

The council now offers just over 200 courses in a wide range of subjects, operating in fifty colleges in England, Wales and Scotland. Sixty-eight of the courses lead to honours and ordinary degrees, ninety-one to honours degrees only, thirty to ordinary degrees and twelve to MSc. Fifty-six new courses proposed by colleges in 1967-68 were approved and, as usual, many of these are in fields which are not traditionally covered by the universities. For example, four degree courses in librarianship and information science have been introduced, and so have a part-time course in the sociology of education designed for teachers and other workers in the educational service; a course in textile marketing; and a sandwich course in public administration, in which the cooperation of local government is being sought. Keeping pace with the development of the polytechnics, the council has also approved a degree course in environmental engineering, which will involve collaboration between scientists, engineers, architects, public health officers and industrial managers. Similarly, a course has been approved in engineering geology and geotechnics which will bridge the areas of interest of civil engineers and geologists. Traditional subjects are also being given a face-lift: thus students of French are being given an opportunity to acquire a wide understanding of the country through a study of the language, politics, economics, geography and culture of France. Following on its move away from traditional mathematics, the council has also approved an honours degree in statistics and computing, the course showing "a significant orientation of mathematical studies toward areas of increasing industrial importance". New MSc courses deal with such subjects as diesel engine design, molecular science of materials and operational research. The council has also approved the first four-year course leading to an honours degree in education.

Although the council is usually associated with first degree courses, it is interesting that 109 students were enrolled for higher degrees in 1967-68—more than double the number in 1966-67. In the years ahead, this statistic will be closely watched by those anxious to see whether the twenty-six new polytechnics will really become free-living organizations.

INFORMATION

Finding Out about Metals

In spite of duplication of effort in the production of abstracting and indexing journals in metallurgy and related fields, many would-be users cannot easily get at the information contained in them. This is one of the implied conclusions of a detailed survey prepared for the Office for Scientific and Technical Information by the Aslib Research Department (*Metals Information in Britain*, Aslib; January 1969). The need for more centralization of information services was expressed at a meeting convened by OSTI in 1967, but at the time there was no basis for an assessment of the scope of a centralized service.

The authors of the survey, which this deficiency has inspired, Brian Vickery, Margaret Slater, Alexandra Presanis and Pamela Fisher, defined the metals field widely so as to include both producers and users of metals—not only iron and steel manufacture, for example, but metal used in the building industry as

well. To make the survey manageable, it was limited to individual members of seven British metallurgical institutes. The members (home and overseas) number some 38,000, but the total population surveyed was less because of overlapping membership. The response to the questionnaires sent out was poor and the authors of the survey had to be satisfied with 1,570 British respondents.

Nothing in the results of the survey will overturn common preconceptions. The most frequently sought information was in the categories described as metal constitution, properties, behaviour or specification and in metal production, method and process. Personal contacts were found to be of more than average importance in the categories described as metal use or application, commercial availability, metal production economics and equipment—possibly an indication of the lack of accessible documentary sources in these categories. Among the users' comments which received considerable support were that it would be good to have one central information source in Britain, that there is a lack of a good metals handbook, that the abstracting journals need combining or unifying, that the time lag in abstracting is too great and that there is a need for more information on standards. Abstracting journals most frequently mentioned by the British respondents were the *Journal of Iron and Steel Institute Abstracts*, *Metals Abstracts* (or its predecessors), and the *Nickel Bulletin*.

SCIENTIFIC INSTRUMENTS

Cataloguing the Hoards

AN illustrated guide to the British collections of scientific instruments is being prepared by Dr Mary Holbrook with a grant from the Leverhulme Trustees to the British National Committee for the History of Science, Technology and Medicine. Although books have been written on the makers of British scientific instruments, there is at present no handbook concerned with the instruments themselves. Subjects such as astronomy, navigation, time measurement, optics, alchemy, photography and so on will be considered, provided the instruments were made before 1800. It would be impossible because of size to include the collections of the large national science museums; for example, the collection of instruments made for the children of George III, which is now at the Science Museum in London, needs a catalogue to itself. Dr Holbrook intends to concentrate on the museums at universities, observatories, schools and in Government departments. Museums which belong to private companies and antiquarian societies and private collections will be included. The scope of the collections will be described and cross-indexing will permit the location of instruments by type and maker. The details of the individual pieces will not be given unless they are of special interest; the aim is to provide only the main characteristics of specific instruments, their makers and their present whereabouts.

