OBITUARIES

Prof. N. E. Svedelius, For.Mem.R.S.

PROF. NILS EVERHARD SVEDELIUS, the eminent Swedish botanist, died at Uppsala on August 2. He was born at Stockholm on August 5, 1873, of an old family noted for its scholarship and public service, which took its name from the small town of Sveden, in Dalecarlia. Going to the University of Uppsala in 1895, he was later elected curator of the Stockholm nation. This student office gave him an early acquaintance with the business side of university affairs and led to his abiding interest in administration in which he played a prominent part at Uppsala.

Uppsala has always played a very prominent part in cryptogamic botany, for a long line of eminent botanists have made the different groups their special study. Svedelius, under the guidance of F. R. Kjellmann, who was noted for his researches on Arctic algae, took up the study of those of the Baltic, which provided the subject of his doctorate thesis in 1901. After studying at Munich that year, he journeyed to Ceylon, the East Indies and Java, 1902-3, where he gained a knowledge of tropical algae which ever afterwards stood him in good stead; a paper on the algae of the coral reefs of Ceylon, 1906, was one result of these travels, but their influence is seen in his discussion of the discontinuous geographical distribution of some tropical and subtropical marine algae, 1924. He was a prolific writer on algology, treating practically every aspect of this wide field, but his most important contributions were on the anatomical structure and development, and on reduction divisions and alternation of generations in the Florideae. It may be said that Svedelius and his pupil J. H. Kylin, later of Lund, initiated the study of algal cytology at Uppsala.

In 1908, he found that, in the tetrasporangium of *Martensia*, the tetrad is formed by only one of the numerous cell nuclei. Working with *Delesseria sanguinea* in 1912-14 he confirmed Yamanouchi's discovery of alternation of generations with changes of nuclear phase in the red algae.

In 1915 he discovered that in *Scianaia furcellata*, which lacks tetraspores, meiosis sets in immediately after the fertilization of the female nucleus which had invaded an auxiliary cell; one of the four nuclei gives rise to the gonimoblast which has haploid nuclei. Then, in 1933, he showed that meiosis begins immediately after fertilization in *Asparagopsis* and *Bonnemaïsonia*. In monospore cultures, 1937, he proved that in *Lomentaria rosea*, where there are no sexual individuals, tetraspores are formed without meiosis, unlike *L. clavellata*, which is typically diplobiontic, having separate tetrasporous and sexual individuals. In 1942 he found that *Galaxaura*, closely related to *Scianaia*, has separate tetrasporous individuals. He finally reached the conclusion, therefore, that the sole criterion of a haplobiontic or diplobiontic development can no longer be regarded as of any great systematic importance.

Svedelius was soon regarded as among the foremost algal systematists; indeed, so early as 1911 he wrote the section on Bangiales in Engler and Prantl's "Pflanzenfamilien".

It would probably be true to say that Svedelius used his extraordinarily wide knowledge of algology

to note problems which needed to be solved if theories based on insufficient facts were not to hold continued sway. By selecting these for the most part, though in no wise neglecting other opportunities which came to hand, he deservedly gained his great reputation.

In 1914 he succeeded H. O. Juel as professor of botany at Uppsala, and prælector of the University Garden. Juel had written a full account of Burser's herbarium and Svedelius saw it through the press. Burser, who died in 1639, left a *hortus siccus* of twenty-five volumes, the result of extensive continental journeys. This, one of the treasures of Uppsala Museum, had many vicissitudes before, surprisingly, reaching Uppsala—and then suffered the loss of two volumes in the great fire of 1702. It contains many specimens of C. Bauhin which enabled Linnaeus to recognize his types. It is of fundamental importance in botanical nomenclature which, however, does not do away with its intrinsic historical value.

Svedelius was an authority on the lives and works of his great predecessors and, not unexpectedly, of Linnaeus. The old University Botanic Garden, which Linnaeus had reorganized and made famous, was left to become scientifically derelict after Gustav III had presented the gardens of the Royal Palace to the University on the urgent representation to him by C. P. Thunberg that the old garden was in a marshy district and otherwise unsuitable. Svedelius was one of the foremost of those who forced through a scheme in the early '20's for rearranging the Garden as it was in Linnaeus's time and to ensure its future care.

Like most Swedish botanists, Svedelius did a good deal to popularize the subject in articles, and also wrote a popular book.

Prof. Svedelius represented Sweden at many botanical congresses and was also personally well known from his visits to foreign institutions. His quiet demeanour, with apt comments when such were in place, together with his evident enjoyment of the humorous gained him general affection.

He held many foreign distinctions. In Britain he was foreign member of the Linnean Society (1917), and the Royal Society (1944), and honorary member of the Botanical Society of Edinburgh (1938).

JOHN RAMSBOTTOM

Sir Arthur Fleming, C.B.E.

THE death of Sir Arthur Fleming on September 14 will have saddened all who are concerned with the improvement of our national facilities for engineering education and training, and most of all those many thousands of men who were privileged to benefit from the schemes of apprenticeship which he pioneered within the Metropolitan-Vickers Electrical Co., Ltd. (now, Associated Electrical Industries (Manchester), Ltd.) more than fifty years ago.

