OBITUARIES

Lord Stopford, K.B.E., F.R.S.

JOHN SEBASTIAN BACH STOPFORD was born near Wigan on June 25, 1888, and died on March 6, 1961, at Arnside, Westmorland.

He was educated at Liverpool College, Manchester Grammar School and the University of Manchester, graduating M.B., Ch.B. with honours in 1911, after gaining several distinctions and prizes during his medical course. After serving as a house surgeon at Rochdale Infirmary and assistant medical officer at Manchester Royal Infirmary, he became, in 1912, a demonstrator in anatomy in the University of Manchester. He was promoted lecturer in 1915 and in the same year he received the degree of M.D. with a Gold Medal for a thesis of outstanding merit on "The Arteries of the Pons and Medulla". He succeeded to the Manchester chair of anatomy in 1919 on the resignation of Prof. (later Sir) Grafton Elliot Smith, and in December 1934 he was appointed vice-chancellor in succession to Sir Walter Moberley. He combined his duties as vice-chancellor and professor of anatomy until 1938, when he resigned his chair and was appointed to a personal chair of experimental neurology.

His ability as a scientist was recognized by his election to the fellowship of the Royal Society in 1927, and he was the first Manchester medical graduate to achieve this high honour. Under the inspiration of Elliot Smith, his research work was predominantly neurological, and he collaborated successfully with his surgical colleagues (Sir Harry Platt, Sir Geoffrey Jefferson and Profs. E. D. Telford and John Morley) in the elucidation of various problems. His work can be divided roughly into three phases—his investigations on the blood supply of the brain, his anatomical and clinical studies on sensation, based mainly on the observation of many patients with peripheral nerve injuries, and his researches on the structure and function of various parts of the autonomic nervous system. He published more than sixty papers and an important monograph on "Sensation and the Sensory Pathways" (1930), besides contributing sections to several anatomical text-books. As vice-chancellor he was unable to indulge his flair for correlating basic and clinical research, but had he continued as a scientist he would undoubtedly have enhanced his already high reputation.

In a short notice one cannot even mention all that Stopford did for education and his University; but he was the best vice-chancellor Manchester has ever had and according to Sir Hector Hetherington (1956) "the best of us all" (the "all" refers to the members of the Committee of Vice-Chancellors and Principals). His worth was recognized nationally by his appointment as chairman, vice-chairman or member of such influential bodies as the General Medical Council and the University Grants Committee, the Commonwealth Fund, the Nuffield Foundation, the Interdepartmental Committee on Medical Schools, the Universities Bureau of the British Empire and the Council of the Royal College of Physicians, while locally he served as chairman of the Manchester Regional Hospital Board (1948–53), of the John Rylands

Library, of the Royal College of Music, and on many other bodies. He was awarded honorary degrees by the Universities of Dublin, Leeds, Cambridge, Liverpool, Durham and Manchester, and honorary fellowships by the Royal College of Physicians and Royal College of Surgeons. He was knighted in 1941, created a K.B.E. in 1955, and he was included in the first list of life peers (1958).

He was a fine and imaginative teacher who helped to rescue anatomy from the topographical morass into which it had fallen, and who did much to close the gap which had developed between the basic medical sciences and clinical practice. He was a pioneer in the use of radiological methods in teaching living anatomy, and he was the first to take over from physiology the full responsibility for teaching histology. Both as a professor and vice-chancellor his sympathy with students and their problems was evident; and he was appreciated as highly by his colleagues in the Arts and other Faculties as by those in his own profession. His familiarity with education and research in all their manifold aspects was utilized, as the abbreviated list of his appointments given above indicates, by many Government and other bodies; and he was the chief inspiration for many of the far-sighted reforms in medical education recommended in the Goodenough Report.

He married Lily Allan, another Manchester medical honours graduate, in 1916, and they had one son. Theirs is the greatest loss; but those who served under him honour the memory of a distinguished scientist and supreme administrator and marvel that one who had gained so many honours could yet remain so human, humble and kind.

G. A. G. MITCHELL

Miss Ethel F. Bellamy

THE death of Ethel F. Bellamy on December 7 at the age of seventy-eight removes one of the last of those self-trained and dedicated workers who have done so much for astronomy and seismology in Great Britain. Miss Bellamy went to the Oxford University Observatory in 1899 as a personal assistant to her uncle, the late F. A. Bellamy, and was able to relieve him of some part of the work in the preparation of the Oxford zones of the *Astrographic Catalogue*. On the completion of these zones and under the direction of Prof. H. H. Turner, Miss Bellamy then undertook the reduction of the measures for the Vatican zones, work for which she was awarded a commemorative silver medal by the Pope in 1920.

