J. H. Van Vleck

Langmuir prize

The American Physical Society and the American Chemical Society, with the sponsorship of the General Electric Foundation, have joined in establishing a new $5000 prize, to be called the Irving Langmuir Award in Chemical Physics. The two societies will alternate each year in selecting a scientist, residing in the US, who has made an outstanding contribution to chemical physics or physical chemistry within the ten preceding years.

Irving Langmuir, who was associated with the GE Research Laboratory from 1909 until his death in 1957, was a chemist by training whose interests ranged broadly over a number of scientific disciplines. Winner of the 1932 Nobel Prize for his work in surface chemistry, he also made important contributions in the areas of electron emission and space-charge phenomena, gaseous discharges, weather research, and the study of proteins, and aided in the development of many technological devices.

The first Langmuir Award winner, chosen this year by the American Physical Society, is John H. Van Vleck of Harvard University. He was honored for his investigations of the magnetic properties of chemical systems, in particular of rare-earth ions in crystals and of oxygen and nitric oxide clathrates. The Award was presented at the March meeting of the APS in Kansas City.

A native of Middletown, Conn., Professor Van Vleck received his doctorate in 1922 at Harvard University, where he had been a student of Edwin Kemble. He taught physics at the Universities of Minnesota and Wisconsin before joining the Harvard faculty in 1934, and since 1951, has held the post of Hollis Professor of Mathematics and Natural Philosophy.

Dr. Van Vleck's early work in the theory of magnetism was summarized in his *Theory of Electric and Magnetic Susceptibilities,* published in 1932. Shortly thereafter, he developed, with Schlapp and Penney, the theory of magnetic behavior in crystalline electric fields, which is the basis of much of modern magnetochemistry and ligand field theory. Since that time, Dr. Van Vleck has made many other contributions to valence theory, atomic and molecular spectra, ferromagnetic and ferrimagnetic resonance, and line widths. During World War II, he was engaged in the study of radar wave propagation at Harvard and at the MIT Radiation Laboratory. More recently, Dr. Van Vleck's work has dealt with the magnetic behavior of clathrate compounds, the gyromagnetic ratio of cobaltous salts, and the Knight shift in magnetic resonance.

A fellow of the American Physical Society, Dr. Van Vleck served as APS president during 1952. He is also a former vice president of the International Union of Pure and Applied Physics and of the American Academy of Arts and Sciences.

NAS honors

On the occasion of the 102nd annual meeting of the National Academy of Sciences in Washington, D. C., the Academy presented its Watson and Draper Medals and announced the election of new members and foreign associates.

Paul Herget of the University of Cincinnati became the 18th recipient of the James Craig Watson Medal, the oldest of Academy awards, which is given in memory of a pioneer American astronomer. Professor Herget was cited for his work in the field of celestial mechanics, and particularly his application of electronic-computer techniques to calculations of the orbits of comets, earth satellites, and asteroids. A member of the Cincinnati faculty since 1931, he received his PhD in 1935 and since 1943 has held the position of professor and director of the University of Cincinnati Observatory. Effective June 13, he will be accorded the title of Distinguished Service Professor of Astronomy at Cincinnati.

Martin Ryle of the University of Cambridge received the Academy's 35th Henry Draper Medal for outstanding achievement in astronomical physics. Professor Ryle's award was in recognition of his development of radio-telescopic equipment, especially antenna systems, which have made it possible to determine accurately the positions of many weak radio sources. He was also cited for his use of equipment to produce catalogs of radio sources that give basic data for optical and radio astronomy, and for his use of data derived from radio sources in evaluating rival theories of cosmology.

Professor Herget is widely known for his investigations of the asteroid belt and at the Cincinnati Observa-

Martin Ryle

Paul Herget

tory directs an international facility for asteroid study, the Minor Planet Center, which has calculated the positions of many asteroids for successive periods up to the year 2000. As a member of the International Astronomical Union's Committee on Minor Planets, Professor Herget rediscovered, in 1954, the minor planet Athalia, which had been "lost" for approximately half a century. He is also widely known as a leader in the application of computers to problems in astronomy, and was given the responsibility for developing the Vanguard Computing Center for tracking the early American satellites, and later designed the computer program for Project Mercury. A member of the American Astronomical Society, Professor Herget is also a former chairman of the astronomy panel for the National Science Foundation and vice president of the astronomy section of the American Association for the Advancement of Science.

Professor Ryle was an early investigator of discrete radio sources in the period immediately after World War II. In order to locate sources of small angular size, he developed a method of phase switching to separate small, weak emissions from their bright backgrounds, as well as a series of antenna arrays of increasing resolving power. Applying these tools to the study of discrete sources, he and his coworkers have produced a series of catalogs, the most recent of which, the Third Cambridge Catalog, provides basic data on 471 such objects. Professor Ryle has also demonstrated over the past decade that the frequency distribution and intensity of radio sources could provide a powerful analytical tool for discriminating between various models of the universe.