He was born at Newport, Isle of Wight, in 1881, and was educated at the Portland House Academy there and at the Finsbury Technical College in London. After occupying positions with the London Electric Supply Corporation and a firm of instrument makers, he was selected by the British Westinghouse Co., later Metropolitan-Vickers, Manchester, as one of the 'holy forty', to undergo a course of training

with the Westinghouse Electric and Manufacturing Co. at its East Pittsburgh works. On joining the Manchester company, he was engaged as a specialist in electrical insulation and soon became chief designer, and then superintendent and chief engineer, of the Transformer Department.

It was not long before Fleming introduced arrangements for the systematic training and further education of the young men in this Department, and from this beginning grew the Education Department of the Company, of which he became director. He used often to say that the most important raw material of industry was its young people, and he devoted himself to ensuring that his own young people, from the embryo craftsman to the university graduate, were recognized and treated as such. They came not only from schools and universities in Britain, but also from all over the world, for in the sphere of industrial training the names of Fleming and Metro-Vickers became international bywords; and there can scarcely be a country in which there are not several, indeed many, men who hold 'A. P. M.' in honour and who would welcome the opportunity to express their deep gratitude for his efforts on their behalf. His influence and inspiration in this sphere were not, of course, confined to his own Company; they penetrated widely within the electrical industry as a whole, and the benefits they have brought to the progress of this industry have been profound.

All this, however, was only part of his achievement. His far-sighted views on engineering education and training were matched by his realization of the need for research within industry, and especially for research which was not bounded by the problems of existing products. In parallel, therefore, with his establishment of schemes of apprentice training, he began to create a research department within the Company, to which he attracted a succession of men of outstanding ability and who responded to his inspiration by making many notable contributions in pure as well as applied science. A particular example of his remarkable foresight was his forceful contribution to the establishment of radio broadcasting in

Britain. He retired from his directorship of research and education in Manchester in 1952.

Fleming's outside interests and activities were manifold. He was a member of the Council of the University of Manchester, of the Governing Body of the Imperial College of Science and Technology in London, of the Delegacy of the City and Guilds of London Institute, of the Ministry of Education Committee on the Training of Teachers and Youth Leaders, and of the War Cabinet Engineering Advisory Committee; chairman of the Electrical Engineering Committee of the Central Register of the Ministry of Labour, of the Athlone Fellowship Committee of the Board of Trade, and of the Federation of British Industries Overseas Scholarships Committee; and president of both Sections G (Engineering) and L (Education) of the British Association, and of the British Association for Commercial and Industrial Education. He also played an important part in the establishment of the Department of Scientific and Industrial Research and of the Electrical Research Association.

Within all these interests, the Institution of Electrical Engineers occupied a place of special importance; he became a member of its Council in 1932, was elected a vice-president in 1935 and president in 1938; and for his outstanding services to the profession was awarded the Faraday Medal in 1941 and elected to honorary membership of the Institution in 1952.

The Universities of Manchester and Liverpool conferred honorary doctorates upon him; he was made C.B.E. in 1920 for his contribution to submarine detection; and knighted in 1945 for his services to education.

Those who knew him well will remember him with admiration for his exceptional foresight, his unlimited enthusiasm and vitality, his unrestrained willingness to make his knowledge and experience widely available, and his devotion to the needs of the younger generation. Many more who did not know him have cause to be grateful for the benefits that have come from his life of public service. **WILLIS JACKSON**

NEWS and VIEWS

Chemical Technology at the Imperial College of Science and Technology, London:

J. S. Rowlinson

THE chair of chemical technology in the Imperial College of Science and Technology was held for many years by the late Sir Alfred Egerton, but it was not filled after his retirement in 1952. It has recently been announced that Dr. J. S. Rowlinson, senior lecturer in the Department of Chemistry, University of Manchester, has now been appointed to the chair. Dr. Rowlinson had a distinguished career at Oxford, where he was Millard Scholar at Trinity College. He obtained first class Honours in chemistry in 1948 and the degree of D.Phil. in 1950. Leaving Oxford, he went as a Research Associate to the University of Wisconsin for a year, before going to the University of Manchester, where he was first an I.C.I. Fellow and afterwards lecturer, and more recently senior lecturer. Dr. Rowlinson received a Meldola Medal of the Royal Institute of Chemistry in 1954 and the Marlow Medal of the Faraday Society in 1957. Among his

outside contacts it may be mentioned that he was formerly a member of the Thermodynamics Committee, National Engineering Laboratory, and he is at present a member of the Joint Sub-Committee of the National Physical Laboratory and the National Chemical Laboratory on Fundamental Properties of Pure Materials. He has carried out research on experimental and theoretical aspects of compressed gases, liquids and solutions, and he is the author of a book entitled "Liquids and Liquid Mixtures" published last year. Dr. Rowlinson goes to the Imperial College at a time when it is expanding rapidly.

Physiology at the Royal Free Hospital School of Medicine, London: Prof. C. B. B. Downman

DR. C. B. B. DOWNMAN has been recently appointed to the Sophia Jex-Blake chair of physiology at the Royal Free Hospital School of Medicine, London, in succession to the late Prof. Esther Killick. Dr. Downman was educated at the City of London School and St. Thomas's Hospital Medical School.