SOCIETY ACTIVITIES AND AWARDS

Heineman Prize

On behalf of the Dannie N. Heineman Foundation, the American Institute of Physics and the American Physical Society have awarded the 1965 Heineman Prize for mathematical physics to Freeman J. Dyson of the Institute of Advanced Study. The award was

Photo by Heka

Freeman J. Dyson

presented to Professor Dyson on the occasion of the APS spring meeting in Washington, D. C. and honored him "for his contributions to quantum field theory and the theory of the S-matrix, as examples of outstanding publication in the field of mathematical physics."

Professor Dyson was born in Crowthorne, England, in 1923 and received his academic training from Cambridge University. He is one of a group of theoretical physicists who are known for having elaborated the present form of quantum electrodynamics. In the older form of the theory, the calculation of any of the finer electrodynamic effects, such as level shifts and radiative corrections to scattering, involved meaningless expressions containing the so-called "ultraviolet divergences." Soon after World War II, however, it occurred to several physicists, beginning with the late H. A. Kramers, that these divergences could perhaps be removed by a process called mass-and-charge renormalization. The calculations involved, however, were extremely complicated. Professor Dyson's first important contribution to the subject was his paper, "The Radiation Theories of Tomonaga, Schwinger and Feynman," which greatly contributed to the understanding of certain rules discovered by Feynman whereby the calculation of complicated effects can be enormously simplified. This was more than a technical improvement, for the Feynman-Dyson diagrams (as they are now called) and the associated rules have significantly modified the way people think about the problem. Soon after, Professor Dyson gave a discussion of the renormalization of the scattering matrix, which was the first systematic treatment of the question, and in time this work became the basis for many effects which have been fully confirmed by experiments.

Another important contribution by Professor Dyson to field theory is his integral representation of scattering amplitudes, from which several important results on the analytic properties of scattering amplitudes have been derived. Most recently, his work has been devoted to the statistical properties of level distributions, important problems in slow neutron physics, and low-energy physics in general.

