities as the greatest single cause of blindness, affecting perhaps one-sixth of mankind. Onchocerciasis, a serious menace in Nigeria and Ghana, and also prevalent in parts of East Africa, is caused by a filarial worm transmitted by the bite of a species of the simulum fly, which breeds in streams and rivers.

Methods of Treatment and Prevention

Sufferers from onchocerciasis 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 simulum fly.

In Kenya, the application of experimentally determined amounts of DDT to the main rivers by government research workers has eradicated the disease by killing the larvae of *Simulium neavei*, which attach to certain species of crabs. In Uganda, however, success by similar measures has been partial only, since the streams and their crabs have special features. These have been the subject of research by Uganda Government entomologists, and by visiting research workers from the Liverpool School of Tropical Medicine, one of them wholly maintained by Colonial Development and Welfare research funds.

Research

Important research into the simulum and crab features of the disease was undertaken by two British-based centres, one at the Liverpool School of Tropical Medicine and the other at the British Museum (Natural History). At the Liverpool school, CD & W research money wholly sustained the work, while at the British Museum, the total cost of the studies was contributed when undertaken overseas.

Laboratory cultivation of the trachoma virus had been attempted for a long time by research workers in many countries. In 1957 a team of research workers under Dr. T'ang in China made three isolations of the virus. In September 1957, Dr. T'ang supplied Professor E. T. C. Spooner, of London University, who was visiting China with a British Medical Association mission, with samples of his strains of virus.

British work under the auspices of the MRC's Trachoma Research Unit confirmed the description of this virus. The unit has two branches—one at the Lister Institute in London and one in The Gambia. Further examples of the virus were isolated in The Gambia and were found to be the same as those isolated in China. During 1958, the Trachoma Research Unit improved the Chinese isolation technique and, using this improved method, began a comprehensive study of the disease in a Gambian village community at Fajara in 1959, where a specially designed laboratory had been built with funds provided by the Wellcome Trust.

The Order of the Hospital of St. John of Jerusalem has maintained an ophthalmic hospital in Jerusalem since 1883. Research in trachoma was started there in 1956 under Sir Stewart Duke-Elder, with support from the MRC. Field trials of a vaccine for use against trachoma are being held in Iran.

Voluntary Organisations

One of the largest societies operating from Britain is the Royal Commonwealth Society for the Blind, set up in 1950 under the name of the British Empire Society for the Blind. The objects of the society are 'to promote the welfare, education and employment of the blind, and to prevent blindness'. During 1968, the society spent approximately £150,000 overseas, supporting 103 projects in 34 countries.

It has estimated that in the Commonwealth alone there are 4 million blind people, of whom 480,000 are children. Approximately two-thirds of this blindness could be prevented or is still curable. To help fight this problem in Africa, the society, together with the Royal National Institute for the Blind, sponsored a conference in Lagos on work for the blind, in January 1966. The conference agreed on a three-point plan to help the blind in Africa over a period of five years, and to help implement this plan the society is sponsoring three regional organisations, for West, East and Central Africa. The society also joined in sponsoring the first Commonwealth Caribbean Conference for the Blind in September/October 1967.

Trypanosomiasis (Sleeping Sickness)

This disease is sufficiently widespread to present a serious problem to health and progress in the areas of East, West and Central Africa where it

mainly occurs. Since the end of the nineteenth century, British scientists and field workers in Britain and in Africa have played a leading part in the development of curative and prophylactic drugs, in devising and executing methods of eliminating the tsetse fly and in basic research on related problems.

The discoveries of a young English surgeon, David Bruce, in 1894, formed the foundation for all the subsequent work which, over the past half-century, has been directed towards achieving control over trypanosomiasis. Bruce, who was sent to Zululand to investigate a disease known as nagana, which was ravaging the native cattle, identified nagana as tsetse fly disease and established that it was caused not by poison injected by the fly, but by the introduction into the victim's blood of minute organisms known as trypanosomes. Bruce continued his research work in Uganda, in 1903, when an outbreak of sleeping sickness was decimating the African population. Working in conjunction with a commission sent out from Britain at the request of the Colonial Office, he was able to prove that sleeping sickness in man, like nagana in cattle, was produced by trypanosomes transmitted by the tsetse fly. Following the completion of Bruce's work, Charles Swynnerton, Director of Tsetse Research in Tanganyika, began, in 1919, to develop the method of attack against the fly itself and to suggest the means of reclaiming tsetse-infected lands. Swynnerton was the first to establish that once an area was cleared of tsetse, the best safeguard against reinfestation was human settlement. With the co-operation of Africans in his project of bush clearing and resettlement, large areas were reclaimed from the fly and put to agricultural use. While four-fifths of Tanganyika was under fly and unusable for cattle when Swynnerton began his work, as a result of his efforts the tsetse fly was driven out of 15,000 square miles of Tanganyika and the land thus reclaimed put under cultivation.

