Eastern Europe

Higher education in Bulgaria

PLANNED changes in Bulgaria's higher education system are designed to provide an annual crop of graduates whose training has been specially tailored to that year's economic needs. Final details of the plan have yet to be worked out, but it appears that at least some of those involved in the new scheme view it with misgivings.

According to Professor Angel Pisarev, Deputy Chairman of the State Committee for Higher Education, the need for the reform has its roots in the pre-war structure of Bulgarian education. At that time the country had no higher technical education whatsoever, and budding engineers had to go to Germany, France or Hungary for their training. Immediately after the war, it was decided to build up a network of polytechnics, giving a degree-equivalent training in such subjects as machine construction, electrotechnics, chemical engineering (including food technology), building and architecture. In all, Bulgaria now has 10 such polytechnics, five of them in Sofia.

Meanwhile, the pure sciences remained the province of the universities, (although a major change in 1972 "integrated" the University of Sofia and the Bulgarian Academy of Sciences, in a scheme by which the Academy took over part of the training of doctoral students, both bodies remaining autonomous).

Measures for implementing the new scheme were approved last year, and an interim system was introduced this academic year to alter the content of lectures and "give more knowledge in the fundamental subjects and a greater practical knowledge at the end", plus an extra 4-5 months of practical education after the academic course but before graduation. The new scheme, to be introduced in 1981, is more radical.

First, the university or polytechnic course, only recently extended from four to five (officially 4½) years, in line with Soviet practice, will be extended to 5½ years. In the first two years, students will receive "fundamental preparation" in fairly generalized courses (physico-mathematical, chemical-biological, electrotechnical, etc.). At the end of that time, they will split up into "general specializations", on the basis of a document drawn up in consultation with factories, agroindustrial complexes and the like. The ministries concerned, having once ordered a certain number of students, will have to find them a job at the end of their course. There will be no detailed assignment at this stage, since 15-20% of students fail to graduate.

Job assignment will come at the end of the fourth year. Prospective jobs will be posted on notice boards and research posts will be advertised at the same time. During the final year and a half, the student will receive his education partly at the university and partly at his future place of employment. (In the case of a future science teacher, he will do his pedagogics course at this stage.) Finally, after 5½ years the student will graduate and proceed to his appointed job.

According to advocates of the scheme, not only will the new method relieve the student of worries about future employment during their final years; it will also allow the unification of higher education throughout the country. In some years, Pisarev admitted, certain specialisations may be completely closed if no further specialists in those fields are deemed necessary.

Industry, said Pisarev, neither wants to nor can come to terms with the new system — a reaction which may not be unconnected with the fact that industry will have to bear some of the cost of laboratory work in universities and technical training. Bulgaria already has a contract research system involving some students. Now such research will be an obligatory part of the 'basic educational process'. **Vera Rich**

Interferon

Weizmann's interferon entries

THE latest entries for the great interferon race come from an international bevy of owners, headed by the Weizmann Institute in Israel. Not wishing to go nap on a single entry, the Weizmann has simultaneously backed three separate candidates in the hope that at least one will give them a share of the pay-off. Of the three, two involve cell culture techniques and the other embraces genetic engineering.

The genetic engineering project is under the scientific aegis of Professor Michael Revel of the Weizmann Institute and Professor Pierre Tiollais of the Pasteur Institute whose laboratories have considerable experience in interferon and recombinant DNA, respectively. Already their collaboration has resulted in *Escherichia coli* which are producing trace amounts of interferon, an achievement similar to that of molecular biologists in Zurich backed by Biogen (see *Nature*, 24 January 1980, p319) and, before them, Japanese scientists led by Professor Taniguchi at The Yeda Research and Development Company, which handles industrial processes arising out of the Weizmann's research, together with the Pasteur filed an Israeli patent application for the cloning of the human interferon gene in November 1979.

Yeda is now collaborating with the Cetus Corporation in Berkeley, California in an attempt to improve the bacterial yields of interferon and to scale up the process.

Yeda is also involved in separate attempts to produce fibroblast and lymphoblastoid interferon by cell culture techniques. Professor Revel's team can already do that on a laboratory scale. To scale up production of lymphoblastoid interferon, an arrangement has been made to use the facilities of the Merieux Foundation in Lyons, France. For fibroblast interferon, Yeda and the Swiss Ares Company are building a plant in Israel.

For those who wish to wager a bet, it seems that the Weizmann's recombinant DNA entry is up with the leaders whereas the cell culture candidates are some way behind competitors such as Searle and Wellcome Research Laboratories. There are, however, many dark horses and undeclared entries to contend with. □

United Kingdom

Science budget steady

A FOUR-year period of relative stability for overall science funding is promised by the UK Government in its White Paper on Expenditure Plans until 1983-84. But in the division of the 1980-81 science budget the Science Research Council have, on paper at least, received only 52.5% compared with 55% a year ago.

The money available in the 1980-81 science budget will be £383m. It is planned that the budget will be the same in real terms next year and 1% higher in 1982-3 and 1983-4. In announcing this, the White Paper says "The Government attach importance to the support of basic science, in which the United Kingdom excels, as an investment in the country's industrial and intellectual future." Whether or not that sentiment tallies with a four-year static science budget has to be judged in the context of a 9% reduction in expenditure on education planned over the same time.

Of the £383m science budget for 1980-81, the Agricultural Research Council will get £35m, the Medical Research Council £71.8, the Natural Environment Research Council £45m, and the Science Research Council £201.1m with the rest being divided among the Social Science Research Council, the British Museum, Natural History and the Royal Society. Compared to its share of the total a year ago, the Science Research Council appears to have lost out to the Medical Research Council (+1.5%) and the Natural Environment Research Council (+ 0.7%).

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