

OLD WORLD

CHEMISTRY

Poor School Image

A CRITICAL examination of the state of chemistry teaching in schools, and of career prospects in chemistry and allied subjects, took place at a conference sponsored jointly by the Royal Institute of Chemistry and the Institution of Chemical Engineers at Imperial College, London, this week.

The scope of the conference, entitled "Chemistry for the 70s", complemented and slightly overlapped the terms of reference of the Eaborn committee which was set up to study the relationship between university chemistry courses and the needs of industry (Royal Institute of Chemistry, £2). The Eaborn committee report highlighted the poor quality of the applicants for university chemistry courses, and told a story of poor job prospects for qualified chemists. But it failed to come properly to grips with the problems involved (*Nature*, 228, 1242; 1970).

The morning session was chaired by the President of the Royal Institute of Chemistry, Professor Sir Ewart Jones, and was devoted entirely to the problems of teaching chemistry in schools. Lord Wynne-Jones, formerly professor of chemistry at the University of Newcastle, spoke of the need for the more enlightened teaching of chemistry as an integral part of a balanced education of all children, regardless of their future careers. If the idea of chemistry as a discipline could be put in its proper place and the hours of traditional laboratory work reduced and revitalized, the excitement of chemistry and its relevance to everyday life could be emphasized properly. Topics such as pollution, he said, should be talked about in their scientific context in schools, and interest in chemistry as a subject would follow naturally for many children.

During the remainder of the session four speakers, two of them schoolteachers, outlined the practical difficulties of teaching chemistry as part of a general liberal education in secondary schools, and suggested some of the possible solutions. The general picture, as in the other physical sciences, is one of a shortage of scientifically qualified teachers, but a shortage which is by no means as critical as in physics and mathematics. The trouble seems to be that only a small proportion of teachers have been much exposed to science during their own education or training, and the ability to inculcate the right sort of reasoning in children by asking the right questions is often conspicuously lacking. A clue to the possible reasons for the lack of college-trained chemistry teachers, for example, may lie in the figures given in the Eaborn report which suggest that

university chemistry departments are accepting applicants with the lowest grades of A-level pass, leaving the colleges high and dry. During the discussion which followed, a representative of the National Union of Teachers laid the blame for the whole situation squarely at the door of the tripartite system of higher education and called for the introduction of a comprehensive university system to incorporate universities, polytechnics and colleges of education.

Both Mr M. P. Berry, a grammar school teacher, and Dr M. A. Jensen, who teaches in a large comprehensive school, took pains to emphasize the need for good teaching of first to third year secondary schoolchildren by scientifically qualified teachers. A few years ago, as many as 40 per cent of these schoolchildren in their first year were taught by non-scientists, and the proportion remained as high as 20 per cent for third year children. They also bemoaned the lack of money made available by local education authorities which on average amounts to only about 0.55p per pupil per period for chemicals, small apparatus and textbooks. Unfortunately local education authorities were not directly represented at the conference, and indeed the only people putting forward the point of view of headmasters were Mr B. C. Harvey and Mr B. J. Moody of the Headmasters' Association.

A number of voices echoed the belief of the Eaborn committee that compulsory training for all teachers was "unfortunate", but they were quickly silenced by Mr M. G. Brown of the University of Sussex who very lucidly pointed out that the quickest way to demoralize any teacher was to require him to teach Nuffield-style chemistry to the lower streams of a comprehensive school without any pretraining.

During the afternoon session, a number of industrialists spelt out their solutions to the problem of the unemployment of graduate chemists, who seem to find it more difficult than other scientists to find suitable jobs. Most of the speakers pointed out that graduate chemists should not find any more difficulty in obtaining employment than arts graduates who usually have to branch out from their field of specialization as a matter of course. Although ICI, represented at the conference by Dr D. S. Davies, and smaller firms such as the Borden Chemical Company, are evidently in favour of chemists and chemical engineers spreading their wings early and entering industrial functions which are not primarily scientific in character, it seems that the majority of industrial concerns only pay lip service to this concept. Several of the speakers suggested that graduate chemists often underestimate their general abilities and this may also be a partial explanation for the alarming pool of jobless chemists at the present time.

At the end of the conference, Professor J. F. Richardson of University College, Swansea, summed up by saying that the nub of the problem seemed to be that children in the age group thirteen to fifteen only received poor background instruction in chemistry and that they could not make a properly considered decision about their field of specialization. He also reiterated the view of many of the participants that the popular image of a chemist was inaccurate and misleading and announced that the Royal Institute of Chemistry and the Institution of Chemical Engineers have produced a booklet—with the same title as that of the conference—which had been circulated to schools in an attempt to set the record straight. The conference agreed to set up a working party, consisting of teachers and their organizations, local education authorities and youth employment advisers, to make recommendations for the improvement of the general status of chemistry and its teaching in schools.

ENGINEERING

NEL wants Sponsors

THE National Engineering Laboratory has had an eventful year. Its future has been in the balance since January last year, when the Green Paper on Government Research, published by Mr Anthony Wedgwood Benn, saw the establishment as part of the proposed British Research and Development Corporation. With the reorganization of government departments which was instituted soon after the Conservative government took office, responsibility for the NEL was transferred from the defunct Ministry of Technology to the Department of Trade and Industry, and in April 1970, Mr R. H. Weir was appointed director of the establishment to fill the post left vacant by the departure of the previous director in October 1969.

But the second progress report of the National Engineering Laboratory—a free, glossy handout extolling the services which the NEL has on offer to industry—records few of the actual and possible upheavals in the laboratory during the period from April 1968 to March 1970. In fact, the report is remarkably similar to the previous progress report.

The NEL's chief problem is to make its services more widely known to industry, and to this end, the progress report records the activities of the laboratory which are likely to appeal to would-be sponsors. Computer aided design, research on the strength and design of components, fluid mechanics, heat exchangers and numerically controlled production all play leading parts in the report.

How successful has the laboratory been during the past years in attracting industrialists to use its facilities? In the