At the end of the First World War, Prof. Turner had agreed to continue at Oxford the seismological work of John Milne. Miss Bellamy assisted Turner, and in this connexion spent some months in 1919 at Shide in the Isle of Wight in charge of Milne's instruments. This responsibility she continued when the improved Milne-Shaw seismographs were transferred first to the Boys's basement in the old Clarendon Laboratory and ultimately in 1928 to the University Observatory itself. Her great contribution to seismology lay, however, in the preparation of the *International Seismological Summary* (prior to 1923 the

Bulletin of the British Association Committee on Seismology). Her part was to collate the readings, in some cases measuring the original records, of earthquakes as recorded initially by 200, afterwards nearly 600, seismological stations throughout the world, and to maintain year after year a correspondence with these stations which did much to improve the accuracy of time-keeping. Originally, Turner computed the epicentres from these collated readings, but from 1923 a greater and greater part of this work was taken over by J. S. Hughes, now the director of the *International Seismological Summary* at Kew. From these epicentres and the computed residuals for each station Miss Bellamy then prepared the copy for the press and read the proofs. This work she continued until the transfer of the *Summary* to Kew in 1946, adding to it during Hughes's war service the computation of the epicentres for six quarterly issues of the *Summary*. Time also was

found to prepare a catalogue of epicentres from the *International Seismological Summary* for the years 1925-30, and in 1936 a complete *Index Catalogue of Epicentres* for the years 1913-30 (Isle of Wight County Press) together with a frequently reproduced equal-area map showing the location of these epicentres on the Earth's surface. A brief account of this work with some of the original maps appeared in *Nature* (143, 504; 1939).

Dogged throughout her life by ill-health and working in discomfort for many years in an old wooden hut in the Observatory grounds, nothing was ever allowed to stand in the way of the quality and quantity of her work. It was only fitting that she should have been awarded an honorary M.A. by the University of Oxford, whose faithful servant she had been for so many years. Retiring in 1947, she spent her last years in Upwey, near Weymouth.

H. H. PLASKETT

NEWS and VIEWS

Element 103, Lawrencium

THE creation of lawrencium, the eleventh new man-made element beyond uranium (element 92), was announced on April 13 by the University of California and the U.S. Atomic Energy Commission. An isotope of this element was formed on February 14 by bombarding 3 μ gm. of californium (element 98) with boron-10 or boron-11 nuclei in a heavy-ion linear accelerator at the Lawrence Radiation Laboratory of the University of California; the four nuclear scientists who carried out this experiment, Drs. A. Ghiorso, T. Sikkeland, A. Larsh and R. Latimer, propose to name the new element lawrencium in honour of the late Ernest Orlando Lawrence, inventor of the cyclotron and founder of the laboratory which bears his name. Californium, used as the target material, is made by the prolonged irradiation of trans-uranium elements in a nuclear reactor by the successive addition of neutrons. Since each new heavy element is more unstable than the one before, this procedure is inapplicable to the heaviest elements and heavy-ion bombardment is the only route whereby they may be created. In addition, the identification of the heaviest elements prepared in this way becomes progressively more difficult with increasing atomic number owing to their instability and to the very few atoms of the product which are formed. Although it may be possible to create one or two more new elements by this technique, it is improbable that elements beyond number 105 will be synthesized and satisfactorily identified.

Ministry of Aviation :

Mr. J. R. Mills

MR. J. R. MILLS has been appointed head of the Radio Department, Royal Aircraft Establishment, Farnborough. Educated at the Grammar School, Kingston-on-Thames and King's College, London, he completed in 1939 the special honours course in physics. Shortly after war broke out Mr. Mills joined the Air Ministry Research Establishment, Dundee (formerly Bawdsey Research Station). It was here that he began his connexion with radar. Between 1940 and 1944 he divided his time between the Ministry of Aviation Radio Department, the Royal Aircraft Establishment and the Telecom-

munications Research Establishment, working throughout most of this period on the problems of secondary radar systems, mainly in the metric wave-bands. In 1946 Mr. Mills was a member of the team at the Telecommunications Research Establishment which had been set up to develop electronic systems for use in civil aviation, his particular interest lying in the development of distance measuring equipment. During this period his group was one of the first in the United Kingdom to investigate the use of overtone crystals as frequency sub-standards. In 1950 he returned to the military field and concentrated on techniques for measuring range to a very high order of accuracy. From 1952 he led a team set up in the Telecommunications Research Establishment to carry out research into new forms of airborne surveillance radar and, in particular, to exploit the new wave-band (Q) centred on a wave-length of 0.86 cm. During 1954-60 Mr. Mills was the superintendent in the Airborne Radar Department, Royal Radar Establishment (formerly Telecommunications Research Establishment) and the Radar Research Development Establishment, in charge of research and development concerned with the offensive airborne operational needs of the Royal Air Force and Royal Navy. For a brief period commencing in October 1960 he was the assistant director at Ministry of Aviation Headquarters concerned specifically with the electronic problems of civil aviation.

Mr. J. H. Briggs

MR. J. H. BRIGGS has been appointed director of electronics, research and development (civil aviation) in the Ministry of Aviation. Mr. Briggs was educated at King Edward's School, Birmingham, and obtained a major open scholarship in natural sciences at St. John's College, Cambridge, where in 1935 he graduated with honours in the Mathematical Tripos Part I and Natural Sciences Tripos Part II (physics). After a year and a half in the carrier communications development laboratory of the General Electric Co. he joined the Government service at the Royal Aircraft Establishment, where for three years in the Radio Department he was engaged on direction-finding research and development. On transfer to