

which the United States levies on imported plastics, international differences in standards and patent systems, lower capital costs and larger differences between raw material prices and selling prices in the United States, and the familiar bogey of Europe's inferior management. Not all these problems have quick solutions, but European companies can draw at least some cheer from the rumours that the profit rates of American plastics firms are falling.

The report makes some recommendations for strengthening European research and development. One of these is the creation of larger university departments of chemistry, chemical engineering and physics on the American pattern. The report also recognizes the need for closer links between academic and industrial research, and for government support for long-term programmes.

#### ENGINEERING

### Pressure Vessels Research

THE second volume of the *Report of the Committee of Enquiry on Pressure Vessels* (HMSO, 35s) contains the evidence behind the recommendations which were published earlier this year (*Nature*, 221, 403; 1969). The committee was set up in 1966 when demand for pressure vessels was high but was not being met by British industry. The committee was charged with recommending ways of improving pressure vessel technology, including standards, design and manufacture, and its brief covered structures such as heat exchangers and boilers but excluded the special case of nuclear reactor vessels. After 1966, however, demand fell and the British pressure vessel industry was better able to cope, but nevertheless the committee believes that urgent action is necessary if the industry is to maintain its position. The committee's most important recommendation, which the Ministry of Technology is asking the manufacturers to consider, is the setting up of a Pressure Vessel Authority to coordinate research and development and to keep an eye on standards and inspection methods. The second volume of the report provides the documentary evidence backing the conclusions published in January. It contains comparisons between British and foreign pressure vessel industries, surveys of the raw materials which are used, and details of the crucial inspection procedures.

Part of the volume is a summary of research and development, and the committee says the sum spent is satisfactory but adds that this does not imply approval of the way the money is used. For one thing, the committee criticizes the duplication of research effort which seems to be going on, and wants a collaborative research organization as part of the proposed Pressure Vessel Authority. According to the research and development summary (drawn up by the Reactor Materials Laboratory of the UKAEA and based on a questionnaire completed by 268 organizations), much of the research effort is concerned with work on current contracts rather than future developments. The impression is that research and development in the industry is a haphazard affair. Very few organizations know whether they are getting their money's worth from their research expenditure, which for the industry as a whole averaged £3.5 million a year between 1962 and 1966. The collaborative research organization

which is proposed, and which would carry out large scale work beyond the capabilities of individual organizations, would be along the lines of the Pressure Vessel Research Committee in the United States, financed by government and industry. But the report's conclusion that hardly any firms are using the publications of the American Research Committee, and indeed that its very existence is unknown to many, does not promise well for the future of a British analogue. The solution could be to finance the British counterpart from the pressure vessel industry alone. In the words of a steelmaker quoted by the report, "the pressure vessel industry will take greatest cognizance of results for which it has had to pay".

#### LINNEAN SOCIETY

### Nearing the Target

THE Linnean Society seems to have met with a warm response to the appeal for funds to rehouse securely its valuable collections and modernize its rooms in Burlington House. A total of £27,000 has been received or promised, and when the promise of a generous anonymous donation has been fulfilled the society will be near to its target of £55,000. The anonymous gift was promised on the understanding that the balance would be raised by the society's own efforts. This has now been achieved, and the gift can be claimed. It is hoped that the name of the anonymous benefactor will be revealed at the anniversary meeting of the society on May 24.

Apart from more than £8,000 from fellows, foreign members, honorary fellows and associates, the rest of the money has come largely from other scientific organizations, industry and commerce. The Royal Society has given nearly £5,000 specifically for the care of the Linnean collection of plant and animal specimens; a trust which is anonymous at the moment has given £2,500 and the International Union of Biological Sciences is expected to give a similar sum. British Petroleum Ltd has given £1,000 and the world of commerce has contributed at least £1,500. There have also been donations from several overseas organizations including Sweden, the home of Linnæus. There are hopes now that with continued efforts the final sum collected could exceed £55,000, so that much of what needs to be done to improve the cramped library and to make the Burlington House rooms a suitable meeting place for biological societies in general might well be possible.

#### TECHNICIANS

### No Mood to Negotiate

WITH wage awards that conform to the British Government's Prices and Incomes Policy increasingly the exception rather than the rule, the Association of Scientific, Technical and Managerial Staffs, which represents university technicians, is to strike in support of the technicians' latest pay claim. The union, which claims to have 8,000 of the 10,000-12,000 university technicians among its 100,000 members, has announced a one-day strike on April 29. The technicians, who received a 4.4 per cent wage rise in February 1968, are now asking for an interim award of £2 a week and have

rejected an offer of £15 to £50 a year according to grade—a rise of roughly 3.5 per cent which is just inside the Prices and Incomes Policy ceiling.

