ANDREW GEMANT AWARD

Call for Nominations

The Andrew Gemant Award of the American Institute of Physics recognizes the accomplishments of a person who has made significant contributions to the understanding of the relationship of physics to its surrounding culture and to the communication of that understanding. The Selection Committee invites nominees for the 1995 award.

Criteria

The awardee is chosen based on contributions in one or more of the following areas:

- Creative work in the arts and humanities that derives from a deep knowledge of and love for physics
- The interpretation of physics to the public through such means as mass media presentations or public lectures
- The enlightenment of physicists and the public regarding the history of physics or other cultural aspects of physics
- Clear communication of physics to students who are learning physics as part of their general education

Nature of Award

The awardee will be invited to deliver a public lecture in a suitable forum; the awardee will receive a cash award of $5,000 and will also be asked to designate an academic institution to receive a grant of $3,000 to further the public communication of physics.

The award is made possible by a bequest of Andrew Gemant to the American Institute of Physics. The 1995 Award will be the ninth. Past awardees include Gerald Holton of Harvard University, Cyril Stanley Smith of MIT, Martin Aitken of the University of Oxford, United Kingdom, Abraham Pais of the Rockefeller University, and Spencer Weart of the American Institute of Physics.

The awardee will be named by the AIP Governing Board in March 1995 based on the recommendation of an outside Selection Committee appointed by the Institute's Board Chairman.

Please send nominations with supporting material to:

John S. Rigden
Director of Physics Programs
One Physics Ellipse
College Park, MD 20740-3843

Deadline for nominations is 31 December 1994.

OBITUARIES

William W. Morgan

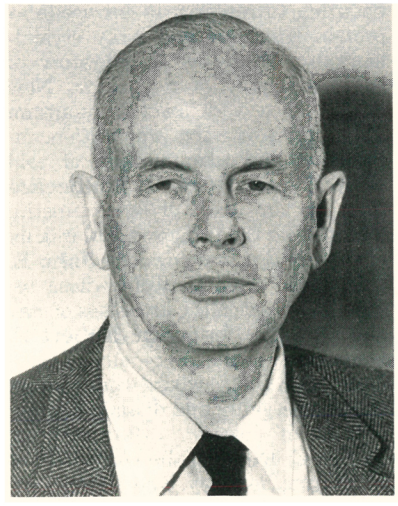
William W. Morgan, emeritus professor of astronomy and astrophysics at the University of Chicago and one of the leading astronomers of this century, died on 21 June 1994, at the age of 88. He was at his home, a short walk from Yerkes Observatory in Williams Bay, Wisconsin—the institution where he had spent his entire scientific career.

Morgan was a perfectionist in all he did. For decades he was the recognized international leader in the field of stellar spectral classification. After World War II he made important advances in our understanding of the universe by applying similar classification methods to star clusters and galaxies.

Morgan was born in Bethesda, Tennessee, on 3 January 1906. His education was unusual: In the fall of 1926, after three years at Washington and Lee University, he went to Yerkes—the astronomy research center of the University of Chicago—as an observing assistant. By correspondence and reading courses he earned his BS in astronomy at Chicago the following June. He did spend one year on campus as a graduate student; he earned his PhD in astronomy in 1931. He worked his way up through the faculty ranks and served as chairman of the astronomy department (1960–66) and as director of Yerkes and McDonald Observatories (1960–63). Morgan was named a Distinguished Service Professor in 1966. After his retirement in 1974 he remained active in research until his health began to fail about five years ago.

In the 1930s and 1940s Morgan vastly improved the methods and system of classification of stellar spectra over the earlier Harvard and Mount Wilson systems. Although he had very little training in physics, he made himself an expert in recognizing and distinguishing subtle patterns and forms. He pioneered the concept of two-dimensional spectral classification with a system rigorously defined by standard stars rather than by verbal descriptions and based on the spectra themselves rather than on "measured" luminosities, which were often highly inaccurate. This effort culminated in the MKK spectral atlas (so called after its authors Morgan, Philip C. Keenan and Edith Kellman), published in 1943. Morgan realized that calibrating these accurate spectral types in terms of absolute magnitude and color made it possible to measure quantitatively the reddening of a star, and hence the amount of interstellar extinction and the star's distance, to much higher precision than had previously been possible. He used this method to find the distances of "O associations," groups of hot, high-luminosity stars immersed in gaseous nebulae, and thus first mapped the nearby spiral arms in our own Milky Way Galaxy. When he announced this result at a meeting of the American Astronomical Society in December 1951, it created a sensation.

Morgan's work on O associations opened up the field of recent star formation in dense regions of interstellar matter. His work with Nicholas U. Mayall on the spectral classification of the globular clusters in our Galaxy revealed that contrary to the thinking of the time, the abundances of "metals" (that is, elements heavier than helium) in these very old objects



William W. Morgan

vary widely, and that the clusters nearest the Galactic center have quite high metal abundances. Morgan's investigation of the spectra of the nuclei of spiral and elliptical galaxies showed that contrary to previous assumptions, such regions are also more metal rich than typical galactic globular clusters and hence have undergone far more thermonuclear evolution.

In the 1950s Morgan and Keenan worked out an improved spectral classification system, which is still used today. With Harold L. Johnson, Morgan developed the *UBV* photometric system, which was well matched to the photomultipliers and telescopes of the 1950s and 1960s. (The system is based on an object's magnitude at three different wavelengths: ultraviolet, blue and visual or yellow-green.) In conjunction with his spectral clas-

sification, it is especially useful for galactic structure and stellar population studies.

