A detailed report of this work will be published elsewhere. I wish to thank Prof. A. Tiselius for his interest and advice. [Feb. 11]

¹ Tiselius, A., *Angew. Chem.*, **67**, 251 (1955).

² Tiselius, A., *Ark. Kemi*, **7**, 443 (1954).

³ Riley, V. T., *Science*, **107**, 573 (1948).

⁴ Riley, V. T., Hesselbach, M. L., Fiala, S., Woods, M. W., and Burk, D., *Science*, **109**, 361 (1949).

⁵ Maruyama, Y., and Yamagata, T., *Bacteriol. Proc.*, **87** (1955); cf. *Angew. Chem.*, **67**, 632 (1955).

⁶ Freeman, G., *Science*, **114**, 527 (1951).

⁷ Mickle, H., *Quart. J. Micro. Sci.*, **69**, 10 (1947).

⁸ Brønsted, J. N., *Z. Phys. Chem., Bodensteinfestband*, 257 (1931).

⁹ Tavel, P. v., *Helv. Chim. Acta*, **38**, 521 (1955).

¹⁰ Des Courdes, *Arch. f. Entwicklungsmechanik d. Organismen*, **7**, 325 (1898).

¹¹ Martin, A. J. P., and Porter, R. R., *Biochem. J.*, **49**, 215 (1951).

OBITUARIES

Dr. F. Sherwood Taylor

THE death of Dr. Frank Sherwood Taylor, director of the Science Museum, on January 5, at the early age of fifty-eight, has removed from the scientific life of Great Britain one whose interests transcended the narrow limits of his original specialist studies in chemistry and who had become widely known as a historian of science and as a very skilful expounder of the intricacies of modern science to the layman.

Born on November 26, 1897, Taylor was educated at Sherborne and at Lincoln College, Oxford, where he was elected to a classical scholarship. The First World War interrupted his studies and deflected his interests from classics to chemistry. After graduating, he taught chemistry at various schools, including Gresham's and Repton, and during 1933-38 he was assistant lecturer in chemistry in Queen Mary College, London. In the meantime, he had obtained the degree of Ph.D. in the University of London for his historical researches on Greek alchemy as the first student in the newly established Department of the History and Method of Science in University College. In 1940 he became curator of the Museum of the History of Science, Oxford, where he remained until he was appointed director of the Science Museum, London, in 1950.

Sherwood Taylor, as he was generally known, was always deeply interested in alchemy and the alchemists; he would spare no pains in attempting to understand the most obscure writers and in trying to explain their words in more familiar and comprehensible terms. It was with the greatest enthusiasm, therefore, that he took a most active part in founding in 1937 the Society for the Study of Alchemy and Early Chemistry and in acting as honorary editor of its journal, *Ambix*, from its first appearance in 1937. A similar enthusiasm marked his support of the British Society for the History of Science when it was founded in 1947, and he served the Society as president during 1951-53.

Apart from many papers in specialist journals, such as *Ambix* and the *Annals of Science*, Taylor wrote extensively on the history of science, on chemistry and on alchemy, and also on religious topics. His earliest books were text-books of chemistry, and these were marked by a clear and attractive style as well as by the high standard of presentation of the material. He will, however, be best remembered for his books on the history of science: "Galileo and the Freedom of Thought" (1938), "A Short History of Science" (1939), "The Century of Science" (1940), "Science Past and Present" (1945), "The Alchemists" (1952), "An Illustrated History of Science" (1955), embodying the Christmas Lectures that he gave at the Royal Institution in 1953, and "A History of Industrial

Chemistry" (1955). To the general reader he was also known for his remarkable presentation of modern science in "The World of Science" (1936), a work of more than a thousand pages that has retained its well-deserved popularity after the lapse of twenty years.

In the later part of his life Taylor was received into the Roman Catholic Church. He was always deeply concerned in religious matters, although not given to parade his views. Those who had known him long were aware of a strong mystical element in his thought. His writings on religion include "The Fourfold Vision" (1945) and "Two Ways of Life" (1947). His scholarship, his tolerance, his gentle ways, his regard for science as part of man's cultural heritage will long be remembered. Few of those who recall him will know that he was severely wounded at Passchendaele on October 10, 1917, while serving with an infantry unit of the Honourable Artillery Company, and fewer still know that he was at the time voluntarily taking the place of an older man.

DOUGLAS MCKIE

Dr. E. W. Gudger

THE death occurred on February 19 of Dr. Eugene Willis Gudger, one of the oldest staff members of the American Museum of Natural History; Dr. Gudger would have been ninety in August.

Dr. Gudger was born on August 10, 1866, in the mountain section of North Carolina, the son of a circuit judge. Both his parents were descendants of the British settlers of that area and he was very proud of the fact that the name Gudger had originally been Macgregor. He was educated at southern schools and took his doctorate at Johns Hopkins. He then taught general science, first in a secondary school in Little Rock, Arkansas, where his pupils were little younger than he, and then for twenty-five years in the North Carolina College for Women. For many years he went to reunions of the Little Rock class he had taught, and some of his old pupils there remained his closest friends.

In 1919, Dr. Gudger went to the American Museum of Natural History to edit the third volume of Bashford Dean's "Bibliography of Fishes", and after Dr. Dean's death, in 1928, took on the difficult task of editing the Dean Memorial volumes, and was in charge of the Dean Memorial Library and of the card catalogue which until 1938 continued the Bibliography.