The methods of combating the fly and the disease pioneered by Bruce and Swynnerton have advanced far beyond the solution of moving both people and cattle from infested areas, a method which brought its own problems of over-grazing, soil erosion, poverty and malnutrition in the limited fly-free country, leaving available farming land in possession of the tsetse.

Before the second world war, research stations had been established in East and West Africa to carry on research into such problems as the ecology of the fly, to organise and carry out bush clearance schemes and to resettle populations on reclaimed land. At the same time, research into human sleeping sickness had made considerable progress, with the development of the first effective drugs to cure the disease. In addition, a Tsetse Fly and Trypanosomiasis Committee had been appointed by the Colonial Secretary, in 1944, to advise on the co-ordination of the action directed against trypanosomiasis and on the best methods of applying CD & W funds for this work. The committee published annual reports, concerned chiefly with the work of the East African Trypanosomiasis Research Organisation and the West African Institute for Trypanosomiasis Research, and co-operated with individual departments in the dependencies engaged in trypanosomiasis, control and tsetse clearance and with research workers in Britain. Up to 1962 over £1.8 million was contributed from CD & W funds for trypanosomiasis and tsetse research for the benefit of the dependent territories. After 1961, the

committee's services were made available to the newly independent Commonwealth countries and its advisory functions were transferred eventually to the ODM.

Methods of Control

There are two main types of human sleeping sickness known as Gambian and Rhodesian, named after the territories in which they were first diagnosed. Gambian sleeping sickness, extending throughout West Africa and eastwards as far as Lake Victoria, is carried by riverine tsetse which live in the vegetation fringes of streams, rivers and lakes. Since this disease is usually slow to evolve and may endure for many months in a mild form, transmission is encouraged and extensive epidemics are relatively common. Rhodesian sleeping sickness, the form usually found in East and Central Africa and normally carried by one of the woodland tsetse, is a rapidly developing disease which, unless treated early, may be beyond the reach of curative drugs. Unlike the widespread distribution of the Gambian disease, the Rhodesian form tends to be distributed in small *foci*, with a tendency to occur in outbreaks, so that even though the total number of cases found in a year is usually low, when the disease does occur there is a rapid course of infection.

Since trypanosomiasis is caused by a specific parasitic organism, the trypanosome, which is transmitted by a specific vector, the tsetse fly, any means of controlling either the parasite or the vector will achieve control of the disease. The prevention of contact between the vector and its animal or human host will also achieve control. While all these approaches may now be used, until recently the only effective means of control was through control of the tsetse; this still remains effective as a result of the development of modern insecticides.

Control of the Tsetse

Methods of tsetse control at present in use include the direct attack on the fly, principally with insecticides, and indirect methods which seek to make the environment unsuitable for the fly: by clearing the bush which forms its habitat, by controlling the game which forms its food or by human settlement which changes the ecology of the environment. In practice most countries employ a combination of several of these methods.

The earliest form of attack on the tsetse fly, that of bush clearing, has developed from the ruthless clearing of all vegetation in a given area to the selective clearance of only those parts of the vegetation known to be essential to the flies. In West Africa, the method used against the riverine tsetse was the partial clearance of the vegetation along the banks of rivers, particularly at fords, crossings and village approaches. For example, in Northern Nigeria, between 1950-58, more than 3,000 miles of riverine vegetation were cleared in the provinces of Zaria, Katsina and Kano. However, bush clearing in West Africa has generally given way to other less costly methods or is now used mainly in association with insecticides. In East and Central Africa, where the elusive and widely ranging woodland tsetse has presented a more intractable problem, discriminative clearing has been used on a large scale, for example in Tanzania. However, since the task is immensely costly even

if the clearance is confined to key types of vegetation, clearance schemes are now initiated only as part of a general land development policy.

Human settlement, with all the safeguards of modern drugs and scientific knowledge, has been used as a positive method of tsetse eradication in all of the East African countries. In Tanzania, where human settlement combined with bush clearing has been the principal anti-tsetse measure, 60 settlement zones with a population of about half a million have been established, mainly in the Western Province. In Uganda, human settlement has been one of the measures used to establish 'consolidation lines' to prevent reinfestation of cleared areas. The settlement of cattle-owners on economic holdings in an area cleared of tsetse was recommended by a World Bank mission for implementation in Uganda.

