

## TECHNICAL CO-OPERATION UNDER THE COLOMBO PLAN

THE report for 1962-63 of the Council for Technical Co-operation in South and South-East Asia on *Technical Co-operation under the Colombo Plan*\*, the eleventh to be published by the Council, stresses two significant approaches made during the year in regard to intra-regional training at the technician level. Following a meeting of the Consultative Committee at Melbourne in November 1962, the Committee requested the Council for Technical Co-operation to advise on steps which could be taken to expand the training of middle-level manpower. In April 1963 the Council appointed a working party to examine proposals made for this purpose and to make recommendations. The text of the working party's report is included in the present report from the Council, and its principal recommendation was for the early appointment of an adviser on intra-regional training, initially for a period of one year. Requests for training at the technician level would continue to be sent direct to the countries concerned, but copies of all such requests should be sent out simultaneously to the Colombo Plan Bureau. The importance of all countries in the region utilizing the *Handbook of Training Facilities at the Technician Level in South and South-east Asia* and of keeping the Bureau fully informed of such facilities was also emphasized. The Working Party also agreed that each Government in the region should be invited to designate an intra-regional training liaison officer, and emphasized the need for greater attention to training technician instructors and to training on the job within the region.

During the year, 4,433 training places were provided, 1,941 being by the United States, 669 by Britain and 533 by Australia, Canada coming fourth with 348. India with 742 remained the major recipient of training awards, followed by Indonesia (622) and Pakistan (501). An increasing proportion of training awards is taken up by the newer participants of the Plan. Education, with 1,346, continued to occupy first place among fields of training, followed by administration (662), and food, agriculture and forestry (521). Trainees in technical education increased from 248 to 341. These training courses vary in length from a few weeks to more than six years, but the most popular courses continue to be those of 12-18 months and form just less than one-third of the total, including most of those in education, medical and health; food, agriculture and forestry; and engineering. Those in transport and communications, administration, and industry and trade are mostly 3-9 months. Of the previous year's 4,529 training awards, 2,341 were for more than one year, and 741 of the 1960-61 awards were for more than two years, so that at any one time during the year some 6,000 trainees were covered under the Colombo Plan besides those from the United Nations and other sources and from countries outside the Plan. About 9 per cent of the places were provided by countries within the region, but if the 259 regional training places provided under the United States Third Country Training Programme are taken into account nearly 14.5 per cent of the total training is provided in the region.

The 870 experts who came to the region during the year brought the total to more than 5,000; the United States supplied 499, India coming next with 111 and Australia third with 68. The largest recipient was Nepal (116), followed by Pakistan (114), India (96) and Indonesia (96). The greatest demand was in education (227), followed by engineering (116), with transport and com-

munications, medical and health, and food, agriculture and forestry third, all with 104. Of the 4,049 experts provided during the past five years, more than 67 per cent have been on assignments of more than one year, and of the 870 this year 603 were for more than one year and 482 for more than two years. Expenditure on equipment rose from £17.46 million in 1961-62 to £21.14 million, mostly on equipment for training and research institutions, while the total expenditure for the year was £42.3 million, of which £14.2 million was on experts and £6.94 million on trainees.

From the many examples of technical co-operation given in the report, the following examples of contributions from the United Kingdom are cited to illustrate the variety of effort. In agriculture, for example, an assistant botanist from Indonesia's Herbarium Borgeriense is taking a postgraduate course in plant taxonomy at the University of Cambridge, and assistance is being given for a programme of scientific storing of grain in Pakistan to minimize losses by arranging for a technical assistant from the responsible Department to take a postgraduate course in applied entomology at the Imperial College of Science and Technology. Two trainees from India, two from the Philippines and one from Thailand have been nominated to follow the 15-week course in the technology of stored products which was again offered. Britain is also assisting the development of the fruit industry in the Shan State in Burma with the services of an adviser on fruit culture; in animal husbandry, one year's training in swine husbandry is being provided at the University of London and the Pig Industry Development Authority, Sussex, for an inspector from the Department of Animal Husbandry and Veterinary Science, Mysore; provisions are being made in animal husbandry at the Institute of Animal Genetics, Edinburgh, for a research officer/assistant professor from the Philippines and a research officer from Ceylon.

The Head of the Department of Virus Production of the Foot-and-Mouth Disease Research Institute, Indonesia, is receiving practical training at the Research Institute (Animal Virus Diseases), Surrey; a forest ecologist from the Federation of Malaya's Forest Research Institute, Kapong, is taking a postgraduate course in silviculture at the Commonwealth Forestry Institute, Oxford; a forest products technologist from the Forest Products Research Institute at Laguna and a research engineer from the National Institute of Science and Technology, both from the Philippines, are studying wood technology at the Forest Products Research Laboratory, Princes Risborough. Britain is assisting Burma's Geological Department by providing one of its officials with postgraduate training in micropalaeontology and palaeoecology at the Imperial College of Science and Technology, and has arranged a special one-year course in leather technology at the University of Leeds for a research chemist of the Philippines National Institute of Science and Technology, while in response to a request from the Federation of Malaya twelve months' training in highway construction was provided for a highways inspector from Kuala Lumpur. An expert in the architectural design of bridges was sent to work in Islamabad, Pakistan, for three years and an expert in hydraulic observations is on a two-year assignment at the Port of Calcutta. The Regional Chief of Posts and Telecommunications Kalimantan, Indonesia, and an inspector of posts and telegraph are receiving training in post office management at the General Post Office, London, and a division engineer of the Pakistan Central Telephone Department is receiving training in Britain in telecommunications engineering to

\* Department of Technical Co-operation. *Technical Co-operation under the Colombo Plan*. Report for 1962-63 of the Council for Technical Co-operation in South and South-East Asia, Colombo, October 1963. Pp. 108. (London: H.M.S.O., 1963.) 6s. net.

enable him to help in the maintenance of co-axial cable systems.

