

the energy necessary to separate the moon from the earth. It is highly desirable that this idea be examined quantitatively.

- ¹ Ramsey, W. H., *Mon. Not. Roy. Astro. Soc.*, **108**, 406 (1948); *ibid.*, *Geophys. Supp.*, **5**, 409 (1949) and **6**, 42 (1950).
² Bullen, K. E., "Introduction to the Theory of Seismology" (Camb. Univ. Press, 1947).
³ Jeffreys, H., *Mon. Not. Roy. Astro. Soc.*, **4**, 62 (1937).
⁴ Lighthill, M. J., *Mon. Not. Roy. Astro. Soc.*, **110**, 339 (1951).
⁵ Ramsey, W. H., *Mon. Not. Roy. Astro. Soc.*, **110**, 325 (1951).
⁶ Brown, H., and Patterson, C., *J. Geol.*, **56**, 85 (1948).
⁷ Bullen, K. E., *Nature*, **167**, 29 (1951).
⁸ Jeffreys, H., *Mon. Not. Roy. Astro. Soc.*, **91**, 169 (1931).

OBITUARIES

Academician S. I. Vavilov

THE death of S. I. Vavilov at the age of sixty, which occurred on January 25 of this year, was a heavy loss to science in the Soviet Union, for he was not only a great man of science but, even more, one of the founders of science in his country.

Vavilov entered the University of Moscow in 1909 and worked under F. N. Lebedev, whose researches on the physics of light absorption were to furnish the theme of Vavilov's scientific career. His first paper, on "The Effect of Heat on the Fading of Dyestuffs", was written before he left the University in 1914 with other members of the staff and students as a protest against police persecution in the University. After a period of war service, in which he worked on radio physics, Vavilov found himself one of the small band of trained physicists, not more than forty in number, with the immense task of building up physical teaching, research and application in the new Soviet Republic. He managed to combine this with the furtherance of his own research in the field of physical optics. The chief contribution was embodied in some hundred papers on fluorescence and phosphorescence of dyestuff molecules. He elucidated, by a combination of experimental and theoretical study, the laws governing the quantum yield of fluorescence, the maintenance of excited states, particularly at low temperatures, and the explanation of impurity quenching, and self-quenching of fluorescence. This work, which linked with that of Frank and Pringsheim, he summed up in a paper in 1945¹ and in a semi-popular book, "The Microstructure of Light"². His study of fluorescence led him into the field of the physiology of vision, especially in the quantum effects that can actually be observed at very low light intensities. He was also, in his latter years, largely responsible for the study of the 'shock wave' radiation from electrons moving faster than the speed of light in the medium through which they pass.

Vavilov's scientific work was always closely linked with that of the organization of research. Before 1917, Russia had imported practically all optical apparatus from abroad, largely from Germany. It was then decided to build up a State Optical Institute in Leningrad, where research and development were to lead into full-scale production. Vavilov played a major part in the building up of the Institute and, in particular, in establishing the production of fluorescent lighting.

These activities by no means used up all his intellectual capacity. Indeed, it was from them that he acquired an intimate knowledge and practical experience of the relation of science to social needs.

He showed this first in his studies on the history of science; British readers will remember his contribution to the Newton tercentenary, where he threw new light on Newton's atomism and its intimate connexion with optics and chemistry³. He had also thought profoundly on the philosophy of physical science⁴, particularly of the factors that led to the twentieth-century revolution in physics, which he attributed in the first place to Maxwell's use of mathematical hypotheses. On the practical side, his wide understanding qualified him first to contribute to and ultimately, as president of the Academy, in 1945 to co-ordinate and direct the work of Soviet scientists in the solution of the great practical problems involved in transforming the economy of the country. He was a deputy both to the Russian and Union Supreme Soviets, and his advice was taken in all problems involving science^{5,6}. In the international field, despite all difficulties, he was always a firm supporter of the need for the co-operation of scientific workers of all countries in building a peaceful world.

Vavilov as a man had a quiet dignity. He did not impose himself on others but commanded respect by the rationality of his judgments and the integrity of his character. His death in harness was probably due to overwork; but he had already contributed more than his share to his country. He will be counted with Lomonosov as one of the great builders of science in the U.S.S.R.

J. D. BERNAL

- ¹ Vavilov, S. I., *Izv. Akad. Nauk SSSR*, Phys. Sect., **9**, 283 (1945).
² Vavilov, S. I., "The Microstructure of Light" (in Russian) (Academy of Sciences, Moscow, 1950).
³ Vavilov, S. I., "Newton and the Atomic Theory", in "Newton Tercentenary Celebrations", 43 (Cambridge, 1947).
⁴ Vavilov, S. I., "The Old and the New Physics", in "Marxism and Modern Thought", 175 (London, 1935).
⁵ "Soviet Science in the New Five Year Plan" (based on a lecture by S. I. Vavilov), *Anglo-Soviet Journal*, **3**, No. 2, 5 (winter, 1947).
⁶ Vavilov, S. I., "Soviet Science: Thirty Years" (Foreign Languages Publishing House, Moscow, 1948).

Dr. K. C. Bailey

DR. KENNETH CLAUDE BAILEY was born in 1896 and educated at St. Andrew's College, Dublin. He entered the University of Dublin in 1913, where he immediately earned fame by taking, when still only a junior freshman, first place in the examination for classical scholarships, an honour which is usually obtained only by men of senior freshman or junior sophister standing. The First World War, in which he served from 1915 until 1919, interrupted his academic career, and when he returned to Trinity College after demobilization he continued his classical course and also commenced to study experimental science. In 1921 he obtained brilliant degrees in both these subjects, and afterwards worked for about a year in the University of Toulouse under Prof. Sabatier, where he obtained a doctorate in science. A few years after his return to Trinity College as lecturer in chemistry he was elected in 1926 to a fellowship, which he continued to hold until his death.

