

1920 and 1949 he served on the Council of the Royal Institute of Chemistry, and during 1930 he was a vice-president. An early member of the Society of Public Analysts (later the Society for Analytical Chemistry) he served on the Council, was honorary secretary during 1936-47 and president during 1947-49. He attended the meeting of the eighth session of the International Commission for Uniform Methods of Sugar Analysis, held in 1932 at Amsterdam, and was elected honorary secretary, in which position he remained until the end of the ninth session in London in 1936. He was also chairman of the Publication Committee, responsible for the production of the *Proceedings* for the eighth, ninth, and tenth sessions. In 1932 he became honorary secretary of

the newly formed British National Committee of the Commission, which position he relinquished in 1948 to become chairman. This post he held until 1954. The same year in Paris at the eleventh session of the Commission he was unanimously elected life honorary vice-president "in grateful recognition of his extensive and valuable services to the work of the Commission and for his distinguished contributions to the literature and practice of sugar analysis".

At the end of more than sixty years of a very busy life, he was still the same gentle-mannered man, a very kindly character, unassuming and loved by all who knew him; his many friends could count on the encouragement and help that was always forthcoming.

H. C. S. DE WHALLEY

NEWS and VIEWS

Nobel Prize for Physics:

Prof. Robert Hofstadter

PROF. ROBERT HOFSTADTER, who shares the Nobel Prize for Physics with Prof. R. L. Mössbauer, was born on February 5, 1915; he received the bachelor of science degree from the City College of New York in 1935, and his Ph.D. from Princeton in 1930. He then taught and carried out research at Princeton, Pennsylvania, and the City College of New York until the war years, during which he worked at the National Bureau of Standards and the Norden Laboratory Corporation. For four years after the War he was assistant professor at Princeton, but in 1950 he went to Stanford as associate professor, becoming professor in 1954, and eventually head of the department. Prof. Hofstadter is best known for his use of high-energy (roughly 1 BeV.) electron beams to probe the structure of nucleons. A knowledge of the form of the meson clouds surrounding the proton and neutron has been at the foundation of important recent developments in quantum field theory. It is not possible to give an adequate idea of this work in a short space; but the success of his work is perhaps best illustrated by the discussion it provoked in the United States of the feasibility of constructing an electron accelerator of still higher energy.

Prof. R. L. Mössbauer

THE early recognition of the importance of Prof. R. L. Mössbauer's work by a share of the Nobel Prize for Physics will give great satisfaction to all physicists. The recognition might have been even earlier if Prof. Mössbauer's work, carried out at the Max Planck-Institut at Heidelberg in 1957, had not passed strangely unnoticed for nearly two years. The discovery of what is now called the 'Mössbauer effect' is concerned with the spectrum of the γ -rays which are emitted by certain excited nuclei. It has been known for many years that the nuclear levels in many cases are extremely sharp, but considering the problems of nuclear recoil and lattice vibrations which introduce Doppler shifts, physicists had resigned themselves to the conclusion that the very narrow γ -ray lines which exist in principle would remain for ever inaccessible. Mössbauer's achievement lies in recognizing that in certain specific cases, appreciable fractions of the γ -rays may be emitted undisturbed by recoil or lattice vibrations. The imaginative achievement is the more remarkable when one considers that

the theory underlying the effect has been known for twenty years, but the relevant inferences had not been drawn. The first spate of new results obtained by making use of the Mössbauer effect in experiments to test the predictions of relativity theory, to investigate the properties of the solid state, the nature of magnetism and the properties of some nuclear excited states has now subsided, but there can be no doubt that the application of the discovery will continue to be a subtle tool in all branches of science.

Nobel Prize for Chemistry :

Prof. M. Calvin, For.Mem.R.S.

PROF. M. CALVIN, who has been awarded the Nobel Prize for Chemistry for 1961, took his doctorate at the University of Minnesota and afterwards spent two years at the University of Manchester with the aid of a Rockefeller Grant. In 1937 Prof. Calvin joined the staff of the University of California. Discovery of the long-lived isotope carbon-14 during the War (prior to which only the short-life isotope carbon-11 had been available) provided an opportunity for a comprehensive study of the intermediates of photosynthesis which was immediately realized by Prof. Calvin. Success came when the isotope technique was combined with the then recently discovered paper chromatographic method of analysis. In work with A. A. Benson and later others, the first product of the photosynthetic fixation of carbon dioxide was shown to be phosphoglyceric acid and for the first time the importance of the pentose and heptulose phosphates in photosynthesis was realized. Calvin postulated a sequence of reactions constituting the 'photosynthetic cycle' in which these compounds formed a synthetic cycle for the incorporation of carbon dioxide. About the same time essentially the same reactions were shown to play an important part in the respiratory process (the pentose phosphate shunt) not only of plants but also of animals. The interests of Prof. Calvin's group have now moved towards the investigation of the basic mechanism by which light energy is converted into chemical energy in the chloroplast of the green plant. Attempts have been made to devise model systems in which light energy can be converted to chemical energy with high efficiency, thus necessitating an extension of the earlier studies of the photochemistry of dyes. Prof. Calvin was elected a foreign member of the Royal Society in 1959.