SHORTAGES OF SCIENTIFIC PERSONNEL IN EUROPEAN COUNTRIES IN PROCESS OF DEVELOPMENT

THE shortage of scientific personnel is common to all European countries, even those which have a long tradition of scientific and technical development backed by powerful resources. Industrialized countries face ever-increasing requirements, while countries which are primarily agricultural and commercial now feel the need to build up their industrial potential in order to compete with the rest of Europe and raise their standard of living.

For such countries the shortage of scientific personnel is particularly acute and raises problems which are most urgent. Chief of these, according to Rector Capelle, director-general of the Institut National des Sciences appliquées, in a recent issue of *European Productivity* (No. 35; April 1960), are: training of teachers of science and technical subjects; broadening of secondary education to include technical subjects; training of engineers; development of scientific research; and the development of university-industry relations.

Industry's demand for scientists and technicians and the generous salaries offered are frequently a severe handicap to the recruitment of science teachers. Teachers' salaries must be raised if the necessary teachers of high calibre are to be found for the rising school population. This applies not only to secondary schools and technical colleges but also to the universities themselves, where too often a professor's salary at the end of his career is no more than that offered to his students on entering industry. A further demand for teachers comes from industry itself, where the old system of training skilled workers and technicians on the job must be supplemented by proper training courses providing the appropriate general education at each level.

In order to persuade more and more young people to become technicians or engineers, and to attract children from families obsessed with the idea of classical education, the traditional secondary education should be broadened to include technical subjects laying the foundations of a technical humanism supplementing, and in no way conflicting, with traditional humanism. In all secondary education, the laboratory and the workshop should now be used as instruments of learning in the same way as books, which still have too much of a monopoly.

In countries in process of development, engineers are trained to a high level and in physical conditions in no way inferior to those prevailing in countries with a long-established technological tradition. Technical faculties or universities training engineers are compelled to make a strict selection of candidates, but this is a good guarantee of success. Many students who cannot find a place in the higher educational establishments of their own country go to a foreign technical university. This additional supply of engineers—sometimes as much as 50 per cent—is not always appreciated.

The methodical increase of means of production implies making provision for research. It might seem enough to leave the responsibility for research to the countries best equipped for it. This would in the end be detrimental to young industries. The organization of scientific research will become a vital necessity for all countries and will call for the combination of all human and material resources; the Government, the universities and industry must all co-operate, and here the university can play a leading part without any loss of dignity or independence.

Applied scientific research is one of the links to be established between universities and industry, two worlds which are much too far apart in most countries in process of development. Industry should not be governed purely by a shopkeeper mentality.

EAST AFRICAN VIRUS RESEARCH INSTITUTE, ENTEBBE

THE report of the East African Virus Research Institute for July, 1958–June, 1959 by the acting director, J. D. Gillett, shows that the approach to virus studies is still essentially ecological—using the word in its widest sense to cover interaction between virus host and environment (Pp. ii+49. (Nairobi: Government Printer, 1960.) 5*s*.). Attention has again been confined to those viruses which are transmitted to man by arthropods; 60 different viruses are now known or suspected of being arthropod borne. Mosquitoes are involved or suspected in the transmission of no less than 48 of these, and man has been implicated in 47 of them. Twenty-six of these viruses have been found in Africa, 14 of them coming from East Africa itself. Eleven of the 14 East African viruses were originally isolated in the Institute, three of them during the current year.

The isolation of viruses from the living vertebrate host, including man, is often missed because of the transient nature of the viræmia. Nevertheless, in addition to several strains isolated during an outbreak of yellow fever in the Congo, five isolations have been made in East Africa from man; three of these in the period under review were from members of the Institute staff. Three of the five East African isolates appear to be new agents, or at least new strains. One of the others was an accidental laboratory infection of Wesselbron virus, and opportunity was taken of keeping full clinical and physiological records of the course of this very unpleasant disease.

More than 20,000 wild mosquitoes were caught and processed in the laboratory, but no virus isolations were made. This is the second year in which this usually fruitful source of virus has been unproductive.

The work started the previous year on a possible vaccine against Nairobi sheep disease, the virus of which apparently involves man as well as sheep, has been further developed. The first field-trial with the new experimental vaccine carried out in collaboration with the East African Trypanosomiasis Research Organization at Sukulu has fully justified earlier hopes.