

## NEWS AND VIEWS

### Too Few Scientists

THE idea that excessive specialization in English schools discourages potential scientists was given an airing at the Royal Society on June 1, when Professor M. M. Swann organized a meeting to discuss the shortage of qualified manpower in Britain. The intensive nature of English education was challenged on two fronts; first it was said that it does not provide enough scientists, and secondly that the ones it does provide are not the sort that are needed. It may have come as some consolation to those present to discover that Britain is not alone in its plight.

There undoubtedly is a problem. Lord Bowden described the situation as fundamentally unstable. "As soon as industry finds a need for people with particular qualifications, the schools stop getting them as teachers, and the source dries up", he said. The defection of mathematicians to computer firms was an example of this. Dr F. S. Dainton and Professor Louis Rosenhead spoke of the swing away from science in British schools, and linked it with the difficulty of getting good science teachers. Another reason may be a sense of disenchantment with science and technology among sixth formers, although this is so ill-defined that many scientists are unwilling to accept it. Distasteful an explanation as it is, several of the participants at the meeting admitted that they had begun to believe in it, as the trend away from science seems increasingly to be a worldwide problem. The American Institute of Physics has expressed anxiety, and at the meeting Dr K. Tüchel of VDI-Hauptgruppe in Düsseldorf and Professor P. Chabbal from France both confirmed that their countries share the problem. Last year for the first time the number of science students in France fell, Professor Chabbal reported. The problem is not exclusively British and explanations narrowly based on the English education structure will not do.

This is not to say that all is well with British science teaching. The schools, participants agreed, are at the heart of the problem, and most felt that more generalized courses should be introduced to replace the rigid specialization in England and Wales. (Scotland has always had a more general structure.) Dr D. S. Davies from ICI, in a paper read by Professor Swann, argued for more widely based qualifications (see page 1079) and suggested that British education was suited to a static traditional economy rather than a fast moving technologically based one. Extensive retraining would be needed.

Teacher supply is another problem common to Britain and Germany. In France, Professor Chabbal said, the situation had been tackled by enlisting large numbers of women—90 per cent of lycée teachers are women—and by offering premium rates of grant to students in return for a pledge to teach for 7 years after graduation. In Germany, on the other hand, Dr Tüchel said that there would be a 28 per cent

shortage of science teachers by 1971, unless remedial measures were successful.

Lord Jackson spoke of another aspect of the problem. His anxiety is that Britain is training far too few technicians; if the supply of technicians is not maintained, he said, the need for qualified scientists and engineers might well be overestimated. The brain drain, too, can affect the situation, and Professor Ball spoke of this. In this atmosphere of gloomy head counting, the idea of science as an education rather than an economic investment tended to get lost, except by Professor H. Bondi. He said that Britain should aim for overproduction of scientists and engineers. If not, he said, "It's like estimating the need for clerks, and restricting the teaching of reading and writing". How could production be increased? As a theoretician, he suggested reducing the time students spend in the laboratories, in expensive and wasteful experimental work. No hats were thrown in the air at this suggestion.

### No Telescope for Europe?

RADIO-ASTRONOMERS in Britain have almost given up hope that an optical telescope will be built to cater for their needs. The idea, which has had the support of both Sir Bernard Lovell and Sir Martin Ryle, was to build an 80 to 100 inch telescope on a site in Europe where viewing was good. The instrument would have been similar in size and possibly in design to the Isaac Newton telescope which is being built at the Royal Greenwich Observatory, Herstmonceux. When it is finished next year the 98 inch Isaac Newton telescope will be the largest of its kind in Europe, but there will remain a need for an optical telescope for use by radio-astronomers. The most obvious use for this would be to relate radio-sources to visible objects in the sky.

Sir Bernard Lovell gives two reasons for pessimism. First, he considers that the decision finally to go ahead with the Southern Hemisphere Observatory at Siding Spring Mountain in Australia has taken the steam out of the drive to build a large telescope in Europe. This is being supported jointly by the British and Australian governments, and will mop up most of the money available to the Science Research Council for capital expenditure on astronomy in the next few years. The other reason is that both Jodrell Bank and the University of Cambridge want new radio-telescopes within the next five years, and these are likely to take priority. If an optical observatory is built in Europe with a British share in the cost, it will not be before 1975, Sir Bernard thinks. The SRC confirmed that priority will now be given to the Southern Hemisphere Observatory. Whether other European countries will now retain an interest in the European idea remains to be seen.

### British Science Statistics

THE Ministry of Technology is much pleased with itself about the publication this week (*Statistics of Science and Technology*, HMSO, 15s.) of a statistical digest in which is gathered together a great deal of statistical information previously available only in several scattered sources. The ministry has collaborated with the Department of Education and Science in this joint venture, and a great deal of the information