

across a fault which cuts the Pre-Cambrian basement of the Derby-Loughborough district and possibly has a north-westerly strike. Since present non-instrumental evidence suggests that the epicentre lies at or near Diseworth, but affords no indication of a likely depth for the focus, the main quake, and perhaps its after-shock of February 12, may have resulted from motion across a deep continuation of either the Breedon Fault or the Normanton Hills Fault¹², or possibly a third fault which lies between them, completely hidden beneath Triassic deposits.

The Breedon Fault, which occurs about three miles west of Diseworth, strikes between N. 318° E. and N. 344° E., and is known to cut Millstone Grit, but not the overlapping Triassic sediments. On the other hand, the Normanton Hills Fault, lying some two miles north of Diseworth, appears to strike about N. 292° E. and cuts Lower Liass shales and limestones where it is exposed. This dislocation is believed to continue for a considerable distance to the east. However, it is equally likely that this quake and its after-shock were due to movements across a dislocation in the ancient basement which does not cut the overlying younger rocks at all.

The main quake was recorded on the seismographs at Durham, Cambridge, South Kensington, Kew, Dorking and Dublin, but apparently not in readable form at Aberdeen, Edinburgh or Bidston. From preliminary studies of available seismograms, Mr. E. Tillotson suggests an epicentre at 52° 52' N., 01° 21' W., that is, about 7·5 miles north-east of Ashby-de-la-Zouch, and an initial time of 15h. 43m. 00s. at a focus perhaps six to eight miles below the surface.

- ¹ Dollar, A. T. J., *Trans. Geol. Soc. Glasg.*, **21** (2), 285 (1951).
- ² Davison, C., *Phil. Mag.*, **50**, 51 (1900).
- ³ Wood, H. O., and Newmann, F., *Bull. Seismol. Soc. Amer.*, **21**, 277 (1931).
- ⁴ Davison, C., *Geol. Mag.*, **7**, 412 (1910).
- ⁵ Davison, C., "A History of British Earthquakes", 333 (Cambridge, 1924).
- ⁶ Dollar, A. T. J., *Trans. Geol. Soc., Glasg.*, **21** (2), 312 (1951).
- ⁷ Davison, C., "A History of British Earthquakes", 331-37 (Cambridge, 1924).
- ⁸ Tillotson, E., *Nature*, **177**, 165 (1956).
- ⁹ Tillotson, E., *idem*.
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- ¹¹ Dollar, A. T. J., *Trans. Geol. Soc. Glasg.*, **21** (2), 292 (1951).
- ¹² The Geology of the Country between Derby, Burton-on-Trent, Ashby-de-la-Zouch and Loughborough. Mem. Geol. Surv. U.K., **45**, 48 (1905).

OBITUARIES

Dr. J. von Neumann

JOHN VON NEUMANN was a remarkable man. Probably the most important of all his qualities were the accuracy and speed of his thinking, whether in a difficult mathematical argument or on a major policy point affecting the allocation of enormous research resources. Primarily he was a pure mathematician, interested in the theory of groups, matrices and operators, but he had great facility in many branches of mathematics. His book on "Quantenmechanik", published in 1932, was a notable exposition of the mathematical logic of the theory. Another book, "The Theory of Games and Economic Behaviour", written in collaboration with the distinguished economist, Oskar Morgenstern, and first published in 1944, gave von Neumann the opportunity to display his powers in combinatorial analysis.

When the scientific strength of the United States was being mobilized in the Second World War, von Neumann soon played a prominent part. He began to work on the motion of compressible fluids caused by explosions. He gave the solution of the point source explosion, obtained independently by G. I. Taylor, and he made important contributions to the theories of detonation and of the motion of the triple point in air blast. After only a few months, this great pure mathematician was discussing and planning experiments with his new colleagues, and his suggestions always commanded attention.

As soon as scientific work began at Los Alamos, von Neumann was brought in as a consultant. For the rest of his life, he paid frequent visits to Los Alamos and few had such a decisive influence as he. At Los Alamos, von Neumann realized from the start the importance of machine calculation, and his interest in electronic digital computers received an impetus which lasted through the post-war years. With several collaborators, he went deeply into the

mathematical logic of the computers, and even though the machine built under his guidance at the Institute for Advanced Study at Princeton was surpassed by other machines in the United States, von Neumann continued to be one of the leaders of thought on such machines.

The United States Atomic Energy Commission found him to be one of its most valuable consultants. He served on the General Advisory Committee and he continued to play a leading part among all the consultants in influencing the scientific work of the Commission. Finally, in 1955, he became a commissioner.

His tragic death on February 8 at the early age of fifty-four is a grievous loss to American science. Like Enrico Fermi, he was a victim of cancer. He is deeply mourned by many, and those who knew him will never forget his brilliance, his common sense, his loyalty and his sense of humour.

W. G. PENNEY

The Marchese Solari

THE Marchese Luigi Solari, an early associate and life-long friend of Marconi, died in Rome on February 6 at the age of eighty-three after a long illness.

As an officer of the Italian Navy, the Marchese Solari was associated with Marconi's early demonstrations of wireless telegraphy on board Italian warships in 1897, and the two men became close friends. When the Italian Government put the warship *Carlo Alberto* at Marconi's disposal in 1902 for the furtherance of his investigations into the propagation of wireless waves, the Marchese Solari accompanied Marconi as the officer in charge of the vessel's wireless telegraph station.

