

SCIENCE IN CIVIL LIFE IN BRITAIN

TWO recent debates in Parliament are of special interest for the further light thrown on the Government's intentions with regard to the Minister for Science. The first of these, in the House of Commons on December 7, was the outcome of a supplementary estimate not exceeding £4,080 for the Office of the Minister for Science for 1959-60, moved by Sir Edward Boyle, Financial Secretary to the Treasury. Sir Edward explained that this addition to the original Vote of £36,090 covered the remaining cost for the staff of the Atomic Energy Office and the Lord President's Office, and in particular the new provision for a chief information officer and supporting staff and provision of additional staff for the former Lord President's Office. He pointed out that Lord Hailsham's responsibility for the Atomic Energy Authority is in a sense a reversion to an earlier practice; but his responsibility for the four great executive research councils involves a considerable volume of Government expenditure; for the Department of Scientific and Industrial Research, the current expenditure, he said, is £13.25 million; for the Medical Research Council £3.5 million and for the Agricultural Research Council, just under £6 million. The Atomic Energy Authority accounts for £55 million current and £37 million of capital expenditure. The Minister for Science is also responsible for the Advisory Council on Scientific Policy and its Scientific Man-power Committee, the Overseas Research Council, and the Steering Group for Space Research; and Sir Edward Boyle emphasized the close relation of the Advisory Council for Scientific Policy both with the National Research Development Corporation and with defence science, and said that Lord Hailsham has already asked the Council to advise him on the balance of our national scientific effort. Within the four main research councils there are 97 research stations and establishments, and Lord Hailsham attaches great importance to links between these establishments and the universities and technical colleges, and will surely make these links and relations as fruitful as possible.

So far as defence research is concerned, the care of such activities, especially in the field of aircraft, guided weapons and electronics, are to be transferred from the former Minister of Supply to the new Minister of Aviation; but the responsibilities of the Minister for Science for space research will ensure very close contact with this work. Sir Edward also anticipated that the Minister would use the establishments of the research councils to reinforce the work of numerous Ministries and give them general guidance and advice in matters of scientific policy; but he suggested that the greatest challenge of all is to ensure that modern ideas and discoveries in science and technology are effectively and rapidly applied in British industry, and in this he thought development contracts may prove of service.

In the debate, some doubts were expressed as to the adequacy of the scientific staff in the Minister's office, and Mr. A. Greenwood, while welcoming the tribute paid to the Advisory Council on Scientific Policy, referred to the failure to implement the Council's recommendation regarding a national scientific reference library and suggested that the

Council might need a stronger secretariat and an intelligence unit of its own. He and almost every speaker in the debate was critical of the absence of a spokesman for the Minister in the House of Commons. Sir Arthur V. Harvey referred to the need for greater co-ordination, mentioning especially the Faery rotodyne and Jodrell Bank Experimental Station. Mr. A. Albu stressed the need for much more money for basic research and for carefully selecting the lines of development on which our resources should be concentrated. Mr. Robert Carr suggested that the Minister might look into the possibility of stimulating research in industry through research contracts, and was concerned as to the possibility of too great a split between defence science and civil science under Government control. He also stressed the need for an adequate supply of technicians and skilled workers, and hoped that before long one Minister, instead of the present six, would answer in the House of Commons for the Minister for Science. Both Mr. Facey-Jones and Mr. Chuter Ede referred to the importance of full publication, Mr. Ede pointing out that secrecy is the great enemy to the progress of science, and Mr. D. Price stressed the value of an understanding of science in the Civil Service.

The Minister of Education, Sir David Eccles, replying on the debate, was able to show good reason why he should reply for the Minister for Science, particularly in view of his responsibilities for the schools and technical colleges. He believes there is a good prospect of reaching our target of 20,000 scientists and technologists. Although we are still short of science teachers, the numbers in grammar and technical schools are improving, and in 1959-60, 865 graduates in science entered university departments of education compared with 639 two years ago. He thinks that the Minister for Science will collect and co-ordinate relevant views on the controversial issues of scientific man-power, and place his conclusions before the education departments, universities, other scientific bodies and industry, and that he would be in a better position than any other Minister or agency to form estimates of the scientific resources and needs of Great Britain. The appointment of a Minister for Science has inevitably created some awkward administrative problems, but with good will there is no reason why they should not be settled.