A major development of recent years has been the synthesis and use of modern insecticides, principally DDT (dichloro-diphenyl-trichlorethane) and *Dieldrin*, a method far cheaper in most cases than clearing vegetation. In Northern Nigeria, a number of schemes have been carried out with success against the riverine tsetse, for example, in south Zaria 400 miles of rivers and streams have been reclaimed from *G. palpalis*. Another scheme, against the woodland tsetse, begun in Northern Nigeria in 1956, provided 350 square miles of tsetse-free grazing along the flood plains and adjoining uplands of the Komadugu Gana river. In Kenya, Uganda and Tanzania, the principal carrier of human sleeping sickness, *G. palpalis*, was successfully combated by a method of insecticide control developed by the East African Trypanosomiasis Control Organisation. However, immense problems remain to be solved before the far-ranging woodland species of East and Central Africa can be exterminated over large areas, even with the expensive use of aircraft for the application of insecticides. Another drawback to the use of insecticides is that once the effect of the insecticide has worn off, the treated area is again one in which tsetse can survive and multiply and it may be reinvaded from the periphery or from a small area accidentally left untreated.

Control of the Parasite

One of the most important developments in recent years (in addition to the use of insecticides) has been in the control of the infecting organism itself, the trypanosome, by curative and prophylactic drugs. Among the earliest trypanocidal drugs to be used with success was *Antrypol* (an identical compound to the earlier German drug *Bayer 205* or suramin) synthesised in 1939 by British scientists in the laboratories of Imperial Chemical Industries. Another drug produced in Britain shortly before the war, *Pentamidine*, synthesised by May and Baker, became the most widely used drug for treatment in the early stages of the disease and for prophylaxis. Of the newer drugs which have been used with some success are melarsen and its related compound Mel B (*Arsobal* or melarsoprol). Mel B has been successfully used for late cases of Rhodesian infection, which had been considered incurable, and for the treatment of Gambian infections, which had been resistant to tryparsamide.

Sleeping sickness has also been controlled in most of the countries where the disease has been a problem by a system of mass surveys and treatment.

These surveys, conducted by mobile teams trained in precise methods of diagnosis, aim at a regular examination of the whole population in the affected zones and enable infected persons to be treated either by the teams or in local hospitals or dispensaries. In the areas affected by the Gambian form of sleeping sickness, mass surveys and treatment have helped to bring about a considerable decrease in the disease in the past two decades. In Northern Nigeria, for example, the total number of new cases of sleeping sickness fell from 85,000 in 1935 (of 400,000 examined) to under 4,000 in 1960 (of 1,600,000 examined) as a result of the work of the mobile teams of the Sleeping Sickness Service. In Ghana, where the disease has been kept under control by Medical Field Units, large-scale surveys and mass treatment with *Pentamidine* supplemented by anti-tsetse measures have reduced the incidence from nearly 7,000 cases in 1939 to only 830 in 1958. In Sierra Leone, a serious epidemic that occurred in 1939 in the eastern area was brought to an end by a mass diagnosis and treatment campaign with such success that the incidence of the disease decreased sufficiently to allow the mobile survey teams to be disbanded. In Uganda, sleeping sickness was greatly reduced by mass surveys and treatment combined with an insecticidal attack on the vector, *G. palpalis*. However, Rhodesian sleeping sickness, although the overall incidence is low, has proved more difficult to control, with the number of new cases fluctuating irregularly rather than decreasing from year to year.

Another method of control—prophylaxis—has been applied on a selective basis in some of the countries affected by Gambian sleeping sickness. It has been used in Northern Nigeria on a very limited scale to clear an epidemic focus or to protect those whose work might bring them into contact with the tsetse. It has usually been considered as a temporary control measure, supplementing mass surveys and treatment and measures directed against the tsetse. However, prophylaxis has not been in general use against Rhodesian sleeping sickness, except in some areas to deal with epidemics. The British drug, *Pentamidine*, is the drug normally used for this method of control.

Schistosomiasis

This is a disease which affects about 300 million people in the tropical and sub-tropical parts of the world. The precise incidence is not known as it is a notifiable disease in only a few countries. WHO has claimed that 'as a cause of morbidity it is probably outranked only by tuberculosis and malaria'.