Shortly after his retirement from the Navy he became manager of the Italian branch of Marconi's

Wireless Telegraph Company, Ltd. ; in 1927 he was appointed managing director and general manager of the Societa Italiana Radio Marittima, the posts which he held until his retirement.

Mr. James Wright

MR. JAMES WRIGHT, who died suddenly at his Edinburgh home on January 28, was born in Kirkcaldy, Fife, and educated locally. His father, besides being a keen amateur astronomer with an observatory in his garden, was interested in science generally and gave intelligent encouragement to his son's geological interests. As a young man, Wright, with Robert Dunlop of Dunfermline, John Smith of Dalry and J. L. Begg of Glasgow, joined a group of amateur geologists who used to rise in the small hours to follow their hobby before going to work, and the splendid foreshore exposures of carboniferous rocks in Fife led him to study the Crinoidea. He was encouraged by the late Dr. F. A. Bather, and his first paper was published by the Edinburgh Geological

Society in 1912. He had in all more than thirty papers to his name, the most considerable being a review of the Scottish carboniferous Crinoidea (*Trans. Roy. Soc. Edin.*, 1939). His monograph of the British Carboniferous Crinoidea, published by the Palaeontographical Society with 83 plates, was nearly completed at the time of his death.

With opportunities limited by a full-time business career, Wright made himself a world authority in his field, respected by professional workers in all countries. His collection, which is bequeathed to the Royal Scottish Museum, far exceeds in quality all others of similar scope, not least because of his exquisite skill as a preparator of fossils in intractable matrices. He was honoured by the Geological Societies of London (Wollaston Fund, 1928 ; Worth Award, 1956) and Edinburgh (Clough Medal, 1945-46) and by the Royal Society of Edinburgh (Neill Prize, 1939). He will be missed not only as the only British worker in his field, but also as a wise, humorous and generous host and friend.

R. V. MELVILLE

NEWS and VIEWS

Technology

THE urgent demands of the national economy for technologists in great numbers and of the highest calibre has placed the reform and expansion of scientific and technological education at all levels from school to university among the most pressing and vital issues of domestic policy in Britain to-day. That the educational system has for so long occupied the attention of successive Governments and occasioned the deliberations of numerous committees of inquiry, and the great volume of debate in the Press and other organs of public opinion, testifies both to the gravity of the situation and the fundamental nature of the measures called for. No facile solution to the complex of problems presented by the national shortage of technologists is going to be found, and continual cross-fertilization of ideas between industry and the world of education will be required if an adequate rate of progress is to be maintained. It is very encouraging and timely, therefore, that *Technology*, a new monthly review of training and education for industry published by *The Times* (pp. 40 ; 1s. monthly), should appear at this juncture. The leading article in the first issue states that "one of the chief aims of *The Times*, in publishing *Technology*, is to provide a platform from which industrialists may declare their needs to the public, to Ministers, and to university professors, technical college heads and schoolmasters and mistresses. In this way, *Technology* will seek to make plain what industry wants from the educational system and where it is dissatisfied. But," the leader continues, "science is a sovereign state, and teaching is an art, and the education of the minds and characters of young people must be left to those whose skill it is. *Technology* offers an equal platform to the teacher".

The first issue of *Technology*, which appeared on March 4, includes a number of incisive and authoritative articles by eminent industrialists, technologists and teachers. Sir Frederick Handley Page and Dr. Willis Jackson discuss education and training for

careers in the aircraft and electrical engineering industries respectively, and Mr. Hugh A. Warren describes the French system of *centres d'apprentissage*. An article by Prof. P. Sargant Florence examines the question of education for management, and Dr. D. J. Urquhart reviews the problems arising in the provision of libraries for technical colleges. There are articles on the use of computing machines in planning for the petroleum industry by D. A. Glen, and on liquid-metal pumps in the nuclear power industry by Prof. G. H. Rawcliffe. There are items of news and comment, including reviews of the work and organization of six of the designated Colleges of Advanced Technology, of the shortage of women technologists and of current technical developments in America. The first issue contains a fully fledged column of Letters to the Editor, reviews of books, plays, films and television. An admirably informal and lucid style is maintained throughout. Even in these days, when the proliferation of journals offers a severe tax on the time of any reader who endeavours to remain well informed on matters of public policy, the publication of *Technology* will be very widely welcomed as the answer to a genuine need in the present situation. One may look forward to important contributions in the definition of problems and the formulation of solutions from this new review.

Royal Society of Edinburgh : Prize Awards

THE Council of the Royal Society of Edinburgh has made the following prize awards : *Gunning Victoria Jubilee Prize* for the period 1952-56 to Dr. H. W. Melville, for his distinguished contributions to reaction kinetics and the physics and chemistry of high polymers ; *Makdougall-Brisbane Prize* (1954-56) to Prof. C. M. Yonge, for his paper in the *Proceedings* during the period of award and in recognition of his many valuable contributions to marine zoology ; *James Scott Prize* (1957), to Dr. C. D. Broad for a lecture which will be given on November 11, 1957, on "Some Remarks on Change, Continuity, and Discontinuity". The *Bruce Preller Lecture* (1957) is to