Part of the challenge in compiling a handbook of this kind is the difficulty of tracking down the private collections. Obviously much persuasive and persistent letter writing will be required if the contents of all the collections are to be revealed. How many private collections exist and where exactly they are to be

found it is impossible to say. According to Sotheby's, the auctioneers, attendance at their instrument sales has doubled in the past few years; the items sold include microscopes and clocks ranging from those of the fifteenth century to Victorian precision instruments. The number of collectors is obviously growing and many interesting pieces may therefore be going into potential obscurity. The task of preparing a catalogue is not easy. Dr Holbrook, who is curator of the Holbourne of Menstrie Museum in Bath and who has previously catalogued a collection of instruments in Frankfurt–Mainz, expects that it will take three years to collect information and illustrations for what promises to be a list of 3,000–4,000 scientific and historic instruments.

SEISMOLOGY

New Zealand Rumble

THE earthquake which hit Inangahua, in the South Island of New Zealand, on May 24, 1968, was the most closely studied of New Zealand's major earthquakes. In a preliminary report now published, the Department of Scientific and Industrial Research outlines the principal seismological, geological and engineering features. The earthquake, of magnitude 7 (one of these occurs on average every 8 years in New Zealand), was felt over most of the country and caused landslides and serious damage to houses, bridges and railway lines within a 10 kilometre radius of Inangahua.



From the recordings of the times of arrival of the seismic waves, at sixty stations in New Zealand and overseas, the exact origin of the earthquake was located to within 8 kilometres—the greatest precision achieved for any similar New Zealand earthquake. Numerous aftershocks were reported over an area about 40 by 25 kilometres, and the sequence and location of these helped to define how the shock travelled along local geological faults. Observations of ground deformation and landslides caused by the earthquake also give useful information about the geology of the area.

Property damage in the region around Inangahua was extensive, although the report notes proudly that the recently designed wood-frame buildings with continuous foundations externally and light reinforced chimneys suffered no structural damage. Some particular features of the damage, such as the small church in the area which was moved 30 centimetres to the west without displacement of the piles on which it originally rested, are not merely curiosities but geologically valuable pieces of information as well.

Parliament in Britain

by our Parliamentary Correspondent

Dungeness B

MR REGINALD FREESON, for the Ministry of Power, answered questions about Dungeness B power station. The upper part of the pressure vessel liners which had been distorted during welding were being replaced, and the first reactor would be delayed by about 18 months, the second by a year. The faults carried no implications for the AGR programme as a whole, he said, and the problem of who was to pay for the delay would in due course be sorted out by the CEGB and the companies concerned. (Oral answers, February 11.)

Concorde

MR J. P. W. MALLALIEU produced an explanation of why the Ferranti/Sagem navigation system developed for the Concorde is to be replaced in the pre-production and production aircraft by American equipment. The American equipment was lighter and smaller, he said, and had the advantage of meeting the specifications of Aeronautical Radio Incorporated, a United States association of airlines and equipment manufacturers in which BOAC and BEA participate. BAC and Sud Aviation had decided that the Ferranti–Sagem system was unlikely to prove attractive to customer airlines, and had recommended the fitting of the American systems. (Written answer, February 12.)

Animals in Research

MR MERLYN REES, for the Home Office, said that 4,755,680 experiments had been performed in 1967 under the Cruelty to Animals Act of 1876. Ten inspectors were responsible for seeing that the regulations were obeyed. In 1958, he said, there had been 3,245,990 such experiments, and five inspectors. (Written answers, February 13.)

Defence Establishments

MR JOHN MORRIS gave a complete list of British Defence Research Establishments, together with their dates of foundation. There are twenty-nine such establishments under the direct control of the Ministry of Defence—which does not include establishments like RRE at Malvern or RAE at Farnborough, which come under the Ministry of Technology. The total staff is 16,128, of whom 3,121 are scientists or engineers, and in 1968–69 the total cost of the establishments was £33.8 million. (Written answer, February 11.)

Government Computers

THE Government computers do not seem to be being used at peak efficiency. Mrs Judith Hart confirmed that three ICL 1905 E computers belonging to the Metropolitan Police, the Ministry of Defence and the Building Research Station were used for 50, 40 and 48 hours respectively each week. Target operating hours of 100, 80 and 80 hours had been set, to be met by November and December 1969 and March 1970. Mr David Howell pointed out that many commercial firms operated their computers on three shift working; was the minister's aim, which amounted to double shift working, not a grave waste of the computers? Mrs Hart said that the hours would be extended as it became possible, and as demand increased. (Oral answer, February 10.)