

appointment of an officer to attract more young people to the work of the Council's conservation corps, and to the National Association of Youth Clubs and the Young Women's Christian Association for research into techniques of approaching and attracting potential delinquent 'unclubables'. Voluntary Service Overseas had been financially assisted through the Department of Technical Co-operation. At the time of the Albemarle report local education

authorities were employing directly, or contributing to the salaries of, some 700 full-time youth leaders. By the middle of 1961 this total had increased by at least 100, and authorities and voluntary bodies had plans to employ another 450 over the next three years, while the number of youth officers and organizers employed by local education authorities had increased from 350 to 425 and would probably increase by another 50 in the next three years.

THE CARNEGIE TRUST FOR THE UNIVERSITIES OF SCOTLAND

THE sixtieth annual report of the Executive Committee to the Trustees of the Carnegie Trust for the Universities of Scotland for the year 1960-61* records payments of more than £135,000 to universities and other institutes under the quinquennial arrangements, in addition to expenditure on schemes directly administered by the Trust. The major projects have been, in the University of St. Andrews, £9,881 for a building for the Biology Department at Queen's College, Dundee, and £5,055 for the Bell-Pettigrew Museum at St. Salvator's College; at the University of Glasgow, £36,400 for the Stevenson Physical Education Centre and £5,700 for the new Arts Faculty building; £26,325 for the Physics Department building at the University of Aberdeen; and £25,000 for the Holland House Hall of Residence at the University of Edinburgh.

Early in 1961 assurances were given to the universities that the University Grants Committee would not expect them to contribute from their own resources to approved building programmes for 1962 and 1963 and to the provisional programmes for 1964 and 1965. Accordingly, the Trust has informed the universities that during the quinquennium 1962-67 it would not make grants to remedy any deficiency in the Treasury Grants for teaching buildings as it had done in the 1957-62 quinquennium. The provision of new teaching buildings is regarded as a Government responsibility, and in the new quinquennium the Trustees consider that in student residences, playing fields, unions, staff common rooms, etc., there is a large field in which they can substantially help the Scottish universities to supply the proper amenities of university life, provision of which would otherwise be seriously delayed if made at all. In the quinquennium 1962-67, the Executive Committee has decided to release from resources £250,000 for capital expenditure on approved schemes, while retaining normal recurring grants at an annual level of £60,000. Of the allocation from reserves,

£72,000 each will be available to the Universities of Glasgow and Edinburgh, £48,000 each to St. Andrews and Aberdeen, and £10,000 to the Royal College of Science and Technology, Glasgow.

Expenditure on the research scheme exceeded £60,000, subventions in aid of publication of works of scholarship increasing to £3,167 (excluding two special provisions made in the previous year), and from October 1961, Glasgow and Edinburgh are each to receive £3,000 annually, and St. Andrews and Aberdeen £2,000 annually, to facilitate travel in connexion with research by members of the staff of the universities. The usual notes on the work of Fellows, Senior Scholars and Scholars during the session 1960-61 are given in an appendix, together with lists of research grants and of publications.

The system of assistance to students with fees continued without significant change from its modified form when the Scottish Education Department altered its bursary regulations in 1957. The number of beneficiaries fell from 538 in 1959-60 to 455, and payments from £18,185 to £15,575, and the Trust's scheme will continue to be administered on the same principles as before until the results of the new Government scheme, following the acceptance of many of the recommendations of the Advisory Committee on Awards to Students, can be properly assessed. Repayments by beneficiaries fell to £1,482 by thirty beneficiaries, compared with £2,069 by thirty-nine in 1959-60. In the summer of 1961, a system of vacation awards to students who had shown exceptional merit at their university, which had been tried in one faculty in 1960, was extended to all faculties at each of the Scottish universities. In all, sixty-one awards were made, totalling £2,640, to senior students generally either about to enter their final year or about to go on to research immediately after first graduation. In arts most awards in 1961 were used to enable their recipients to study a special topic, or to pursue language or other studies at a foreign university. This scheme has been a great success and it may be desirable to increase expenditure on it.

* The Carnegie Trust for the Universities of Scotland. Sixtieth Annual Report for the year 1960-61. Pp. vi+68. (Edinburgh: The Carnegie Trust for the Universities of Scotland.)

HAZARDS OF DUST

THE stage is set for action when, in a time of rapid social change, a recently nationalized industry which employs nearly three-quarters of a million men is found to be also manufacturing hundreds of cases of an industrial disease. If, in addition, the Nation depends fundamentally on the product of this industry which possesses, therefore, a trade union of great power, then in the colloquial phrase "something will happen".

After an initial few years of feeling its way through situations, some of which were almost laughable—such as when the embryo medical research programme was directed by a former professor of physics—the National Coal Board has now come to be equipped with strong medical and scientific services managed by hard-headed men who know what they are about.

