

chemicals need to be studied, however, and the distribution of the chemicals in the soil, their breakdown and possible phytotoxic effects are being investigated in the laboratory.

The problem of resistance to acaricides shown by the glasshouse red spider mite (*Tetranychus urticae* Koch), which is assuming serious proportions in the Lea Valley on cucumbers, is being tackled as a co-operative project by the Crop Protection Department,

under Mr. W. H. Read, and the Entomology Department, under Dr. N. W. Hussey. This work involves the testing of Lea Valley strains of the mite for cross-resistance to other acaricides to assess the practicality of increasing the range of materials in use. This is to be followed by large-scale trials later this year to investigate control of the pest by physical and biological agencies to which it is unlikely to develop resistance.

F. W. TOOVEY

## SCIENCE TEACHING IN SECONDARY MODERN SCHOOLS

**S**ERIOUS deficiencies in the provision of science teachers, laboratories and science equipment in many secondary modern schools are revealed in the results of a survey carried out by the Science Masters' Association. Three-quarters of the nation's children attend secondary modern schools, yet in many of them serious shortages are revealed. Many schools returned the questionnaire stating that they provided no teaching in science, 73 taught no science because there were no teaching facilities, 33 because there were no teachers available who were capable of teaching science.

The material on the survey was collected from more than 1,500 questionnaires. The return compared with a total of about 3,700 schools of this type existing in 1958; the investigation was conducted throughout by the Secondary Modern Schools' Committee of the Science Masters' Association.

The Committee believes that there should be one laboratory for each 300 pupils in the school, two for schools of 301-600 pupils, and three for those of more than 600. The survey states that on investigating the conditions under which science was being taught

in secondary modern schools, 47 per cent are obliged to teach all or part of their science under unsatisfactory conditions.

The investigation revealed that only one science teacher in six in a secondary modern school is a graduate, while about one in six has "no pretensions at all to science qualifications". Only 34 per cent of the schools considered that they were adequately staffed for teaching science. Special account is taken in the survey of head teachers' opinions on the most important needs to improve science teaching. Their orders of priority are more science teachers, more laboratory accommodation, and more equipment.

The statistical return suggests that, in 65 per cent of the schools concerned in the survey, more science staff are needed. The booklet comments: "It follows that in the country as a whole no fewer than 2,500 schools need science teachers and in some cases more than one teacher will be required".

Copies of the booklet are available, price 1s., from Mr. D. M. Chillingworth, The Village College, Swavesey, Cambridgeshire.

## SCIENTIFIC RESEARCH IN EAST AFRICA

**J**UST over half the annual report of the East Africa High Commission for 1959 deals with the East African Research and Scientific Services, on which some £706,466 was expended, with a further £212,962 on the Desert Locust Survey, £270,812 on the Meteorological Department and £470,645 on the Directorate of Civil Aviation, out of a total recurrent expenditure in 1958-59 of £3,907,933, towards which £567,863 was received from the United Kingdom Government in Colonial Development and Welfare or direct Exchequer grants\*. Some account of the work of these regional organizations, for example the East African Agriculture and Forestry Research Organization, the Veterinary Research Organization, the Fishery Research Organization and the Institute for Medical Research, was included in the reports published under the title "Colonial Research 1958-59", but no reference was made in that report to the curtailment of research programmes through the reduction of scientific staff at some of the High Commission's organizations in consequence of territorial financial cuts. The East African Agriculture and Fisheries Organization report, for example, refers to the reduction of the establishment of research

officers from 28 to 23 and of scientific assistants from 20 to 14, chiefly in the Divisions concerned with soil fertility, soil chemistry and soil classification, with the result that the Organization is not always able to co-operate effectively with the Territorial Departments. The Trypanosomiasis Research Organization also refers to reduction in staff, and the Meteorological Department has found the difficulty of recruiting staff from Britain to constitute a formidable obstacle in its programme of expansion. On the other hand, help is being received from the Rockefeller Foundation for agricultural research in East Africa, and the Nuffield Foundation is financing further research on the physiology of drought resistance in crops, and on the improvement of the nitrogen status of tropical soils by suitable use of indigenous tropical legumes.

The work of the Agriculture and Forestry Research Organization has included work on the increase of crop-yields by reducing the damage done by pests and diseases, such as the study of 'stem pitting' of *arabica* coffee, a survey of the nematodes of the principal East African crops, the development of a strain of maize resistant to the virus disease known as 'streak', and also work on the effect of drought on the growth of plants and the water requirements of

\* East Africa High Commission. Annual Report, 1959. Pp. iv + 100. (Nairobi: Government Printer, 1960.) Sh. 5.



irrigated crops. Forestry research also has been concerned with the effect of forests on water supplies, as well as the best methods of raising seedling trees in the nursery and for planting out in the forest, and the protection of East African forests against insect attack, particularly by timber borers, and the use of ultrasonic and gamma-radiographic techniques to detect attack and to measure the severity of attack are being examined. In the Veterinary Research Organization, the Division of Virus Diseases achieved interesting and important results in its investigation of rinderpest. Good progress was made in research on swine fever, and work on East Coast fever continued; but the work of the Division of Bacterial Diseases was hindered by shortage of staff.

