

SOCIETY ACTIVITIES AND AWARDS

ISA joins AIP

On December 12th, the Executive Committee of the American Institute of Physics, upon authorization of the AIP Governing Board, unanimously elected the Instrument Society of America an Affiliated Society of the AIP. The Instrument Society is the fifteenth organization to acquire affiliated status with the Institute. The Society's stated purpose is "to advance the arts and sciences related to the theory, design, manufacture and use of instruments and controls in the various sciences and technologies". To this end, the ISA sponsors various conferences and exhibits, establishes standards and practices, develops educational programs, honors achievement in the field, and disseminates relevant information through the *ISA Journal* and *Transactions*, as well as other publications.

The Instrument Society was founded in 1945 by fifteen local, independent organizations whose delegates drafted a constitution which was ratified in January 1946. The local societies became sections of the ISA, and by the end of August 1946 the organization had twenty-one sections with a total membership of 1075. At the present time, the Society has some 15 000 members who participate in 116 sections throughout the United States and Canada.

William A. Crawford is president of the Society for 1965. John G. Truxal is president-elect and secretary, and Paul M. Hankison is treasurer. The immediate past president is Allan E. Lee.

Royal Society

At ceremonies held in London during December, the Royal Society presented a number of awards for distinguished scientific achievement. Among them were a number of medals given for work in physics or related areas.

The Rumford Medal of the Royal Society was presented to H. C. van de Hulst, professor of theoretical astronomy at the University of Leiden, for



H. C. van de Hulst

his work on the scattering processes in the interplanetary medium and his prediction of the 21-cm spectral line from interstellar neutral hydrogen.

Dr. van de Hulst, a native of Utrecht, Holland, studied at the State University of Utrecht, where he won his doctor's degree in 1946. For several years, he worked at various observatories in the United States, and in 1948 returned to Holland to join the Leiden faculty.

It was during the latter part of World War II, while Holland was an occupied country, that van de Hulst made his prediction that it would be possible to observe a discrete line in the radio region emitted by interstellar clouds of neutral hydrogen. The radiation arises from a transition between two closely spaced energy levels in the hyperfine structure of the ground state of the hydrogen atom. The 21-cm line was first observed in 1951 by Purcell and Ewen at Harvard and within six weeks was detected by Dutch and Australian astronomers as well. Subsequently, radio astronomers throughout the world have vigorously employed the 21-cm radiation as a powerful tool both in the study of our galaxy and in that of extragalactic nebulae.

Dr. van de Hulst has also done important theoretical work on the scattering and interaction of light and particles in the solar corona and in

interstellar space. The former head of the Committee on Space Research, he is currently vice president of the European Space Research Organization.

For his work in quantum mechanics and the theory of fundamental particles, Abdus Salam received the Royal Society's Hughes Medal. Born in Jhang, Pakistan, and educated at the Universities of the Punjab and Cambridge, Dr. Salam was awarded his doctorate in 1951 for a thesis containing fundamental work on renormalization theory. He later taught at the Government College in Lahore, and at Cambridge. Since 1960 he has served as professor of theoretical physics at the Imperial College of Science and Technology in the University of London. This past October, Dr. Salam assumed the additional post of head of the International Atomic Energy Agency's Center for Theoretical Physics in Trieste. (See page 52)

Among Dr. Salam's important contributions is his 1957 proposal that a close connection exists between the zero rest mass of the neutrino and the parity nonconserving effects in weak interactions. The several predictions which this theory makes about neutrino properties and the way parity is violated in neutrino interactions, have since been confirmed by experiment. Dr. Salam also proposed in 1961, with J. C. Ward, that strong



Abdus Salam

interactions should satisfy unitary symmetry, implying that the various particles and resonances should appear in supermultiplets of the same spin and parity. The theory predicted an octet of spin-one mesons, which play a part in strong interactions analogous to that of the photon in electrodynamics. Such mesons have since been found.

A member of the American Physical Society and fellow of the Royal Society, Dr. Salam was honored in 1962 with the Maxwell Medal of the Institute of Physics and Physical Society.

The Royal Society awarded its Copley Medal to Sydney Chapman for his many contributions in the field of geophysics. A former head of the Special Committee for the International Geophysical Year, Dr. Chapman has also served as president of several international organizations in solar-terrestrial physics. In research, he has won recognition for his work on the kinetic theory of gases and his studies of solar and lunar geomagnetic variations and solar and lunar tides. Dr. Chapman also originated the concept of the idealized "Chapman layer" model of an ionospheric layer, and with Ferraro, developed theories of the morphology of magnetic storms under the impact of clouds of solar ions. Recently, he has advanced, with Akasofu, a new theory of the formation and changes of auroral forms.

Born in Eccles, Lancashire, England, in 1888, he was educated at the Universities of Manchester and Cambridge, and later taught at Cambridge,

Manchester, Oxford, and the Imperial College of Science and Technology. Today ("in retirement"), he holds posts at the National Center for Atmospheric Research in Boulder, Colo., and the Universities of Alaska, Minnesota, and Michigan. His numerous honors include the Royal Medal of the Royal Society, the Gold Medal of the Royal Astronomical Society, and the Bowie Medal of the American Geophysical Union.



Melvin Calvin

Melvin Calvin of the University of California received the Royal Society's Davy Medal. The award specifically cited his contributions to the study of photosynthesis, in which he used radiocarbon as a tracer to follow carbon dioxide through the series of reactions that result in the production of carbohydrates.

Born in St. Paul, Minn., Dr. Calvin received his PhD in chemistry in 1935 from the University of Minnesota and later studied with M. Polanyi at the University of Manchester. He joined the faculty of the University of California at Berkeley in 1937, and has served as director of the bioorganic chemistry group in the Radiation Laboratory since 1946, and as professor of chemistry since 1947. The recipient of numerous other awards, he won the Nobel Prize in chemistry in 1961.

Quantum Electronics Council

An intersociety Joint Council on Quantum Electronics has been established, charged with the responsibility

of coordinating and organizing general meetings in the field and of representing its sponsoring organizations in international activities. Cooperating in the new organization are the American Institute of Physics, the American Physical Society, the Optical Society of America, the Institute of Electrical and Electronics Engineers, and the IEEE Groups on Electron Devices and on Microwave Theory and Techniques.

As one of its first tasks, the Council will organize the Fourth International Quantum Electronics Conference, which will be held later this year. In addition to continuing the tradition of these conferences, which were formerly sponsored by the Office of Naval Research, the JCQE intends to promote intersociety cooperation in quantum electronics and to advise sponsoring societies on specialized aspects of the field where additional technical meetings or publications are needed.

The membership of the Joint Council includes Peter Franken and C. H. Townes, representing the American Institute of Physics; James P. Gordon and Benjamin Lax, representing the American Physical Society; G. H. Dieke and Arthur Schawlow, for the Optical Society of America; Hubert Heffner and William W. Mumford, for the Institute of Electrical and Electronics Engineers; Eugene I. Gordon and Robert A. Kaplan, for the Electron Devices Group of the IEEE; and Frank R. Arams and Anthony E. Siegman, for the Microwave Theory and Techniques Group of the IEEE. Professor Heffner is chairman of the Joint Council and Dr. Arams is its secretary.

Research Corporation Award

At a dinner held in New York on January 28, William M. Fairbank, professor of physics at Stanford University, received the \$10 000 Research Corporation Award for 1964. He was recognized for his contributions in low-temperature physics and especially for his discovery of flux quantization in superconductors.

In 1961, Professor Fairbank and Bascom Deaver discovered that an electric current flowing through a ring



Sydney Chapman