A report, entitled, *The Study of the Composition of Respirable Dust in the Pneumoconiosis Field Research*,

comes from the scientific service alone*. It summarizes the considerations which have led up to the present views on the study of the composition of airborne dust in coalmines. It discusses how the collieries should be selected for dust sampling and the statistical design of the sampling method. The use of a thimble versus a thermal precipitator technique for sampling is balanced up and the writers come down on the side of the thermal precipitator. They then summarize what is known about the coal and mineral content of airborne coalmine dust and the techniques necessary for its analysis. For this, they suggest that a phase-contrast method be used with an optical microscope. The man-hours necessary for dust surveys of different types are calculated, and the relation of the physics and chemistry of coalmine dust to the human disease of pneumoconiosis is considered.

The authors realize that what they are talking about are shadow pictures of men's chests rather than functional disease, and they feel that the X-ray absorptions of dusts of differently ranked coals should be studied. They also point to a fundamental gap in our knowledge of the pathological effects of dust on the animal cell by suggesting that this should be investigated experimentally. These are merely two of the more interesting ideas from a number of projects for future work.

But it must be admitted that it is not easy to get the sense out of this report and the abstract says nothing about what is really between the covers.

Another report, entitled, *The Relation between Pneumoconiosis and Environmental Conditions*, de-

* *The Study of the Composition of Respirable Dust in the Pneumoconiosis Field Research*. By J. W. J. Fay and D. Hicks. Pp. ii+25+6 tables. Appendix 1-3. (London: National Coal Board, 1962.)

scribes the most impressive survey of its kind which has ever been carried out anywhere in the world*. The chest X-ray appearances of more than 30,000 coalworkers have been set against all the different types of work which they had carried out up to the time the pictures were taken. The survey took in 26 different collieries chosen to cover the range of relevant geographical and environmental conditions. The sample of men was nearly 95 per cent complete.

This extensive national study shows that there are wide variations in the prevalence of pneumoconiosis and in its relation to the age of the mineworker, but with regional similarities; that the higher the rank of coal the greater the prevalence of chest X-ray abnormality; and that underground coal-getters are the occupational group most at risk. There is now, therefore, for the first time a pneumoconiosis prevalence map for the coalfields. Apart from this, the work has confirmed what was known or strongly suspected already, and the authors reasonably look forward to concentrating the survey in the future, in an attempt to answer the 'why' rather than the 'what' of the problem.

This is a clearly presented document with 31 tables of data in the body of the report, as well as many more in the appendixes, in which there are also 23 well-drawn coloured charts.

As a source-book of data on dust disease in British coalmines it is a *sine qua non*. R. C. BROWNE

* *The Relation between Pneumoconiosis and Environmental Conditions: an Analysis of the Results of the First Series of X-ray Surveys in the National Coal Board's Pneumoconiosis Field Research*. By J. R. Ashford and S. Rae. Pp. viii+40+31 tables. Appendix 14+23 figures. (London: National Coal Board, 1962.)

SCIENCE IN THE PACIFIC

S PONSORED by the National Science Foundation (Washington, D.C.), a new series of *International Science Information Studies* examines the main scientific publications, research facilities and information services of selected countries of the world. The first three volumes have been written by Mr. John O. Sutter and are devoted to four Pacific nations, namely, the Republic of Indonesia, the Federation of Malaya, the State of Singapore, and the Republic of Viet-Nam*.

The object of the series is to help in overcoming some of the obstacles to communication between scientists brought about by distance, language and different cultural patterns. Each volume starts with a

* National Science Foundation, Washington. Pacific Scientific Information. No. 1: *Scientific Facilities and Information Services of the Republic of Indonesia*. Pp. vi+136. 1 dollar. No. 2: *Scientific Facilities and Information Services of the Federation of Malaya and State of Singapore*. Pp. vi+43. 50 cents. No. 3: *Scientific Facilities and Information Services of the Republic of Viet-Nam*. Pp. vi+36. 50 cents. By John O. Sutter. (Honolulu: Pacific Scientific Information Center, B. P. Bishop Museum. Published for the National Science Foundation.)

brief account of the geographic, political and economic background of the area and then describes the facilities available for education in science, concluding with an account of scientific research and information activities in the country. In appendixes, factual information is given about research institutes, libraries, translation services and scientific publications.

Mr. Sutter's investigations show that in Malaya and Singapore there are forty-four scientific or semi-scientific serial or periodical publications, ranging in content from descriptions of original research to material of a popular science type. In the Republic of Viet-Nam, there are relatively few periodicals of a scientific nature, though French-established institutes publish articles on oceanography, medicine (Pasteur) and rubber research. In Indonesia, there is an ever-increasing flow of publications, some of which contain papers on original research. Before the Second World War these were in Dutch, but now they are in Indonesian with some articles in English or with English summaries.

POSSIBLE MECHANISM OF OLFACTION

By DR. ANDREW DRAVNIKS

Armour Research Foundation of Illinois Institute of Technology, Chicago

O LFACTORY receptors detect the presence of 10^5 - 10^7 molecules of certain odorivectors per cm^3 of air, discriminate between small differences in the molecular structures of these odorivectors, and

convey the observations to the nerves in the form of electrical potential pulses several tens of mV. strong. Such action may be possible by a selective utilization of dispersion (London-van der Waals) forces, together