Tillyer Medal

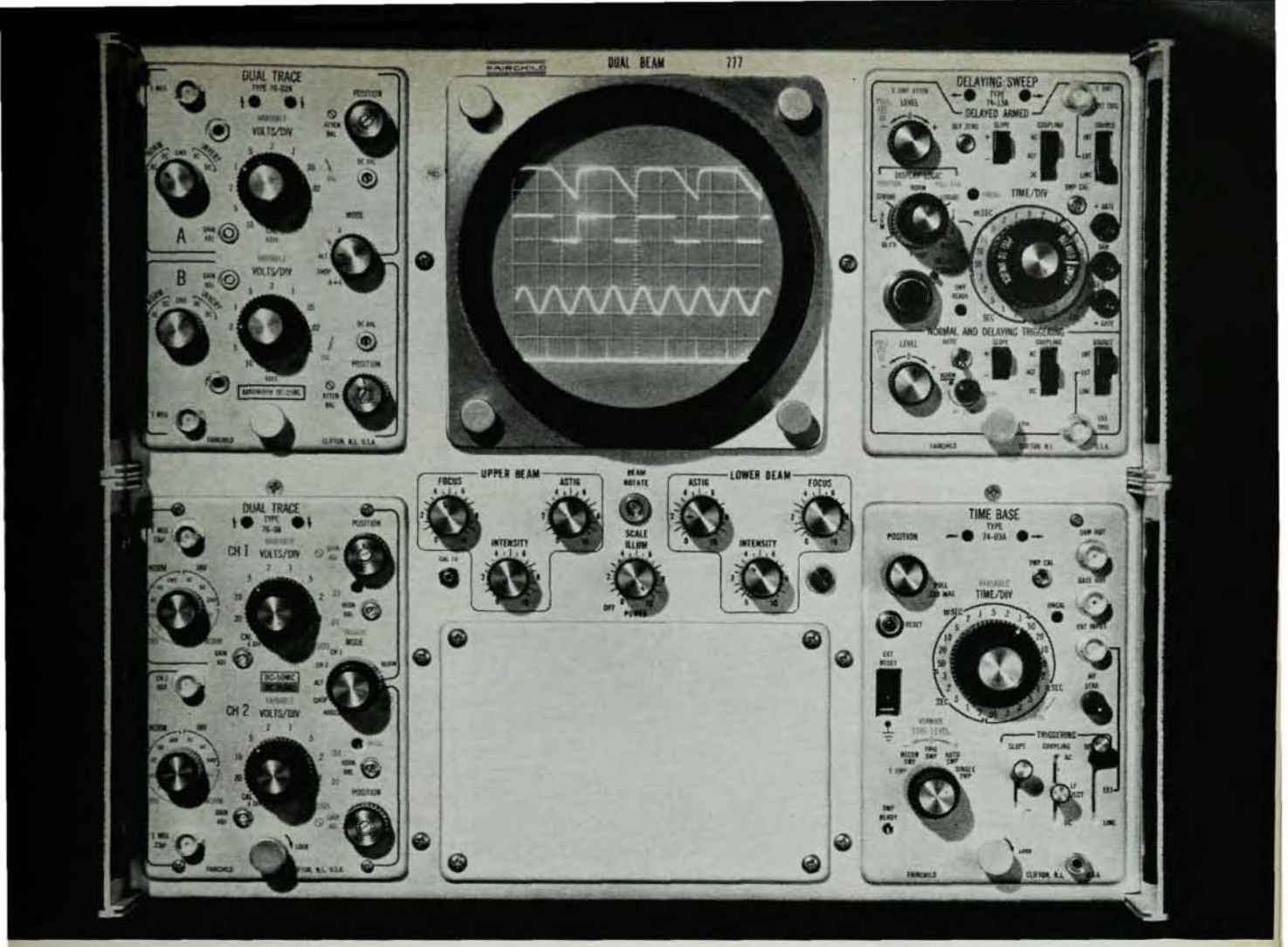
The Optical Society of America has awarded the 1965 Edgar D. Tillyer Medal to Walter Stanley Stiles, formerly of the British National Physical Laboratory in Teddington, for his outstanding work in vision and color. Presentation of the biennial award was made to Dr. Stiles by the Optical Society's president, Seibert Q. Duntley, during the OSA spring meeting in Dallas.

Dr. Stiles began his work on visual problems in illuminating engineering during the late 1920's and his studies of visual glare and visibility in fog, coupled with the researches of L. L. Holiday, led to the establishment of the Holiday-Stiles law of disability glare. Dr. Stiles later extended his work to visual sensitivity in man and its dependence on stimulus conditions. With B. H. Crawford, he carried out studies of foveal and extrafoveal retinal response in light and dark adaptation for white and monochromatic light. This work resulted in the discovery of the highly directional response of the cone receptors of the retina, commonly known as the Stiles-Crawford effect, and also in the development of the two-color method of separating visual mechanisms of different spectral sensitivities. More recently, Dr. Stiles has been concerned with determining the quantitative color-matching properties of the eye, and

Walter S. Stiles

together with J. M. Burch, has published mean color-matching functions for more than fifty observers.

Educated at London and Cambridge Universities, Dr. Stiles joined the National Physical Laboratories in 1925 as a junior scientific officer. He re-



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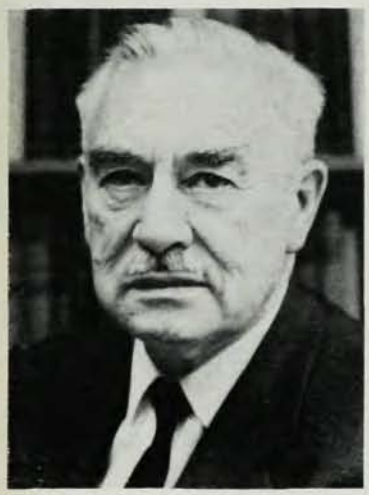
mained with NPL throughout his scientific career, retiring from active government service in 1961 with the rank of deputy chief scientist officer. A fellow of the Optical Society of America and of the Royal Society, he has served as head of the British Colour Group and the British Illuminating Engineering Society, and as vice president of the British Physical Society.