Born in 1918, and educated at Bradfield College and Christ Church, Oxford, Professor Ryle worked in the Telecommunications Research Establishment during the war, designing various types of radar apparatus. He was later appointed to the posts of university lecturer in physics and reader in physics at Cambridge University, and since 1959 has held the position of professor of radio astronomy at Cambridge. A fellow of the Royal

Society, he was awarded its Hughes Medal in 1954 and last year received the Gold Medal of the Royal Astronomical Society.

The National Academy of Sciences also elected thirty-five new members in recognition of their distinguished and continuing achievements in original research. Among these scientists are James G. Baker of the Harvard College Observatory, Joseph W. Chamberlain of the Kitt Peak National Observatory, Robert F. Christy of the California Institute of Technology, Harry G. Drickamer of the University of Illinois, Wendell R. Garner of Johns Hopkins University, Leland J. Haworth of the National Science Foundation, Mark Kac of the Rockefeller Institute, Leon M. Lederman of Columbia University, Bernd T. Matthias of the University of California and Bell Telephone Laboratories, Harden M. McConnell of Stanford University, and Chen Ning Yang of the Institute for Advanced Study. In addition, six scientists were elected foreign associates of the Academy, among whom is Sin-Itiro Tomonaga, president of the Science Council of Japan.

IPPS honors

Last month, during its annual dinner in London, the British Institute of Physics and the Physical Society presented several awards.

André Maréchal of the Sorbonne and the Institut d'Optique has been awarded the Thomas Young Medal for his distinguished work in many fields of optics. Professor Maréchal was the first to show that the loss of energy from a diffraction pattern resulting from phase errors over the aperture is determined by the variance of the phase error. This has led to a system of tolerances on aberrations for any type of image-forming system. Much of this work was later confirmed using an analogue computer built by Maréchal for the evaluation of the complex amplitudes in diffraction patterns. He has also contributed to the physical aspects of image formation, and more recently has devised a technique, now known as spatial filtering for the improvement of optical images.

Dr. Maréchal was born in a suburb of Paris in 1916 and was educated at the Ecole Normale Supérieure. Besides holding academic posts at the Sorbonne and the Institut d'Optique, he serves as secretary of the French Physical Society.

The Duddell Medal was awarded to H. A. Gebbie of the National Physical Laboratory in Teddington, for his work in interference spectroscopy in the infrared. Dr. Gebbie obtained his PhD from Reading University in 1952 and following academic appointments in the US, joined the staff of the National Physical Laboratory, where he is now senior principal scientist officer in the Basic Physics Division. At NPL, he has developed a spectroscopic technique in which no prism or grating dispersing element is used but instead an interferometer produces an interferogram in which all wavelengths over a wide band are processed simultaneously. This interferogram is then converted into a conventional spectrum by a Fourier transform carried out on a digital computer. The great energy grasp of this technique enables emission spectra from very weak sources of low intensity to be recorded, and its application to the far infrared has decreased time of observation by a factor of fifty and the cost of an instrument by a factor of three.

The Charles Vernon Boys Prize of the IPPS was given to A. Howie and M. J. Whelan, both of Cambridge University, for their studies of lattice defects in crystals by electron microscopy. Dr. Howie's work has dealt with the extension of the transmission electron microscope technique to the study of deformed single crystals, and with his coworkers, has applied the kinematical theory of electron diffraction to the problem of dislocation image contrast. More recently, he has studied inelastic scattering of fast electrons in crystals and the scattering of low-energy electrons by lattice imperfections. Dr. Whelan has developed and applied new methods for observing dislocations directly in crystalline materials by transmission electron microscopy. This work permits the study of the arrangement and motion of dislocations in metals, and the correlation of the observed effects with the macroscopic strength properties of bulk materials.

B. J. Mason of the Imperial College of Science and Technology was given the Charles Chree Medal for his work in atmospheric physics, especially the physics of clouds, precipitation, and thunderstorm electrification. Dr. Mason has served as professor of cloud physics at Imperial College since 1961, and is the author of over a hundred publications in his field, including the texts *The Physics of Clouds* and *Clouds, Rain, and Rainmaking*. A frequent visitor to the United States, he was awarded a Rockefeller Travelling Fellowship in 1953 to advise on the founding of the Institute of Atmospheric Physics at the University of Arizona, and during 1959 he was appointed visiting professor of meteorology at the University of California in Los Angeles.

John B. Adams, director of Britain's Culham Laboratory, was invited to give the Guthrie Lecture in memory of the founder of the (British) Physical Society, Frederick Guthrie. Dr. Adams was born in Kingston, Surrey, in 1920 and educated at Eltham College and South East London Technical College. During the early days of atomic energy projects in Britain, he joined the Ministry of Supply, which at that time was responsible for atomic and research development in the United Kingdom. Later, he joined the Atomic Energy Research Establishment at Harwell, to work initially on the design and later the construction of the 175-MeV synchrotron, which was the first high-energy proton accelerator built after the Second World War. Dr. Adams came to CERN in 1953 to design and build the 25 000-MeV proton synchrotron which was completed in 1959. Following the tragic death of Prof. C. J. Bakker in 1960, Dr. Adams was appointed director-general of CERN, and the following year became head of the Culham Laboratory.