The union seems in no mood to continue negotiations with the universities. It argues that since 1966 its members have received only 4.4 per cent more pay and an offer of a further 3.5 per cent to last until April 1970. During that period the union says the average wage index has risen by 15.5 per cent, and people doing comparable work outside the universities have received rises of up to 14 per cent. In addition, the joint universities and union working party, which has been trying to hammer out new pay scales for all grades of technicians and minimum qualifications for the various grades, has made little headway after a year.

To further its claim, the union is to lobby MPs on April 21 and, after the national one-day strike, will hold a series of longer strikes at selected universities. As a start it has announced that 450 technicians at Imperial College, London, will strike on May 6–8, immediately before the college's open day. The college coyly says that the open day is not part of its recently launched appeal for £2 million, but just to keep the college in the public eye—which is a wise thing to do when trying to collect £2 million. Imperial College says it regrets the timing of the strike but has no intention of postponing the open day. Staff and graduate students in each department will have to do the best they can without their technicians.

That may be more than members of the Association of University Teachers feel able to do. The AUT, already bitter after its pay award and the lecture from the Prices and Incomes Board on the false criterion of wage comparability, cannot have been made happier by seeing the doctors, the Ford car workers and BOAC pilots all use the principle of comparability in successful pay claims. The association has sent a letter to its members advising them to do nothing that could be construed as breaking the technicians' strike. Whether the urge to teach or research will prove stronger than union solidarity remains to be seen, but it is significant that the technicians' union is one of the three unions with which the AUT has been holding exploratory talks to see if there is any benefit to be gained from cooperation or even merger. If AUT members appear as strike breakers, they will not make themselves popular with Mr Clive Jenkins's empire.

#### SRC REPORT

## Enzyme Chemistry

Now that enzymes have established themselves in the washtub—to the surprise of many enzyme chemists—it is clearly time to look more deeply into the commercial possibilities of these natural catalysts. This is just what is done in a new Science Research Council report, *Enzyme Chemistry and Technology*, compiled by a distinguished panel of specialists within the enzyme field.

The report is a model of its kind. It conveys in a vivid way the conviction that both our understanding of enzymes and our ability to make use of them in industry and medicine are due for a phase of dramatic growth. The near future may even see development beyond this, for in the words of the report: "The

study of the structure of enzymes and of the mechanism of enzyme action is also leading to a greater understanding of the basis of catalysis itself. In some ways enzymes provide ideal model systems for the study of the molecular details of catalytic reactions, and the rational design of specific catalysts is not nearly as remote as it appeared only a decade ago. A new era in pure and applied chemistry will be at hand when man can control specific catalysis."

Despite this promise, Britain is beginning to lag behind the USA, Japan and Sweden in enzyme technology, and to some extent in academic enzyme research also. The report recommends that SRC support for the field should grow from its present level of £200,000 per annum to between £400,000 and £500,000 per annum. The SRC has announced its acceptance of the proposal. It is willing to award up to £300,000 in research grants in 1969–70, if applications of sufficient promise are received. A new committee—the Enzyme Chemistry and Technology Committee—will assess grant applications and allocate research studentships. Professors Sir Ewart Jones, G. W. Kenner, H. L. Kornberg and D. C. Phillips have already agreed to serve on this committee.

More specific recommendations are that a 220 MHz nuclear magnetic resonance machine should be available somewhere in Britain chiefly for enzyme work, that facilities for isolation of enzymes on the gram scale should be extended and that the industrial potential of enzymes as catalysts should be explored vigorously. The report is not happy with the idea of a central enzyme research institute, and with good reason. The essence of growth in a field of this sort is flexibility, which is more likely to be achieved in changing patterns of collaboration between groups which already exist than in a new hierarchic institute. The committee expects the number of staff concerned with enzymes to double in the next two or three years, but this presents no problem of supply. Most of the personnel will probably be seconded from other less expanding fields.

The report does not neglect the medical promise of enzymes. They are already the mainstay of the clinical biochemistry laboratory, both as analytical reagents and as parameters in diagnosis. But their main potential is a future rational chemotherapy. It is hoped that detailed knowledge of the active site chemistry of enzymes will make possible the design of enzyme-specific inhibitors, tailor-made for any desired medical purpose.

#### SRC REPORT

## More Money for Polymers

POLYMER science is soon to get a much needed boost. The Science Research Council Polymer Panel, in its report published last week, recommends increased grants for research and training and the formation of the new Polymer Committee. For more than a year now the SRC University Science and Technology Board has been selecting important areas of science and technology which it considers deserve special support. The polymer report is the third to be published; the first was on organometallics (*Nature*, 221, 616; 1969) and the second on enzymes (see this page).

It is ironic that the practical importance of polymer