APS High-Polymer award

For his contributions to the study of polymer structure, particularly the use of light-scattering to examine polymer solutions, Peter J. W. Debye has received the American Physical Society's High-Polymer Physics Prize, sponsored by the Ford Motor Company. The



Peter J. W. Debye

$1000 award was presented to Dr. Debye by APS President Felix Bloch, during the banquet of the Society's March meeting in Kansas City.

Born in Maastricht in the Netherlands, in 1884, Dr. Debye studied electrical engineering at the Technische Hochschule in Aachen and went on to receive his doctorate from the University of Munich in 1908, under Arnold Sommerfeld. In 1911, he succeeded Einstein as professor of theoretical physics at the University of Zurich and later assumed similar positions at the Universities of Utrecht and Göttingen, and at Zurich's Federal Polytechnic School. In 1927, Dr. Debye became director of the physical institute at Leipzig University and in the fall of 1935 accepted the directorship of the Max Planck Institute of the Kaiser-Wilhelm-Gesellschaft in Berlin. Invited to give the Baker Lectures at Cornell University in 1940, he remained to become professor of chemistry at Cornell and head of the Department from 1940 to 1952. Since June of 1952, he has held the rank of professor emeritus.

Notable among his many achievements in fundamental chemistry are the Debye theory of specific heat of solids, the Debye-Hükel theory of the distribution of ions in chemical materials, and his work on molecular dipole moments and diffraction of x-rays and electrons in gases, which won him the Nobel Prize in chemistry in 1936. Since his retirement, Dr. Debye has worked in the field of high polymers, developing a method for measuring polymer size by means of a light-scattering technique. Currently, he is studying the critical phenomena of liquid mixtures and polymer solutions, as well as the range of molecular forces. Besides the Nobel Prize, the many honors accorded to him include the Lorentz Medal of the Royal Netherlands Academy of Sciences, and the Franklin Medal of the Franklin Institute.

Spectroscopy honor

For his work in x-ray and electron-probe spectroscopy, L. S. Birks of the Naval Research Laboratory has won the 1965 award of the Spectroscopy Society of Pittsburgh. The award, consisting of a scroll and a $300 honorarium, was presented to Mr. Birks on March 2, during the Sixteenth Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy.

Mr. Birks has been a pioneer in the study of the electron-probe microanalyzer and has authored or coauthored some seven papers on x-ray fluorescence, electron proble analysis, x-ray diffraction, and electron microscopy. Educated at the Universities of Illinois and Maryland, he has been affiliated with the NRL since 1942 and is currently head of the Laboratory's X-Ray Optics Branch. A fellow of the Washington Academy of Sciences, he is also a member of the American Physical Society and the Electron Microscopy Society of America.

Dickinson's Priestley Award

Dickinson College has presented its fourteenth Joseph Priestley Memorial Award to Joel H. Hildebrand of the University of California. The award, consisting of a medal and a $1000 honorarium, was given to Dr. Hildebrand for his work in solubility and the structure of liquids.

Dr. Hildebrand has been associated with the University of California for over fifty years as professor of chemistry, chairman of the Department, and dean of the College of Chemistry. Since 1952 he has been professor emeritus. He is a fellow of the American Physical Society and a former president of the American Chemical Society.

Plastics award

The Society of Plastic Engineers has honored Turner Alfrey, Jr., with its 1965 International Award in Plastics Science and Engineering. The award, consisting of a gold medal and a $1000 honorarium, is in recognition of Dr. Alfrey's work in three major areas of plastics, the mechanical and physical behavior of polymers, the development of copolymers, and the study of problems in rheology.

Employed by the Dow Chemical Company since 1950, Dr. Alfrey is currently a research scientist at Dow's Plastics Research Laboratory in Midland, Mich. He is a member of the American Physical Society and the Society of Rheology, and received the Society of Rheology's Bingham Medal in 1955.

Officers

Elected officers of the American Physical Society's Division of High-Polymer Physics for the 1965-66 term include H. D. Keith, *chairman;* Elio Passaglia, *vice chairman;* and W. James Lyons, *secretary treasurer.* John D. Hoffman and Fraser P. Price were named to three-year terms on the Executive Committee of the Division.