Morgan also developed a system of classification of the forms of galaxies, somewhat different from the better known systems based on the classification of Edwin Hubble. Morgan's system has been little used, except for his concept of cD galaxies—the most luminous, giant "dustless" galaxies near the centers of clusters of galaxies. However, in recent years, research astronomers have been finding it increasingly useful.

Morgan trained several generations of graduate students in his methods and his way of attacking scientific problems. Outside of astronomy, he had unusually wide interests and expertise, particularly in literature, art, photography, philosophy and psychoanalysis.

In all his research Morgan concentrated on what he called "the thing itself," the direct observational data. He resisted fiercely the concept of using theoretical ideas as bases for classification systems and then attempting to make the observational data fit those ideas. Working in this meticulous morphological way he made many important, unexpected discoveries.

DONALD E. OSTERBROCK
Lick Observatory
University of California, Santa Cruz

James W. Corbett

James W. Corbett, Distinguished Service Professor at the University at Albany, State University of New York, died on 25 April 1994, at the age of 65.

Corbett was known for his many contributions to the understanding of defects in semiconductors and metals. His seminal book *Electron Radiation Damage in Semiconductors and Metals* (Academic, New York, 1966) summarized his early contributions and folded them masterfully into a comprehensive review of the field at that time; it remains a principal reference in this active field.

As his career progressed, Corbett expanded his research efforts to include defects resulting from neutron irradiation, ion-implant damage and various aspects of semiconductor processing. With his students and collaborators he also made innovative use of probes such as deep-level transient spectroscopy, positron annihilation and quantum mechanical cluster calculations to push forward research into the basic nature of defects. Of particular importance have been his contributions to the understanding of the variety of vacancy aggregates that can form in silicon, the many roles of oxygen, the properties of hydrogen and the myriad technologically important interactions that can and do occur between them.

Corbett had extensive interactions with many international scientists and held visiting positions in Egypt, Georgia SSR, Russia, the former Yugoslavia, Sweden, China and France. He had served as treasurer of Science Aid for West Africa, Ghana since 1986.

Corbett received his PhD from Yale University in 1955 and then joined the General Electric research laboratories outside Schenectady, New York. He joined the physics department at the University at Albany in 1968 and later served as department chair. In 1981 he achieved the rank of Distinguished Service Professor of the State University of New York. For more than 20 years he led the university's Institute for the Study of Defects in Solids. He also founded and directed the Joint Laboratories for Advanced Materials with colleagues from Albany and Rensselaer Polytechnic Institute, in Troy, New York. He was an associate editor of the journal *Materials Letters*.

Corbett quickly became a favorite thesis adviser to a generation of graduate students at Albany. Through a combination of challenge, support and encouragement he brought out the best in his students. Young colleagues from around the world vied to work in his laboratory.

Jim Corbett was much concerned with getting undergraduate students to think analytically. Students who took the general science course in urban and environmental physics that he developed are not likely to forget their individual oral exams and the need to quantitatively defend an ecological position under the scrutiny of Dutch uncle Corbett.

Jim's health began to fail in 1991. The grace and determination with which he continued an active life of teaching, research and scholarly activity is a lesson in courage to all of us.

WALTER GIBSON
KEITH RATCLIFF
University at Albany
State University of New York
GEORGE WATKINS
Lehigh University
Bethlehem, Pennsylvania

George W. Brady

George W. Brady, an internationally recognized authority on the application of x-ray diffraction and small-angle x-ray scattering to the structure of liquids, ions in liquids and liquid disordered systems, died suddenly on 27 June 1994.

George was born in Quebec City, Quebec, on 22 January 1920. He received his BS in chemistry from Laval University in 1942. Following three years as an officer in the Canadian artillery (he was wounded at Normandy), he completed his PhD in physical chemistry in 1949 at McGill University with Carl A. Winkler. In 1949–51, as a postdoctoral fellow at the University of Chicago, he began work on x-ray diffraction of liquids, an experimentally difficult technique that was to dominate his research career. His pioneering studies revealed shapes, cross-sectional details and spatial correlations of molecules and ions in liquids. Following a year's research fellowship at Harvard, George joined the staff of Bell Telephone Laboratories in Murray Hill, New Jersey, in 1952. His work over the next decade focused on fundamental problems in liquids, notably the structure of liquid water and the local coordination environment of ions in liquids. He developed mathematical slit desmearing methods for the small-angle diffractometer. During the 1960s he worked on the structural aspects of critical phenomena, liquid crystals and the interactions between large molecules.

By the 1970s George was changing his focus to the structural organization of biomolecules, and in 1975 he moved his lab to the Wadsworth Center of the New York State Department of Health in Albany. A paper he published in 1976 experimentally confirmed the higher superhelical order of DNA. His subsequent work expanded to include membrane structure and membrane–protein interactions in myelin. He retired in 1990. Overall, George's scientific contributions were well summarized by William O. Baker, president of Bell Labs in the 1970s: "The clarity of Brady's conclusions was a tribute to careful experimentation and sensible analysis."

George had diverse interests beyond his science. He was intensely devoted to his family and took great pride in the accomplishments of his sons. He was a talented impressionist painter, an avid gardener and a critical judge of fine wines and French cuisine. He will be missed.

HARRY F. FRISCH
CHARLES P. SCHOLES
LAWRENCE C. SNYDER
University at Albany
State University of New York
BORIS W. BATTERMAN
Cornell University
Ithaca, New York ■