

made of the important body of work which he carried out, mainly in conjunction with Ramsauer, on the ionization produced by ultra-violet light, which is not known as widely as it might be.

Lenard was personally a difficult man, whose character contained many contradictions. An intimate friend of mine who knew him well once wrote to me: "Was Lenard betrifft, so ist er so klug und so dumm wie immer". He was profoundly disappointed not to have discovered the Röntgen rays, which he had almost under his hand and would have in all probability found within a year or so of the actual date if Röntgen had not anticipated him. He never used Röntgen's name in referring to the rays. He took as a personal affront any inadequate acknowledgment of his work and was incapable of any generosity or even justice towards anyone who, in his opinion, had failed to appreciate any part of his services to science. Although he owed much of his success to Jews, for example, Hertz and Königsberger, and at one time freely acknowledged the debt, he became a bitter anti-Semite and even treated Einstein as not far from an impostor. He refused to fly the Institute flag at half-mast when Rathenau was murdered and was with difficulty saved from popular indignation. He became a whole-hearted supporter of the Nazi regime and of the 'German physics' movement: in fact, he wrote a book called "Deutsche Physik". Yet he had a kindly side to his nature and was often a pathetic rather than a menacing figure. He possibly felt a deep personal need of friendship which he was unable to win or, if he could win it, to retain. His lack of trust in others, his failure to awaken the self-reliance or sympathy of those working under him were the cause that he did not found a great school of physics. It has been suggested, probably correctly, that the clue to his character was that he

was a weak personality that sought to protect itself by a hard shell.

As an experimental physicist, Lenard was certainly one of the greatest figures of his time. His work on the physics of the electron was distinguished by a masterly experimental technique and his discoveries had a profound influence on the course of physics, in particular his work on the release of electrons by electron impact and by light. Yet he seemed fated never to achieve supreme greatness. He missed the discovery of Röntgen rays; he came near to the discovery of the true structure of the atom, but just went astray, and his work on light emission was the first to indicate the important part which the release and return of the electron played, but left to Bohr the great advance. He was a whole-hearted enthusiast for experimental physics, whose appreciation of the great men of science of the past times was generous and informed, as can be seen from his book "Grosse Naturforscher" (translated into English under the title "Great Men of Science"). He was a dark genius clouded by strong personal fears, doubts and envies, but undoubtedly a genius and one who has left an abiding impression in physics.

E. N. DA C. ANDRADE

WE regret to announce the following deaths:

Dr. C. C. Hurst, of Cambridge, known for his pioneer work in genetics, on December 17, aged seventy-seven.

Sir Bernard Spilbury, honorary pathologist since 1934 to the Home Office, on December 17, aged seventy.

Mr. Benjamin Talbot, Bessemer medallist in 1908 and president in 1928 of the Iron and Steel Institute, on December 16, aged eighty-three.

NEWS and VIEWS

Committee on Industrial Productivity

IN answer to questions in the House of Commons on plans for further development of scientific research to assist industrial production, Mr. H. Morrison, Lord President of the Council, stated on December 18 that he is advised that, while a major contribution to industrial productivity cannot be expected in the short run from current research in the natural sciences, there are considerable possibilities of increased returns, first from the more widespread application of research already carried out in the natural sciences and technology, and, secondly, from current research in the social science field. He had, therefore, decided, in consultation with the Chancellor of the Exchequer, to supplement the work of the Advisory Council on Scientific Policy by setting up a new Committee on Industrial Productivity. The terms of reference of the Committee are: "To advise the Lord President of the Council and the Chancellor of the Exchequer on the form and scale of research effort in the natural and social sciences which will best assist an early increase in industrial productivity, and further to advise on the manner in which the results of such research can best be applied". The main work of the Committee, of which Sir Henry Tizard will be chairman, will be conducted through a number of panels constituted from time to time to investigate and report on various aspects of the problem. In

the first instance panels are being set up to deal with technology and operational research under the chairmanship of Sir William Stanier; import substitution, under Prof. S. Zuckerman; the human factors affecting industrial productivity, under the chairmanship of Sir George Schuster; and technical information services, under the chairmanship of Dr. Alexander King. The remaining members of the Committee will include one or more employers (chosen in consultation with the F.B.I. and the B.E.C.); one or more trades union members (chosen in consultation with the T.U.C.); Sir Edward Appleton; Sir Claude Gibb; Mr. Hugh Weeks; Mr. Robert Hall; Mr. E. M. Nicholson; Mr. G. B. Blaker; secretary, Mr. E. D. T. Jourdain.

'Flying Wing' Aircraft

INFORMATION has just been released that an aircraft of the 'flying wing' type has completed its trial flights at Bitteswell Aerodrome, near Rugby. It is known as the *A.W.52*, built by Messrs. Armstrong Whitworth to the designs of Mr. J. Lloyd, their chief designer. The aircraft embodies two fundamental principles that have developed out of the general progress of aerodynamic research. The abolition of the tail has long been an ideal to some schools of thought. It sets up considerable drag and does not contribute to the performance of the machine, but is necessary for

control purposes with the more conventional lay-out of the various aerodynamic surfaces. The Westland-Hill 'Pterodactyl' demonstrated the possibilities of tailless aircraft many years ago. The suppression of as much of the external body as practical requirements of accommodation allow is another obvious trend for the same reason.

