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

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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 1945 [1] 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 chemistry[3]. He had also thought profoundly on the philosophy of physical science[4], 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

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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