In public health, the Assistant Director of the Thailand War Veterans Organization Medical Department is taking a postgraduate course in industrial medicine at the Royal Institute of Public Health and Hygiene, London, and the Surgical Registrar of Pakistan's Liaquat Medical College, Hyderabad, is training in surgery at Guy's Hospital, London. A member of the Physical Medicine and Rehabilitation Department of Siriraj Hospital, Baghdad, is training in occupational therapy at the Occupational Therapy Centre and Training School, London. A medical officer from Nepal is following a postgraduate course in tuberculosis and chest diseases at the Welsh National School of Medicine, Cardiff, and a surgeon from Burma a postgraduate course in the same field at the Birmingham Chest Clinic. Britain is assisting the Institute for Medical

Research at Kuala Lumpur, Malaya, with equipment and has also supplied equipment to the value of £4,700 to the Technical Training Centre, Moghalpura, Pakistan. Considerable equipment as well as four lecturers have been offered to a Technical Teachers' Training College in West Pakistan, and a Pakistani teacher is taking a two-year course at the Technical Teachers' Training College, Huddersfield. A lecturer in English was sent to work for two years at the National Centre of Political Administrative and Judicial Studies, Vientiane, Laos. The Chief of the Tariff Section of Thailand's Customs Department is taking a course in general taxation at H.M. Customs and Excise, and trainees from Malaya (1), Pakistan (3), Philippines (2) and Thailand (1) are attending a course of training in central government finance in Britain. Two final chapters deal with co-operation with other agencies and work of the Council and the Bureau.

## NATIONAL STANDARD REFERENCE DATA SYSTEM IN THE UNITED STATES

A NATIONAL Standard Reference Data System has been established by the Federal Council for Science and Technology of the United States, and responsibility for its administration has been assigned to the U.S. National Bureau of Standards (National Science Foundation. *Scientific Information Notes*, 1, No. 4; August-September, 1963). The System will provide critically evaluated data in the physical sciences on a national basis, centralizing a large part of the present data-compiling activities of a number of Government agencies.

The National Standard Reference Data System will consist of a National Standard Reference Data Centre at the National Bureau of Standards, and various standard reference data centres in other Government agencies and at universities, research institutes and non-Government organizations. For such centres to be a part of the National Standard Reference Data System, they will be required to meet quality standards established by the National Bureau of Standards. However, the independent and operational status of existing critical data projects will be encouraged. The initial emphasis for establishing new standard data compilation projects will be in subject-matter areas where no effort is now being applied or where the existing effort falls far short of meeting important needs for Government, science or industry.

An advisory board will review and recommend policy relative to the operation of the National Standard Data Reference System. It will include, among others, representatives from the U.S. National Academy of Sciences, U.S. National Science Foundation, and federal agencies engaged in research and development.

The National Standard Data Reference System will be conducted as a decentralized operation across the United

States, with central co-ordination by the National Bureau of Standards. As planned at present, the programme will consist of three parts: an input from scientists in many different locations; a central source of the evaluated data at the National Bureau of Standards; and an output system geared to the needs of the nation's scientists and engineers.

The input will come from scientists who are comprehensively reviewing the literature in their fields of specialization and critically evaluating the data for ultimate inclusion in the storehouse of standard reference data. These scientists may be in universities or in industrial or Government laboratories: some will be at the National Bureau of Standards. They will work singly or in small groups oriented to the traditional scientific disciplines. At the same time other scientists, similarly located, will be engaged in experimentally determining the standard reference data which do not exist in the literature. Clearly the interplay between the two groups must be close and continuous.

The central core will consist of the Standard Reference Data Centre at the National Bureau of Standards, where evaluated data will be punched on cards, magnetic tape, in notebooks and other forms, all mechanized for storage and retrieval. A review and control office will label the incoming data as to relative quality and reliability. The Standard Reference Data Centre will classify the data into as many major and minor categories as are required by the needs of the data users.

The output will take the form of a series of services aimed at different technical levels and tailored to the needs of various segments of industry. In general, it will be oriented toward the application of the data rather than toward a field of science.

## BIRTH AND DEVELOPMENT OF AN OIL REFINERY

THE Kent Refinery of the British Petroleum Co., Ltd., last year completed its first decade of petroleum refining. In *B.P. Magazine* No. 9 (1963) there are three articles which vividly describe the conception, siting, construction and evolution of a modern oil refinery, two illustrated in colour, a feature of outstanding artistic merit characteristic of this re-designed 'house-organ' since its inception.

The first of the articles relates to the history of the Isle of Grain on which the refinery is situated, occupying more than 1,200 acres of land bordering the River Medway.

The story traces events from man's occupation of the Island during the late Iron Age (250 B.C.) down to the present time; it is a fascinating epic of reclamation and changing occupation of Medway marsh-land, intimately bound up with the history of the Isles of Grain and Sheppey. The folding pictorial map of this Medway region, in its portrayal of people, industry, shipping and historical events down the centuries, due to Wegner, is quite excellent.

The second article, entitled "A Refinery is Born", attempts to tell the story of the early hopes and fears of