

that modifications in established milling practice would probably increase the efficiency and output of the commercial mills to an appreciable extent.

Research on soils has been concentrated, during the past few years, on the chemistry and microbiology of mangrove soils; in particular, on the problems of their reclamation in areas where flood-waters are saline throughout the year. These soils, which are paralleled by vast areas of similar soils in many parts of the world, pose particular problems due to their high content of sulphur and their potentiality for acid-development by microbial action on drying. Research work has now led to an understanding of the processes occurring in these soils and to the formulation of techniques of reclamation which are at present being tested in the field. More recently, attention has been paid to the changes in nutrient status of these soils—which are potentially highly fertile in their natural state—when they are reclaimed and cultivated.

Investigations are now being made into the relationship between the rice plant and soil conditions, in particular the oxidizing or reducing status of the soil and its poisoning by the balance of ferrous and ferric iron present. It is considered that this investigation will lead to useful techniques in the initial testing of soils for their suitability for rice growing, and for predicting the effect on them of specific modification of natural conditions.

Contributing Governments are kept informed of immediate practical recommendations, and an annual report of world-wide distribution is published to record briefly the work in progress; individual researches are reported more fully by contributions to technical journals. It is of note that within ten years of its inception the Station has been able not only to play its part in the general economic development of West Africa but also to contribute substantially to scientific knowledge of the world's major food crop.

H. D. JORDAN

## TECHNICAL EDUCATION IN WALES

A RECENT report dealing with technical education in Wales\* is as surprising for the boldness of its recommendations for training within industry as it is for its ambivalence about the resolution of educational and administrative problems within its purview. Within a brief sixty pages it first reviews the history of technical education in Wales with candid admissions of former shortcomings, then it surveys the great changes in industrial background. The present pattern of technical education is next reviewed, under three main headings, of courses and training for craft apprentices, student apprentices and graduate apprentices. Significant differences are noted from the rest of the British scene. In this way the report rapidly traverses the background to its terms of reference, which were "In the light of contemporary changes in the industrial pattern in Wales, to consider what educational provisions should be made to serve the best interests of industry and of those employed in it."

The fourth and final chapter of the report of the Central Advisory Council for Education (Wales) embodies the Council's observations and recommendations, some of which go well beyond the particular needs and circumstances of Wales. The report incorporates much contemporary discussion and exhortation, and thus joins in the now customary commendation of such developments as block-release courses, sandwich courses, pre-apprenticeship courses, group apprenticeship training schemes, a two-year Ordinary National Certificate course, the introduction of lower standard courses for new City and Guilds of London Institute examinations, and other ideas to be found in the Crowther Report and the second White Paper *Better Opportunities in Technical Education*.

A fundamentally new approach for industrial training in the United Kingdom is urged in the proposed establishment of a national craft apprenticeship system, especially to meet the needs of small firms which largely compose British industry, particularly in Wales. This would be administered by the State

through the Ministry of Education and a National Apprenticeship Council, training being given from the age of sixteen years in apprentice training centres. The centres may or may not be attached to technical colleges, and would be financed by an apprenticeship levy on industry (though curiously this important point is not mentioned in the final summary of recommendations). This proposal constitutes a strong challenge to present Government policy, and to the existing Industrial Training Council; but the report sees no other adequate way of meeting the compelling needs of the greatly increased age-groups 16-19 years coming into industry from 1963 onwards, or of meeting the needs of smaller firms.

With regard to advanced courses, the report concludes that the overall provision greatly outruns the present demand, and urges that to avoid wasteful and inefficient duplication these courses should be confined to five technical colleges—Treforest, Newport, Swansea, Wrexham, *together with the Welsh College of Advanced Technology in Cardiff*. The words here shown in italics illustrate the Council's refusal to grasp the essential ideas of the four-tier structure of technical education, with preferential concentration of advanced courses in the colleges of advanced technology. This is related to its somewhat despairing view of the continued existence of the Cardiff College, of which it presents a very partial picture indeed (it has 186 in sandwich courses within four years of its designation out of a total sandwich course and full-time enrolment—not mentioned—of 826 students—compared with 732 students at the University College of North Staffordshire after 10 years of existence, not to mention the former's large part-time enrolment).