The disease is due to trematodes, or flukes, of the Schistosomidae family. There are three members of this family which are responsible for most cases: *Schistosoma haematobium*, *Schistosoma mansoni*, named after Sir Patrick Manson, and *Schistosoma japonicum*, responsible for the form of the disease found in Japan, China and certain other parts of the Far East. Although the disease is more correctly named schistosomiasis, the old name of bilharziasis is still in use because of the German physician Theodor Bilharz, who first isolated the trematode from a case of the disease in Egypt in 1851.

Like so many of the parasites that infest man, the schistosome requires a host other than man for its development. In the case of the schistosome

this is the aquatic snail. The eggs of the schistosome are excreted by infected individuals and enter a snail, where they mature to the larval or cercarial stage. The schistosome then leaves the snail and lives in the stream, canal or lake which is the habitat of the snail. Human infection occurs by wading or bathing in water containing the immature schistosomes, which are able to penetrate the skin. Once through the skin they get into the bloodstream of their involuntary host and finally reach the liver or bladder where they lodge until they achieve full maturity. In due course the adults lay eggs, which are then excreted by the host, and the lifecycle starts all over again.

The effects of the disease are best described by a WHO monograph: 'the direct ill-effects of bilharziasis upon the human host are generally underestimated, owing to the fact that it is a chronic disease which runs a long and insidious course. Since it is neither contagious nor rapidly fatal, it tends to attract less attention than do many other diseases which are ultimately of less importance . . . the relative benignity of the disease is, however, entirely misleading . . . it not only decidedly and often profoundly affects the physical capacity of the majority of infected persons, but also lowers their resistance to other infections, hence producing a marked reduction of their productive capacity'.

Treatment

There are two methods of treating this disease: one is to destroy the schistosome in the patient; the other is to destroy the aquatic snail that is its vector. In connection with the second method, in 1966 a British laboratory helped to produce the chemical *N. Tritylmorpholine*, which has had a marked degree of success. The molluscide is highly selective, and when introduced into canals, irrigation ditches, streams etc. kills only the snails. Promising results have been obtained in large-scale tests at the Arusha station in Tanzania, working in conjunction with WHO, on the control of the vector snails.

Tuberculosis (TB)

In 1965, WHO made a conservative estimate that there were between 10 million and 20 million cases of active TB in the world. 2 million to 3 million new cases are reported every year, and of these 1 million to 2 million die every year. More than 75 per cent of all these cases are found in the developing countries.

Tuberculosis control programmes have been introduced in most of the developing countries, often with the assistance of WHO, UNICEF and the Colombo Plan. In 1948 WHO decided to make TB control one of its priority programmes, both because it has been a leading cause of death, and because of the proven success of BGG vaccine and TB drugs. In 1956 a Tuberculosis Chemotherapy Centre was set up in Madras, under the joint auspices of the Indian Council of Medical Research, the Madras State Government, the British MRC and WHO. The object of the centre was to study the domiciliary chemotherapy of tuberculosis in a population living under adverse socio-economic conditions.

Therapeutic trials in pulmonary tuberculosis have been carried on by hospitals and research units in East and West Africa, e.g. the E. Africa Tuberculosis Investigation Centre and the Tuberculosis Research Unit at Kumasi in Ghana. The developing countries have been assisted in this work by

voluntary organisations, particularly the Chest and Heart Association in Britain. Besides arranging periodical international conferences, the association awards scholarships in Britain to enable medical workers from the developing countries to study the disease. It has also published a survey of tuberculosis in Commonwealth countries and conducted detailed clinical surveys of the disease in Cyprus and the West Indies.

Typhoid

In 1959, Guyana asked for help from Britain to combat the high incidence of typhoid in the country. The Colonial Medical Research Committee decided, in conjunction with American scientists and WHO experts, to develop a new vaccine, because the conventional vaccine developed during the second world war had occasionally failed. The new vaccine, AKD, was first used in June 1960, and after more than seven years of observation it has proved remarkably successful.

Yellow Fever

Yellow fever was once a great killer, but has now been reduced to a few sporadic cases among people who have not been inoculated. Much research work into yellow fever and dengue-like viruses has been carried out in research laboratories and institutions overseas, supported by the British Government, for example the Virus Research Institute in East Africa and the Regional Virus Laboratory in Trinidad.

Cancer

In recent years, the work in Britain on cancer research has become increasingly applicable to the developing countries as the accepted tropical diseases are conquered. British scientists have been working on the mutilating cancer of the jaw known as the 'Burkitt Tumour', which is common among children in Uganda and other parts of Central Africa. It has received intensive investigation, especially as to its causation (which may possibly be due to a virus), its peculiar geographical incidence and its treatment. Virologists and pathologists in Uganda, Britain, Australia and the United States have come together to study this disease, and Mr. Burkitt has reported surprising and dramatic though not invariable successes in treating the cancer with single doses of one or other of a series of anti-neoplastic drugs given by injection or even orally.