He married in 1923 Miss Dorothy Lavelle, who is also a science graduate of the University of Dublin, where their only child, Miss Pauline Bailey, is now studying medicine.

In the space available it is quite impossible to give any adequate picture of Dr. Bailey's multitudinous activities since 1926. It may be said that his principal public interests were mainly threefold, embracing chemistry, classics, and the administration of the

affairs of Trinity College, Dublin. In all three he did notable and memorable work.

His reputation as a chemist will probably rest on his work on the inhibition of chemical reactions, on which he contributed a long series of papers to the scientific publications of the Chemical Society, the Royal Irish Academy, the Royal Dublin Society, and others. In 1937 he published his book, "The Retardation of Chemical Reactions", which appears to be the first general treatment of this subject that had appeared in any language. It represents the experimental and literary research of more than a decade. Its thoroughness can be judged from the fact that the bibliography alone contains some 1,600 references to original papers. He intended to publish a second edition, and had done most of the preliminary spade-work, but unfortunately his other occupations postponed the fulfilment of this intention, and owing to this occurrence chemical science is undoubtedly the poorer. During the Second World War he assisted the Irish Emergency Research Bureau in its attempt to alleviate the local shortage of certain essential materials. Among other problems, he worked out the details of the production of potassium chlorate, needed for the match industry, from sodium chloride and kelp. This process was eventually developed on a fairly large scale towards the end of the War.

On the classical side, Bailey published two books, the titles being "The Elder Pliny's Chapters on Chemical Subjects", and "Etymological Dictionary of Chemistry and Mineralogy", in the latter of which his wife, Dr. Dorothy Bailey, collaborated. He was also greatly interested in the development and history of chemistry, and wrote several articles on these subjects for various journals.

It might be thought that with his teaching duties as lecturer, and later as professor of physical chemistry, and the quantity of original work he produced, Bailey would have found little time for administrative duties. This, however, is far from true. He held the onerous and rather thankless post of Junior Dean of Trinity College for a period of eleven years, a term of office which has only once been exceeded in length during the history of the College. He was a member of the Board of the College for twenty years, first as a representative of the Junior Fellows, and since 1942 as registrar. During this period he was instrumental in introducing several excellent reforms. It is perhaps a pity, from the scientific point of view, that his duties as registrar very largely curtailed his original chemical research work after 1942, although he continued to lecture in the Chemical School until his retirement, due to ill-health, in October 1950. He did, however, find time to write an interesting and very readable volume entitled "The History of Trinity College Dublin from 1892 to 1945" during his later years.

Of Bailey's personal characteristics one finds it hard to write. He was always the most pleasant and courteous of colleagues, always ready to help in any problem proposed to him. As might be expected from a man of his calibre, he held very definite views on many subjects; but he was never dictatorial in expressing them, and always willing to listen to contrary opinions.

Trinity College, Dublin, may long and truly mourn

"A man so various, that he seem'd to be
Not one but all mankind's epitome".

J. H. J. POOLE

NEWS and VIEWS

Zoology at University College, London :

Prof. D. M. S. Watson, F.R.S.

THE new term has begun at University College, London, without the official attendance of this distinguished zoologist. It was in 1912 that Mr. David Watson joined the College staff after a brilliant student career at the University of Manchester. Already he was the author of papers to which reference is still made. From that date until 1921 he was lecturer in vertebrate palaeontology. He was absent, it is true, during part of the First World War as a lieutenant in the R.N.V.R.; but even there his palaeontology was not forgotten, and he was largely responsible for the design of a pterodactyl type of aircraft that later was to take the air. In 1921 he succeeded Prof. J. P. Hill in the Jodrell chair of zoology and comparative anatomy at University College. There he has created not only a school of zoology, but also has attracted numbers of graduate students in zoology and palaeontology who have themselves gone to chairs of zoology or geology. Some years before the Second World War he had the task of remodelling commercial premises to his departmental purposes in the Malet Place buildings of the College.

During these arduous and fruitful years Prof. Watson has also made opportunities for world-wide travel and for collecting expeditions in which he has visited Canada, the United States, South Africa, the Soviet Union, Scandinavia and Ceylon, and he has visited every site of importance to vertebrate

palaeontology in Great Britain. His many contributions to the study of fossil fishes, on the origin and development of the amphibians, and on many groups of fossil reptiles are too well known to need comment here. These, with his ease and clarity as a lecturer, have made him welcome in many assemblies and conferences. Among his many honours is the Darwin Medal of the Royal Society. Since the War he has been a trustee of the British Museum. Prof. Watson was sixty-five on June 18 and the event was celebrated in his department with a tea-party, when he was presented with an album of photographs and signatures of many of his friends, pupils and admirers from all over the world. His last term of office was clouded by an illness. Happily he has recovered his full vigour and will continue his researches in the familiar surroundings of University College. His friends and colleagues will wish him many happy years of work, and pleasure in his library and his collection of Oriental art. Prof. Watson has been succeeded by Prof. P. B. S. Medawar, Mason professor of zoology in the University of Birmingham (see *Nature*, 160, 14; 1947).

Television in the North of England

THE scheme of the British Broadcasting Corporation for establishing television on a nation-wide basis moved another step forward on October 12, when the North of England station at Holme Moss was opened for public service by Lord Simon of Wythenshawe, chairman of the governors of the