The second debate, on science in civil life, opened by Lord Taylor in the House of Lords on December 9, is of greater interest because it provoked a further account from Lord Hailsham himself of his conception of his post as Minister for Science. Lord Taylor, after pointing out that it was no new thing for a senior Minister to be in charge of the main civil scientific Departments, referred more particularly to medical science and expressed the opinion that the Medical Research Council is a model of Government intervention in the sciences. Nevertheless, he thought that too much paper work comes to the Council for final decisions, and that the Council sometimes fails to try out new ideas outside the conventional run of thinking; he also suggested that besides, as a broad principle, backing good men, it might more often suggest the problems to be tackled. In this connexion,

Lord Taylor named three specific projects and then referred to a third difficulty arising in relation to the universities, through the shortage of endowed readerships and research professorships, and the consequent loss of good research workers in the medical field to clinical medicine. Universities, he said, are also unwilling to recognize Government research units and organizations as approved places for study for higher degrees, and he mentioned specifically research hospitals or hospitals with a specialized research unit. Like several subsequent speakers, he urged the need for a great effort in the social sciences, and suggested the establishment of a research council for the social sciences.

Lord Hailsham welcomed Lord Taylor's suggestions as illustrating the immense range of opportunity, and, replying to a specific question about scientific attachés, said that a fifth scientific attaché would be appointed, this time in Moscow. Dealing with the question in its broadest aspects, he said that the relation between Government and science and technology in all its aspects is one of the great challenges to the present Parliament. He himself is anxious to be as accessible as possible to members of both Houses, and insisted that the creation of his post was an evolutionary rather than a revolutionary step, and that no one should be dogmatic about the direction in which this kind of organization would lead us. Of his Ministry, he observed that there are only 39 people concerned with the expenditure of some £112 million of public money, and the executive work is carried out by scientists with a relative freedom, though subject to Government direction of one kind or another.

Looking further at the nature of the challenge to which he referred, Lord Hailsham said that science is not something which can be disentangled and treated separately from life. The approach of a scientific society and the need to learn how to operate this society and understand what it means involves talking in terms of generations rather than parliaments. What we do and say about a scientific society must be set against the present background: perhaps twenty or thirty years of intensive education, training and effort have been required to produce the men upon whom ultimately this kind of progress in human knowledge will depend. Lord Hailsham pointed out that this small group of pioneers needs

the support of much more scientific literacy in the governing elements of the country and accordingly of our whole society, and he stressed the importance of the educational system developing such literacy. Science also has to be sustained by an immense army of skilled craftsmen and technicians, and while the Government must be responsible for the whole and for finding and strengthening the weak places, this must also be the joint responsibility of all concerned with the administration of any part of our society. Above all, scientific work must and can only be administered by scientists. Lord Hailsham also said that the distinction between the various defence and civil sciences is wholly artificial and arbitrary, and that scientists would see in a Minister for Science a real assurance that the civilian applications of science would not be overlooked because of the greater expenditure on defence projects. Science and scientists are not solely concerned with national things, and the values of the scientist are not purely material. Replying to Lord Morrison, Lord Hailsham firmly vindicated the creation of his office as Minister for Science; but he thought the proposal for a social science research council might be premature. He agreed with Lord Adrian as to the importance of an adequate supply of technicians in order to ensure efficient use of the services of scientists and technologists, though this presents some difficulty at the universities, and he also agreed as to the importance of sciences that do not fall into the normal classification. The Advisory Council on Scientific Policy has already been asked, in looking at the general balance of the scientific effort in Britain, to pay special attention to oceanography, seismology and astronomy and the relative stress to be placed on biology. He also firmly maintained the soundness of the decision to limit our effort in space research and emphasized the importance of international co-operation in this field. He agreed with Lord James of Rusholme as to the importance of science teaching, and that although accommodation is less important than the provision of teachers, it could become a limiting factor and therefore requires attention. Lord Hailsham hoped that during the coming session in Parliament there will be some debate on the size of universities and their contribution to our scientific effort, and that the present debate would be only the first of many on science in civil life.

SCIENCE AND FOREIGN POLICY IN THE UNITED STATES

IN the years since the Second World War, non-military scientific developments have played important parts on the international stage. With technology accelerating at an amazing rate, what effects will it have on foreign relations problems in the future? Can we look ahead and try to ascertain what science will produce, and then take advantage of the product in foreign policy planning? These were the questions posed by the Committee on Foreign Relations of the United States Senate (*Research for Industry*, 11, No. 6, Nov.-Dec., 1959). Stanford Research Institute scientists in all divisions provided assistance to Eugene Staley and Guy Benveniste in attempting to find some of the answers. The team indicated in its report that, while some future scientific developments may help solve foreign policy

problems, the net effect of technological progress in the next decade is likely to be to create or intensify such problems. Thus, the security and well-being of the United States calls for a re-appraisal of present effort with the view of directing more energy toward non-military foreign policy challenges. Foreign policy planning should include continual review of scientific advances and their significance for international relations.

A specific suggestion was to establish a research and development office in the Federal Government oriented to identifying problems in newly developing countries and then stimulating research on these problems. In addition, an international development year might be organized along the lines of the International Geophysical Year with the aim of assisting