NUTRITION

The magnitude of the problem of malnutrition and hunger in the world is conveyed in an estimate made by the Food and Agriculture Organisation (FAO) of the United Nations: 'that out of the approximately 3,000 million people now living in the world there is always a hard core of some 300 million to 500 million who are hungry even in normal times'. Hunger and malnutrition are the cause of much suffering and play a major role in the spread of chronic non-infectious diseases. There are several nutritional diseases, mainly, protein deficiency diseases such as *kwashiorkor*; diseases of deficiencies of specific nutrients, such as *pellagra* due to lack of nicotinic acid; *beriberi*

and other diseases due to a lack of the various B vitamins; *scurvy*, due to deficiency of vitamin C; *xerophthalmia* and subsequent blindness due to deficiency of vitamin A; *rickets* due to lack of vitamin D, and iron deficiency *anaemias*.

There are many contributory factors to the problem of malnutrition—protein deficiency, widespread poverty, the ‘population explosion’—associated with a reduction in mortality and the world wide campaigns against the major infectious diseases, and the growing industrialisation and shift of populations from rural to urban communities. Public health measures used to fight this problem are designed primarily to protect the more susceptible groups of the population, e.g. children. International organisations, such as WHO, UNICEF, FAO and UNESCO (to all of which Britain is one of the largest contributors), are playing an increasingly important role in this respect by providing assistance to projects in applied nutrition and milk conservation, school feeding activities, health and nutritional education, and the development and production of low-cost, high-protein foods.

Research

Beside contributing to international efforts, Britain also finances research into the problems of nutrition. In 1952, an Applied Nutrition Unit was set up as a joint undertaking of the London School of Hygiene and Tropical Medicine and the Colonial Office. Its functions are to provide facilities for training overseas personnel in nutrition work; to study and exchange information on tropical nutrition and food technology; and to provide advice and assistance in field work and investigations. Nutrition work is also undertaken by British research organisations both in Britain and overseas. For example, the MRC maintains an Infantile Malnutrition Research Unit in Uganda, a Tropical Metabolism Research Unit in Jamaica and a Human Nutrition Research Unit in Britain, at all of which investigations into infant and animal growth and nutrition have been made with special reference to protein deficiency diseases. The research unit in Jamaica collaborates with WHO on the study of practical nutritional problems.

In addition to officially sponsored aid, there are a large number of voluntary and charity institutions that work for the relief of hunger in the world. Christian missions of all sects and denominations, Red Cross and Red Crescent societies, national and international famine relief agencies such as Oxfam, the Freedom from Hunger Campaign and the Save the Children Fund have all given material assistance in funds, supplies and technical competence, both to meet emergency needs and to plan long-term preventive measures and programmes.

FAMILY PLANNING

Since 1964 the British Government has been prepared to give technical assistance to the governments of developing countries which have decided to encourage family planning. The Government has taken steps to organise British resources more effectively so as to meet particular requests from overseas governments. Under technical assistance programmes, the Government has provided for advisory visits by British experts to India, Jamaica, Mauritius

and Singapore, for financial grants to voluntary organisations to help them in their work abroad, and for the training in Britain of people from overseas who will work in the family planning programmes of their own governments.

The ODM has increased its grant to the International Planned Parenthood Federation to £50,000 for the next five years, and has announced its readiness to contribute £40,000 to the UN Trust Fund for Population Activities. A Population Bureau is being developed within the ODM to act as a focus for the knowledge and experience required in family planning campaigns overseas. Its staff will be available to advise overseas governments, and will try to increase the supply of expert British staff, for example by encouraging research and training.

United Nations Activity

However, the Government can make only a small contribution towards the solution of this world problem, and it firmly believes that population problems must be a matter primarily for the governments of the countries most immediately concerned, and that family planning programmes aimed at containing these problems can be successfully mounted only by these governments. The broader aim of the British Government is to encourage the UN and its Specialised Agencies to take effective action in this field, whenever the government of any developing country seeks such help. In 1965 both the World Health Assembly and the Economic and Social Council endorsed family planning programmes, and in this year the second World Population Conference was held. A UN team of experts was sent to India to give advice on immediate steps to accelerate the impact of family planning programmes, and the UN and its associated bodies have taken an increasingly greater part in these activities.