The reorganization of the East African Trypanosomiasis Research Organization is well advanced, and all research disciplines are being concentrated at Tororo in Uganda. Studies on the trypanosomes are being developed mainly towards an understanding of immunology and the routine testing of new drugs for cattle prophylaxis is now to be the concern of the Territories, and the Research Organization is recruiting workers for fundamental studies on drug resistance. The Marine Fisheries Research Organization continued its work on tuna longlining and the North Kenya banks survey, and an investigation of the potential prawn fishing of the estuarine waters of Tanganyika was commenced.

The Pare-Taveta malaria scheme of the East African Institute of Malaria and Vector-borne Diseases, which ended in June 1959, has shown that malaria transmission can be reduced to a very low level but not completely arrested, as a result of four years residual spraying of houses, in an area of hyperendemic malaria. The dispersion and longevity of *Anopheles gambiae* were studied mainly by introducing

radioisotopes into the larval breeding pans. The completion of the 120-ft. steel tower in the Mpanga forest enabled the Virus Research Institute to expand considerably its work on the biology of mosquitoes and other blood-sucking flying insects, and the analysis of data collected over the past fifteen years indicates that while in some species of mosquito the biting pattern is uniform over a very wide area, in others the pattern varies according to locality, environment or even level in the forest. The East African Leprosy Research Centre commenced a therapeutic trial of 'Etisul', and surveys of leprosy clinics in Uganda and Kenya confirmed the low proportion of true lepromatous cases.

The East African Industrial Research Organization completed its projects on the mechanical drying of coffee and on the control of arsenic in the production of cement copper. The Meteorological Department continued its investigation on the use of cetyl alcohol to reduce evaporation from water surfaces, and a two-year programme of forecasting research was commenced in June 1959 to gain knowledge of the rain-producing agencies operative in East Africa and the improvement of weather forecasting generally. Progress is being made in the study of the strong winds which occur at high levels in tropical and subtropical latitudes. The Desert Locust Survey reports on control operations against swarms in the Somaliland Protectorate, January-June 1959 and July-October 1959, and in Turkana, April-May 1959, and on campaigns against hopper of the short-rains generation in the Somali peninsula conducted in the Ogaden. Reference is made in the report to the problems created for the Directorate of Civil Aviation by the introduction of jet airliners and to the difficulty of recruiting suitably trained and experienced officers capable of maintaining standards.

## SUICIDE: A NEGLECTED PROBLEM

THE incidence of suicide is on the whole low in the less-developed countries, high in the more; and in some countries of very high living standards it has become a problem of considerable proportions. Between the ages of fifteen and forty-four it is the second most important cause of death in Japan, the third in Germany, Denmark, Sweden and Switzerland, and the fourth in Canada, Australia and the United States. It is also an important cause of death between the ages of forty-five and sixty-four\*.

In the United States some 16,000 people commit suicide every year, as compared with 14,000 who die from tuberculosis and 40,000 who die from motor accidents; in England and Wales the number of suicides, approximately 5,000 annually, is nearly as great as the number of those who die from pulmonary tuberculosis, and slightly exceeds the number who die from motor accidents. More men commit suicide than women, and, as age increases, the preponderance of male suicides becomes greater.

Durkheim, in his classic study of suicide, divided suicide into three types: the altruistic, in which the individual's life is rigorously controlled by the customs and beliefs of a rigid society, and who commits suicide for religious or political reasons; the egoistical, in which he is insufficiently integrated into

society; and the anomic, in which he is insufficiently regulated by society and his adjustment may be upset by economic catastrophes or sudden wealth.

Inherent disposition plays an important part in suicides. The stresses of loneliness and friendlessness act with selective severity on those predisposed to mental illness, and these are often the individuals who commit suicide. Cause and effect are not easy to distinguish. Do individuals, for example, who commit or attempt to commit suicide drift into isolated environments because of the illness that drives them to take their own lives, or are certain environments conducive to suicidal tendencies? Alternatively, is loneliness both a consequence of mental ill-health and a factor increasing the chances of suicide? The whole problem of suicide is extremely complex; the causes are not well understood.

Statistical data about suicide are among the most clear-cut epidemiological facts in the whole field of psychiatry, and should lend themselves to intensive inquiry. It might then be possible to understand more clearly why there are striking differences in incidence between the more-or-less developed countries, between communities of different religious denominations, and between urban and rural areas. It should then be possible to prevent attempts at suicide, and provide those who attempted but failed with efficient after-care or social support.

\* WHO Chronicle, 14, No. 5 (May 1960).