The report suggests that all five colleges should be administered jointly by an administrative council which might be the technical sub-committee of the Welsh Joint Education Committee. Never was there a better example of the new Benthamism—the greatest pacification of the greatest number of local education authorities, and consequently, the strongest possible built-in deterrent to the emergence of concentrated excellence at the College of Advanced Technology. Not surprisingly, the Council concludes

\* Ministry of Education: Central Advisory Council for Education (Wales). *Technical Education in Wales*. Pp. ix + 146. (In English and Welsh.) (London: H.M. Stationery Office, 1961.) 7s. net.

that the proposal to seek closer association of the latter college with the University is not inconsistent with the purposes of the University. So little does it regard the Welsh Advanced College in its own right, that it sees the link with the University as unquestionably conferring status on technical studies in Wales, and that "A further and quite substantial advantage would be that a clearer and more easily recognisable line of demarcation than now exists could be drawn between the College of Advanced Technology and other technical colleges concerned with advanced courses". Under the Administrative Council, or under University governance, or both? What happens then to the new route in higher education complementary to that of the universities, and to the apex of the technical college system?

Instead of being doubled in size through bilingual publication, the report would have been better had it analysed more fully the consequences of its recommendations, and also dealt with some important omissions. Notable among the latter are some of the basic reasons why less than 2 per cent of eligible Ordinary National Certificate candidates go on to courses for the Diploma in Technology, and less than

7 per cent to Higher National Diploma courses. Do the other colleges accept a contributory role to the higher colleges? The resistance to change and support of new ventures, for example, by the schools and firms, are hinted at but not fully examined. Nowhere does the report deal candidly with the issues underlying "the delicate work of regionalisation of advanced courses . . ." which as an independent body it ought to have done; it is not surprising already to find it reported that the Flintshire authorities are taking steps to protect their right to advanced courses. A more penetrating and critical examination on the educational and administrative sides, as was done on the apprenticeship side, would have greatly increased the value of the report. The Minister of Education commends the report as a good one, and hopes that many of the recommendations will be put into practice as soon as possible; many, it may reasonably be hoped, but not some of its major ones, not at all before due consideration has been given to the report of the Committee of Enquiry into Higher Education, of which Lord Robbins is chairman.

P. F. R. VENABLES

## ADDICTION-PRODUCING DRUGS

IN the eleventh report issued by the World Health Organization's Expert Committee on Addiction-producing Drugs\* recommendations are given that the following substances should be subject to the provisions of the 1931 Convention in respect of addiction-producing drugs comparable to morphine: clonitazene, diapromide, diphenoxylate, etonitazene, hydromophinal, phenampromide and phenoperidine.

Evidence concerned with two analgesic benzodioxane derivatives and ethoheptazine indicated that these compounds were not to be regarded as addiction-producing drugs. Exemption from the provisions of international control was recommended in favour of two preparations containing diphenoxylate, a new constipating agent, but the Committee was unable to support the request for exemption in favour of dextro-phenomorphan.

The Committee was concerned with reports on the abuse of amphetamines and amphetamine-like substances contained in weight-reducing medicines, and emphasized the need for appropriate control measures on a national level to prevent such abuse. Attention was also directed to the need to watch closely the

\* World Health Organization: Technical Report No. 211. Expert Committee on Addiction-producing Drugs—Eleventh Report. Pp. 16. 1 Swiss franc; 1s. 9d.; 0.30 dollar. (Geneva: World Health Organization; London: H.M.S.O.) 1961.

development of new psychically active compounds that might be abused by narcotic addicts, as has already occurred in the case of SPA((-)-1-dimethylamino-1,2-diphenylethane) in Japan. There is need for improvement in regard to the information given on the possibilities of addiction liability of new drugs, particularly where analgesic and anti-cough properties are claimed.

In response to an invitation from the Economic and Social Council, the Committee outlined the procedure by which the addiction-producing properties of a drug are established; but a precise code of practices cannot be drawn up at the present time.

The Committee was not of the opinion that there is at present any case for making *Cannabis* available for the extraction of antibiotic substances, and considered that the prohibition or restriction of the medical use of this plant should continue to be recommended by the international organs concerned.

With regard to the treatment of drug addicts, the Committee was in favour of a proposal that addicts should be committed to the care of a medical panel, as is done in the case of mental patients in general. This measure is intended to ensure adequate and complete treatment, but not to replace penalties for violations of the law.

## CULTURAL SEQUENCES IN NORTH-WEST AMERICA

IN the past few years, evidence has been accumulating for a considerable variety in subsistence activities at an early date in North America. To the big-game hunters of the Plains have been added people who gathered seeds and plants and hunted small game in the Great Basin, and the archaic foragers of the East have proved to have begun

earlier than we used to believe. The latest report\* of Prof. L. S. Cressman's pioneer explorations in the north-western United States shows that yet another

\**Trans. Amer. Phil. Soc.*, N.S., 50, Part 10: *Cultural Sequences at the Dalles, Oregon—a Contribution to Pacific Northwest Prehistory*. By Prof. L. S. Cressman, in collaboration with David L. Cole, Wilbur A. Davis, Thomas M. Newman and Daniel J. Scheans. Pp. 108. (Philadelphia: American Philosophical Society, 1960.) 3 dollars.