APPENDIX 1

BRITISH OFFICIAL DISBURSEMENTS OF ECONOMIC AID IN MEDICINE AND PUBLIC HEALTH

£ million

	1965	1966	1967
<i>Financial Aid</i>			
1. CD & W grants	1.0	1.3	1.5
2. Other voted grants	0.1	—	0.3
<i>Technical Assistance (estimated)</i>			
1. Experts	1.9	1.8	1.6
2. Training	0.8	0.6	0.9
3. Research	0.3	0.4	0.3
4. Volunteers*	+	+	0.1
5. Other†	+	+	0.1
TOTAL	4.1	4.1	4.8

+ = less than £500,000.

*Expenditure on volunteers in 1965 and 1966 is estimated to have been £9,000 and £40,000 respectively.

†Includes £53,000 to International Planned Parenthood Federation in 1967.

APPENDIX 2

OVERSEAS STUDENTS AND TRAINEES ON MEDICAL COURSES IN THE UNITED KINGDOM

Student (Medical Sciences)				
Arrivals 1967				On Courses 31.12.1967
Technical Assistance 290	CEC 127	British Council 30	Total 366	608

Trainees (Health)			
Arrivals 1967			On Courses 31.12.1967
Technical Assistance 126	British Council 207	Total 333	162

	Arrivals 1967			On Courses 31.12.1967		
	Students	Trainees	Total	Students	Trainees	Total
Commonwealth	258	120	378	398	130	528
Non-Commonwealth	108	213	321	210	32	242

APPENDIX 3

UNITED KINGDOM PUBLICLY FINANCED PERSONS 1967 (HEALTH)

Country					Recruitment during 1967	Overseas on 31.12.1967
Europe and Middle East						
Aden and South Arabia	..	..	..	..	5	—
Gibraltar	..	..	..	..	9	19
Lebanon	..	..	..	..	—	3
Turkey ..	..	..	..	..	1	2
Total ..	..	..	..	..	15	24
West Africa						
Cameroon	..	..	..	..	2	2
The Gambia	..	..	..	..	—	6
Nigeria	..	..	..	..	5	103
Sierra Leone	..	..	..	..	1	4
Total ..	..	..	..	..	8	115
East Africa						
Ethiopia and Eritrea	..	..	..	..	—	2
Kenya ..	..	..	..	..	29	81
Sudan ..	..	..	..	..	1	—
Tanzania	..	..	..	..	1	40
Uganda	..	..	..	..	19	93
General: Kenya, Tanzania and Uganda					2	35
Total ..	..	..	..	..	52	251
Central and Southern Africa						
Botswana	..	..	..	..	2	6
Lesotho	..	..	..	..	1	10
Malawi ..	..	..	..	..	8	55
Swaziland	..	..	..	..	3	11
Zambia ..	..	..	..	..	21	329
Total ..	..	..	..	..	35	411
Other						
Mauritius	..	..	..	..	6	10
St. Helena	..	..	..	..	2	7
Seychelles	..	..	..	..	1	8
Total ..	..	..	..	..	9	25
America: Central America and the Caribbean						
Antigua	..	..	..	..	3	2
Barbados	..	..	..	..	7	17
Cayman Islands	..	..	..	..	1	4

Country					Recruitment during 1967	Overseas on 31.12.1967
Dominica	..	..	..	..	—	4
Grenada	..	..	..	..	1	3
British Honduras	..	..	..	..	4	19
Jamaica	..	..	..	..	2	18
Montserrat	..	..	..	..	2	3
St. Kitts-Nevis	..	..	..	..	2	6
St. Lucia	..	..	..	..	—	9
St. Vincent	..	..	..	..	2	4
Trinidad and Tobago	..	..	..	..	1	2
Turks and Caicos Islands	..	..	..	..	1	3
British Virgin Islands	..	..	..	..	1	3
Total ..	..	..	..	..	27	97
South America						
Argentina	..	..	..	..	—	1
Guyana	..	..	..	..	1	15
Total ..	..	..	..	..	1	16
Other						
Falkland Islands	..	..	..	..	2	11
Asia (excluding Middle East)						
Burma	..	..	..	..	5	7
Ceylon	..	..	..	..	2	—
India	..	..	..	..	2	1
Laos	..	..	..	..	3	9
Malaysia	..	..	..	..	14	88
Pakistan	..	..	..	..	1	3
Singapore	..	..	..	..	1	3
Thailand	..	..	..	..	4	2
Vietnam (South)	..	..	..	..	12	16
Total ..	..	..	..	..	44	129
Oceania						
Fiji	..	..	..	..	8	47
Gilbert and Ellice Islands	..	..	..	..	3	6
New Hebrides (Br. Fr.)	..	..	..	..	—	6
Solomon Islands (Br.)	..	..	..	..	2	17
Tonga	..	..	..	..	—	3
Total ..	..	..	..	..	13	79
GRAND TOTAL	..	..	..	..	206	1,158
COMMONWEALTH	..	..	..	..	178	1,114
NON-COMMONWEALTH	..	..	..	..	28	44