Experimental work on high-speed flight has made it evident that swept-back wings are going to be inevitable at transonic and supersonic flight speeds. Again the vital factor appears to be that of control with the less conventional lay-out of the wing surfaces. The *A.W.52* follows a series of experiments carried out with gliders, and appears to be satisfactory in this respect. Further progress towards even higher speeds should be possible now that greater powers can be envisaged using the internal combustion turbine in conjunction with jet propulsion, and this or similar machines will undoubtedly be used in this way.

Falkland Islands Dependencies Survey

THE Falkland Islands Dependencies Survey has recently acquired a vessel to enable it to carry out its expanding field of work in the Antarctic. The ship, which was named *John Biscoe* by Mrs. Creech Jones, wife of the Secretary of State for the Colonies, on December 16, has a double-skin wooden hull and a displacement of 1,015 tons; she is driven by Diesel-electric power. She carries a crew of twenty-five, and is to take a relief party in the summer to replace about half the party at present occupying the seven observation stations maintained by the Survey in the Antarctic. The new party will carry out geological, meteorological and zoological investigations, and is under the leadership of Dr. V. E. Fuchs, a geologist who has had experience of exploration in East Greenland and in East Africa. The *John Biscoe* has been named in memory of the discoverer of the southern part of Graham Land. The Falkland Islands Dependencies Survey (see *Nature*, March 22, p. 388) was set up under the control of the Colonial Office after the War to take over from the Admiralty the meteorological stations established in the Antarctic in 1943.

Royal Society: Research Appointments

THE Royal Society has appointed Dr. K. Bailey, of the Biochemical Laboratory, Cambridge, to an Alan Johnston, Lawrence and Moseley Research Fellowship for research on the problems of human and animal health and diseases and the biological field related thereto. Dr. Bailey will work at the Biochemical Laboratory in Cambridge on the proteins of muscle fibril. The Royal Society has also appointed Dr. G. S. Dawes, of Worcester College, Oxford, to a Foulerton Research Fellowship in Medicine. Dr. Dawes will work at the Department of Pharmacology, Oxford, on the left ventricle reflex.

Edward Rigby (1747-1821)

EDWARD RIGBY, who was born at Chowbent in Lancashire two hundred years ago on December 27, was a versatile man, distinguished alike in obstetrics, agriculture and civic administration. In medical literature his "Essay on the Uterine Hæmorrhage" (1775) is regarded as a classic, for it clearly differentiated between premature separation of the normal placenta (accidental hæmorrhage) and placenta prævia (unavoidable hæmorrhage). It was translated

into French and German, and up to the hour of his last illness the author was employed in the preparation of a sixth edition. A scientific agriculturist, Rigby experimented on his own farm at Framingham Earl, near Norwich, and the reputation of his writings on that subject led to his election as honorary member of the Philadelphia Society. In 1805 he became mayor of Norwich, and he is said to have "supported the chair with dignity and hospitality". He established in 1786 the Norfolk Benevolent Medical Society for the relief of the widows and orphans of medical men, introduced the flying shuttle to the manufacturers in Norwich, and in 1812 started vaccination in the city. Simple, placid and benevolent, Rigby was a delightful companion and a good conversationalist. He died on October 27, 1821, in his seventy-fourth year. His "Letters from France" constitute an animated and fascinating record of the stirring days at the outbreak of the French Revolution, besides forming a useful survey of the country's agriculture at the time. Rigby's son Edward (1804-60) was a well-known London obstetrician.

New Nuclear Reactions

"NUCLEAR Transformations in the new High Energy Ranges" is the title of an address delivered by Prof. Glenn T. Seaborg, of the University of California, at a meeting of the American Chemical Society in New York on September 15 (see *Chemical and Engineering News*, 25, 2819; 1947). The great progress made recently in constructing new powerful machines for the acceleration of charged particles affords the possibility of bombarding targets with electrons of 100 MeV., and with deuterons and helium ions of 200 and 400 MeV. respectively. Entirely new nuclear reactions have been observed; for example, $^{75}_{33}\text{As}$, bombarded with 400 MeV. helium ions, produces among other atomic species the well-known $^{36}_{17}\text{Cl}$. This means that the arsenic atom has lost no less than 16 protons and 21 neutrons, not counting the two protons and two neutrons shot into it at the start of the reaction. To distinguish such transmutations from the ordinary nuclear reactions in which only one or two particles are ejected, and from fission reactions in which the nucleus is broken into two fragments, the term 'splintering reaction' is proposed. Further, under such strong bombardment fission can be enforced in such elements as bismuth, lead and thallium, and even in an element so low in the periodic table as tantalum; but as the secondary particles emitted have a much smaller energy, there is no possibility of inducing a chain reaction such as in uranium. Many radioactive isotopes so far unknown have been found as a result of these new nuclear reactions, which have still further widened the field radiochemists are called upon to explore; the splintering often leads to neutron-deficient isotopes and increases therefore in a welcome manner the comparatively small number of positron emitters among the artificial radio-elements. Some of them may find application as tracers. Still more important may be the physical aspects of this extension of the energy range; the creation from energy of mesotrons and, if the region of billions of electron-volts can be reached, also of neutrons and protons, seems now a possibility.

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