

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-