

awards in biology are for graduates in physics, chemistry, mathematics or engineering to receive such training in biology as will enable them to undertake research and teaching in the biological sciences in the United Kingdom. The scholarships, which are for those with postgraduate (non-biological) research experience, are worth £500–600 a year, and the bursaries £350 a year; in each case, fees, a marriage allowance of £50 a year and a family allowance of £50 per child will be paid. Applications must be received by April 1. The awards for social sciences are similar to those for biology, except that applications must be received by May 1, and the holder may have a degree in any academic subject other than the social sciences, psychology or the social sciences; subjects suitable for study by holders are political science, social psychology, anthropology, social statistics and sociology generally (but not economics). Applications for all these awards, and further information, can be obtained from the Secretary, Nuffield Foundation, Nuffield Lodge, Regent's Park, London, N.W.1.

Industry and Nuclear Power in Britain

QUESTIONED in the House of Commons on February 15 as to the Government's policy regarding the utilization by private firms of technical information on the industrial applications of nuclear power, the Lord Privy Seal, Mr. R. A. Butler, stated that it is the policy of the Atomic Energy Authority to encourage access by private firms to such information in order that industry may participate more fully in these important new developments. Steps are being taken to ensure that firms are not enabled to obtain exclusive rights on the basis of information supplied by the Atomic Energy Authority. In reply to further questions, Mr. Butler said he would discuss with the Minister of Fuel and Power, Mr. Aubrey Jones, the question of letting the House have the maximum information which it is in the public interest to disclose on this new phase in the relationship between the State and private industry on Mr. Aubrey Jones's early return to Britain.

Electronic Computers in Molecular Quantum Mechanics

THE importance attached to the use of modern electronic computers in molecular quantum mechanics has been stressed in an International Conference held in Texas during December last. A resolution was passed unanimously, directing attention to the impressive results already obtained by high-speed computers in the calculation of molecular and crystal properties, and claiming that these properties are of extreme importance in chemistry, physics and biology. The resolution goes on to note that "progress of this work is greatly hampered by the fact that, due to their great cost, high-speed computers are unavailable to most scientists in this field"; and therefore it "recommends that governments, industries, foundations and private philanthropists give special attention to the problem of providing more high-speed computing facilities for use in molecular problems". Copies of the complete document are being sent to government and other scientific agencies in Britain, the United States and elsewhere.

This matter is highly important so far as Britain is concerned. It is believed that the University Grants Committee contemplates the provision of a limited number of these computers during the next quinquennium. But it would be a great pity if the number

is unrealistically small. For, as Prof. D. R. Hartree and others have pointed out, electronic computers have entirely changed the kind of problem (such as the structure of vitamin B₁₂ or a single protein molecule) which can be attacked successfully. As things are now, certain calculations have to be sent from Britain to the United States, since they cannot be dealt with adequately in British universities. One American firm alone expects to have nearly two thousand large computers in use at the end of another eighteen months or so. It is imperative that universities in Britain—and other institutions—should have calculating facilities which such machines alone can provide.

Artificial Rain-making in India

A SYMPOSIUM on artificial rain was held in India in February 1953 under the joint auspices of the Atmospheric Research Committee, Council of Scientific and Industrial Research, and the India Meteorological Department, the purpose of the symposium being to review the present status of rain-making operations, to discuss recent progress and to make recommendations for extending research in India on cloud physics. The proceedings have now been published (pp. 148. New Delhi: C.S.I.R., 1955). Of the twelve papers, six are concerned with the formation and physical characteristics of clouds in different parts of India. It appears that the release of showers by the coalescence of water drops in non-freezing clouds is a common occurrence, and there was some discussion on the possibilities of artificially stimulating this mechanism by spraying the clouds with water droplets. It was concluded that, in India, the possibilities of producing economically significant quantities of rain by artificial seeding techniques are rather limited, largely because of the low frequency of cloudy days without rain in dry areas. In a long paper, Banerji and Mukherji describe their laboratory studies on nucleation and condensation, and also some cloud-seeding experiments which they have carried out near Calcutta. Hydrogen-filled balloons were used for releasing either dry ice, a spray of cold water or a charge of gunpowder impregnated with silver iodide at a predetermined altitude. Unfortunately, the physical reasoning used by these authors is not always sound, and their field experiments, although showing commendable enterprise, were not well conceived. Their observational techniques were also inadequate for a proper assessment of the results. A number of workers gave sober appraisals of the present status of rain-making trials in other countries and very properly stressed the need for more fundamental research in cloud physics and the training of more scientists in this field. The principal outcome of the meeting was a recommendation to the effect that a cloud physics research unit be set up to undertake fundamental research, and a rain research unit be established having aircraft and radar facilities for planning and conducting field experiments. These proposals show not only enthusiasm but also an appreciation of the importance and magnitude of the problem. India has set an example which other countries, with far greater scientific resources, might do well to follow.

Medical Research and its Benefit to Humanity

IN his Stephen Paget Memorial Lecture, "Humanity's Rising Debt to Medical Research", given before the Research Defence Society on November 16, Sir Henry Dale referred to the convincing evidence of