APPENDIX 4

EXPERTS FINANCED FROM UNITED KINGDOM PUBLIC FUNDS IN COMMONWEALTH AFRICAN COUNTRIES (HEALTH)

Country	Scheme	Overseas on 31.12.1966	Recruitment during 1967	Overseas on 31.12.1967
The Gambia ..	OSAS	7	—	6
Ghana	SCAAP Operational	1	—	—
	Advisory	—	—	—
Sierra Leone ..	SCAAP Operational	1	—	1
	Advisory	1	1	1
	PSSS	2	—	2
Nigeria	SCAAP Operational	6	—	1
	Advisory	2	5	3
	BESS	25	—	44
	PSSS	43	—	55
Kenya	SCAAP Operational	1	—	1
	Advisory	2	1	1
	OSAS	[70]	28	[65]
	BESS	—	—	14
Tanzania	OSAS	53	1	40
Uganda	SCAAP Operational	—	—	—
	Advisory	—	1	—
	OSAS	[110]	18	[93]
East African Community ..	OSAS	33	2	35
Botswana	OSAS	7	2	6
Lesotho	OSAS	13	1	10
Malawi	OSAS	49	8	47
	BACS	5	—	8
Swaziland ..	SCAAP Operational	—	—	—
	Advisory	—	1	1
	OSAS	8	2	10
Zambia	SCAAP Operational	2	—	—
	Advisory	—	—	—
	OSAS	[172]	21	273
	BACS	47	—	56
Mauritius ..	SCAAP Operational	—	4	4
	Advisory	—	—	—
	OSAS	4	2	6
St. Helena ..	OSAS	6	2	7
Seychelles ..	OSAS	8	1	8

Notes:[] = estimated

OSAS = Overseas Service Aid Scheme

BESS = British Expatriates Supplementation Scheme

PSSS = Public Service Supplementation Scheme

BACS = British Aided Conditions of Service

SCAAP = Special Commonwealth African Assistance Plan



APPENDIX A

REPORT ON THE 1991-1992 FLOOD RISK STUDY

FOR THE EAST OF ENGLAND REGIONAL COUNCIL

Location	Area (ha)	Population	Estimated Flood Risk	Notes
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24.
25.
26.
27.
28.
29.
30.
31.
32.
33.
34.
35.
36.
37.
38.
39.
40.
41.
42.
43.
44.
45.
46.
47.
48.
49.
50.
51.
52.
53.
54.
55.
56.
57.
58.
59.
60.
61.
62.
63.
64.
65.
66.
67.
68.
69.
70.
71.
72.
73.
74.
75.
76.
77.
78.
79.
80.
81.
82.
83.
84.
85.
86.
87.
88.
89.
90.
91.
92.
93.
94.
95.
96.
97.
98.
99.
100.