In 1921 he was appointed associate in ichthyology, and in 1935 this title was changed to the regular staff appointment of associate curator of fishes. In 1938 Dr. Gudger became one of the honorary staff of the Department of Fishes, but continued as librarian of the Dean Memorial Library. In 1952, his age and

his failing eyesight compelled him to stop work at the Museum and he retired to his former home in Waynesville, North Carolina, where he died.

Dr. Gudger's bibliography was enormous: chiefly articles on odd facts about fishes, old natural history myths and the distribution and habits of the whale shark. He was primarily a library worker, with an extraordinary knowledge of ancient natural history literature. He conducted a vast correspondence on all sorts of topics, ranging from fishes to inaccuracies in magazine illustrations of steam engines. The arrival of his mail and his southern home-town paper brought him to the Museum early every morning before the main doors were open or the corridor lights on.

Dr. Gudger was an impressively tall, rosy-cheeked, silver-haired man with peering, bespectacled blue eyes. Due to his unusual appearance, his determined and emotional personality—as booming in enthusiasm as in anger—his departure from the Museum deprived us of one of our most colourful figures.

Dr. Gudger never married. He is survived by a brother.
F. R. LAMONTE

Prof. J. R. H. Whiston, O.B.E.

PROF. J. R. H. WHISTON, head of the Applied Chemistry Branch in the Royal Military College of Science, died on February 28 after a short illness.

John Reginald Harvey Whiston was born at Gonalston on January 3, 1893, and attended Nottingham High School during 1902–11, when he obtained an open Exhibition in Natural Science at Jesus College, Oxford, where he obtained a first in chemistry in 1914. During the First World War he served (1914–16) as an officer in the Sherwood Foresters, and from 1916 to the end in the R.F.C. as an experimental officer in the Seaplane Experimental Establishment at Martlesham Heath.

In 1919 Whiston returned to Oxford as a demonstrator in the Jesus College Laboratory, where he worked with the late D. L. Chapman on the hydrogen-chlorine reaction, particularly on the effect of oxygen, and with Sir Henry Tizard on indicator problems. After two further years in Oxford as a research chemist to the British Dyestuffs Corporation, he joined the staff of the Military College of Science at Woolwich in 1922.

The remainder of Prof. Whiston's career was spent in the Royal Military College of Science—he became an associate professor in 1936 and stayed with the College throughout its travels from Woolwich to Lydd, from Lydd to Stoke and from Stoke to its new permanent home in Shrivenham. At first his work was mainly on lubricants and on the improvement of petrols; but later he specialized more on Service explosives, and several government publications, including part of the new Services text-book of explosives, were written by him. In 1946 he was made O.B.E.

Prof. Whiston built up, in the College and outside, a reputation as an outstanding teacher and administrator, and he will be long remembered by the students, more than two thousand in number, who were taught by him. The staff of the College will always be grateful to him for his long labours on their behalf in official negotiations and for his never-failing help and kindness to the junior members. He is survived by his widow, their married daughter, and by two grandchildren.
E. C. BAUGHAN

Mr. John Pryce-Jones

THE unexpected death of John Pryce-Jones, so soon after his retirement because of ill-health, came as a profound shock to his many friends. He had been in indifferent health for some time, and early this year he had to undergo a major operation.

Pryce-Jones, who was sixty-two years of age, was born in Pencader, and was educated at Llandysul Grammar School and the University College of Wales, Aberystwyth. He belonged to an age which thought of university education as a great privilege, and throughout his life he maintained the academic interests of a true scholar while engaged in the chemical and administrative affairs of a prosperous industrial firm. After service in the R.N.V.R. as a meteorologist at Scapa Flow during the First World War, he joined the staff of Reckitt and Sons, Ltd., in 1919, and he remained with Reckitt and Colman, Ltd., until his retirement last September. During this time he became known as a leading expert on the manufacture and uses of ultramarine blue, and in 1950 he was appointed a director of Reckitt's (Colours), Ltd., when that company was formed.

Pryce-Jones was interested in all aspects of the chemistry of ultramarine, and among his fine collection were specimens of many shades. In particular, he was interested in its structure and in the influence of particle size, and he made important contributions to the improvement of the manufacture and application of this unusual material. His interest in lapis lazuli was such that he acquired a deep knowledge of its uses in medieval times, and he had a remarkable knowledge of art, in particular of the pigments used in paintings. He was an accepted authority, too, on oils and paints, and was keenly interested in oil paintings and in methods used in the faking of old masters.

During the nineteen-thirties, Pryce-Jones began to develop his interests in rheology, and his papers in the *Journal of the Oil and Colour Chemists' Association* on this subject were soon recognized as having more than a technical importance. They were, indeed, the beginning of a series of studies in the field of rheology which he continued up to the time of his death, and they constituted a very considerable contribution to knowledge.

Pryce-Jones was especially interested in the various modifications of the phenomena associated with 'thixotropy', and he designed several instruments for their investigation. He was strongly of the opinion that there are two distinct modes of behaviour involved in reversible loss of consistency as a result of shearing, corresponding to lyophobic and lyophilic colloidal conditions, respectively. He differentiated clearly between 'thixotropy' proper and 'false-body', though admitting that these can occur together in mixed systems. His nomenclature was sometimes unusual, but always lucid; for example, he insisted that any measurable rigidity should indicate the use of the term 'gel', the term 'sol' being strictly reserved for liquids. He designed an ingenious 'double Couette' viscometer consisting of two concentric cylinder instruments in series, with which he studied many rheologically anomalous materials. His work as an industrial chemist led him to take as wide an interest in suspensions as in sol-gel systems.

Pryce-Jones was one of the first to observe the phenomenon now generally named after Weissenberg (when a material climbs up a vertical rotating rod), which he characteristically referred to as the