REFERENCE PAMPHLETS

Prepared by the Central Office of Information

No. 1. LOCAL GOVERNMENT IN BRITAIN (<i>Aug. 1965</i>)	In prep.
No. 3. SOCIAL SERVICES IN BRITAIN	In prep.
No. 7. EDUCATION IN BRITAIN (<i>Nov. 1966</i>)	In prep.
No. 9. TOWN AND COUNTRY PLANNING IN BRITAIN (<i>Nov. 1967</i>)	6s. 0d. (6s. 6d.)
No. 10. THE BRITISH SYSTEM OF TAXATION (<i>Aug. 1966</i>)	In prep.
No. 14. BRITISH FOREIGN POLICY (<i>2nd edition March 1961</i>)	1s. 9d. (2s. 1d.)
No. 20. HEALTH SERVICES IN BRITAIN (<i>May 1968</i>)	7s. 9d. (8s. 3d.)
No. 24. BRITISH FINANCIAL INSTITUTIONS (<i>April 1966</i>)	6s.
No. 28. NUCLEAR ENERGY IN BRITAIN (<i>Dec. 1965</i>)	6s. 6d. (7s.)
No. 31. LABOUR RELATIONS AND CONDITIONS OF WORK IN BRITAIN (<i>April 1967</i>)	4s. 6d.
No. 33. THE BRITISH PARLIAMENT (<i>Sept. 1965</i>)	4s. 6d. (4s. 10d.)
No. 34. CHILDREN IN BRITAIN	In prep.
No. 35. TREATMENT OF OFFENDERS IN BRITAIN (<i>Aug. 1964</i>)	4s. (4s. 4d.)
No. 40. THE CENTRAL GOVERNMENT OF BRITAIN (<i>May 1966</i>)	3s. 6d. (3s. 10d.)
No. 43. AGRICULTURE IN BRITAIN (<i>April 1967</i>)	4s. 6d. (4s. 10d.)
No. 44. THE NEW TOWNS OF BRITAIN	In prep.
No. 49. THE ENGLISH LEGAL SYSTEM	In prep.
No. 51. JAMAICA: THE MAKING OF A NATION (<i>July 1962</i>)	5s. (5s. 4d.)
No. 54. UGANDA: THE MAKING OF A NATION (<i>Aug. 1962</i>)	5s. (5s. 6d.)
No. 55. PROMOTION OF THE SCIENCES IN THE COMMONWEALTH (<i>Feb. 1963</i>)	6s. 6d. (7s. 2d.)
No. 57. MEDICAL RESEARCH IN BRITAIN (<i>May 1963</i>)	4s. (4s. 4d.)
No. 61. SOUND AND TELEVISION BROADCASTING SERVICES IN BRITAIN (<i>June 1966</i>)	In prep.
No. 65. THE BRITISH BANKING SYSTEM (<i>Feb. 1968</i>)	6s. (6s. 6d.)
No. 67. WOMEN IN BRITAIN	In prep.
No. 69. THE POLICE SERVICE IN BRITAIN (<i>Oct. 1964</i>)	3s. 6d. (3s. 10d.)
No. 70. THE GAMBIA (<i>Sept. 1964</i>)	4s. 6d. (4s. 10d.)
No. 72. BOTSWANA (<i>June 1966</i>)	5s. (5s. 4d.)
No. 73. LESOTHO (<i>June 1966</i>)	5s. (5s. 4d.)
No. 74. BARBADOS (<i>Aug. 1966</i>)	4s. 6d. (4s. 10d.)
No. 75. BRITAIN AND THE DEVELOPING COUNTRIES: SOUTH AND SOUTH-EAST ASIA (<i>Aug. 1966</i>)	6s. 6d. (7s.)
No. 76. BRITAIN AND THE DEVELOPING COUNTRIES COMMUNITY DEVELOPMENT (<i>Nov. 1966</i>)	4s. 6d. (4s. 10d.)
No. 78. BRITAIN AND THE DEVELOPING COUNTRIES: AGRICULTURE (<i>Dec. 1966</i>)	6s. (6s. 6d.)
No. 79. BRITAIN AND THE DEVELOPING COUNTRIES: EDUCATION (<i>Sept. 1967</i>)	3s. 9d. (4s. 1d.)
No. 80. REGIONAL DEVELOPMENT IN BRITAIN (<i>Nov. 1967</i>)	5s. 9d. (6s. 3d.)
No. 81. BRITAIN AND INTERNATIONAL SCIENTIFIC CO-OPERATION (<i>Feb. 1968</i>)	6s. (6s. 8d.)
No. 82. BRITAIN AS A MARKET FOR DEVELOPING COUNTRIES (<i>Dec. 1967</i>)	3s. 6d. (3s. 10d.)
No. 83. MAURITIUS (<i>Dec. 1967</i>)	5s. 6d. (6s.)
No. 84. RUSSIA, CHINA AND THE WEST (<i>Jan. 1968</i>)	9s. 6d. (10s. 4d.)
No. 85. SWAZILAND (<i>June 1968</i>)	6s. (6s. 6d.)
No. 86. BRITAIN AND LATIN AMERICA	8s. 6d. (9s.)

Prices in brackets include postage

Government publications can be purchased from the Government Bookshops in London (post orders to P.O. Box 569, S.E.1), Edinburgh, Cardiff, Belfast, Manchester, Birmingham and Bristol, or through any bookseller.

© *Crown copyright 1969*

Published by
HER MAJESTY'S STATIONERY OFFICE

To be purchased from
49 High Holborn, London W.C.1
13A Castle Street, Edinburgh 2
109 St. Mary Street, Cardiff CF1 1JW
Brazennose Street, Manchester M60 8AS
50 Fairfax Street, Bristol BS1 3DE
258 Broad Street, Birmingham 1
7 Linenhall Street, Belfast BT2 8AY
or through any bookseller