

Astronomers honor seven theorists and observers

The American Astronomical Society has honored five astronomers; two of its divisions have also presented awards. P. James E. Peebles has been given the Dannie Heineman Prize for Astrophysics, Bart J. Bok has been awarded the Henry Norris Russell Lectureship, Roger D. Blandford has been honored with the Helen B. Warner Prize, Marc Davis has been given the Newton Lacy Pierce Prize and Judith Young has won the Annie Jump Cannon Award. The Division of Dynamical Astronomy of the AAS has presented the Dirk Brouwer Award to George Contopoulos, and the Division of Solar Physics of the AAS has awarded the George Ellery Hale Prize to John W. Evans Jr.

Jointly with the American Institute of Physics, the Society has presented the Dannie Heineman Prize for Astrophysics to P. James E. Peebles of Princeton University. Peebles is recognized for "his contributions to cosmology, the study of the evolution of the entire universe."

Recently Peebles' work has focused on the very large-scale structure of the universe, considering, for example, how galaxies are distributed in clusters and investigating other structures with dimensions exceeding tens of megaparsecs. He is perhaps best known for his work on 3-K microwave background



BOK

radiation, believed to be remnant radiation from the Big Bang. Peebles considered what measurements of such things as the spectrum and anisotropy of the 3-K background radiation might reveal about processes in the early Universe. He did early theoretical work on nucleosynthesis considering, for example, how helium was made in the Big Bang. He worked on the interaction between matter and radiation as they expand out of the Big Bang, and was one of the first to study their coupling in detail. His PhD thesis had considered various aspects of general relativity and the implications of observations for the theory of general relativity. He is the author of two books, *Physical Cosmology*, now a standard reference work for graduate students in this field, and *The Large Scale Structure of the Universe*, which discusses the statistical distribution of galaxies in the Universe and its overall structure.

Peebles remained at Princeton University after obtaining his PhD there in 1962. He is now professor of physics and pursues his long-standing research interest in cosmology.

The Henry Norris Russell Lectureship is presented annually by the Society for eminence in astronomical research; it is the highest honor the

Society can bestow. This year's winner, Bart J. Bok, is professor emeritus of astronomy at the University of Arizona. He is recognized for "his lifelong research interest in the Milky Way Galaxy, with particular emphasis on the part of our galaxy which is visible from the southern hemisphere."

Bok's interest in the Milky Way has included extensive investigation of dark nebulae, including dense clouds of dust and their role in the birth of stars. In his honor, one class of such clouds of dust are now known as "Bok globules." He has also been interested in the spiral structure of the Galaxy, Magellanic Clouds and radio astronomy.

Bok obtained his PhD in astronomy from the University of Groningen in 1932 while he was serving as the Robert Wheeler Willson fellow in astronomy at Harvard University. He became the Robert Wheeler Willson Professor of Astronomy in 1933, holding this position at Harvard until 1957; he also served as associate director of the Harvard Observatory from 1946 to 1952. From 1957 to 1966 he both taught astronomy at the Australian National University and directed the Mount Stromlo Observatory. He came to the University of Arizona in 1966, headed the Steward Observatory until 1970 and taught astronomy until 1974

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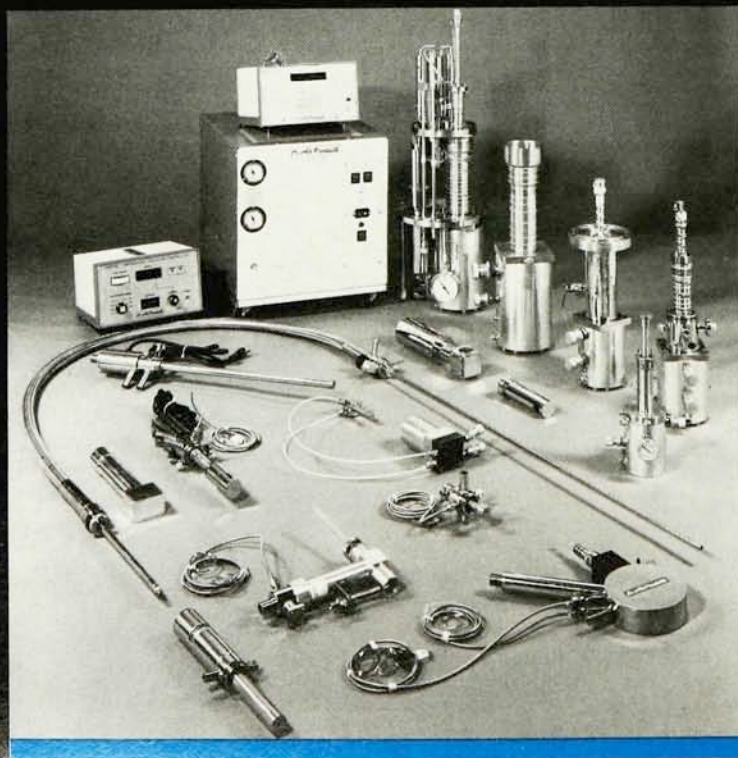
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when he became professor emeritus of astronomy.

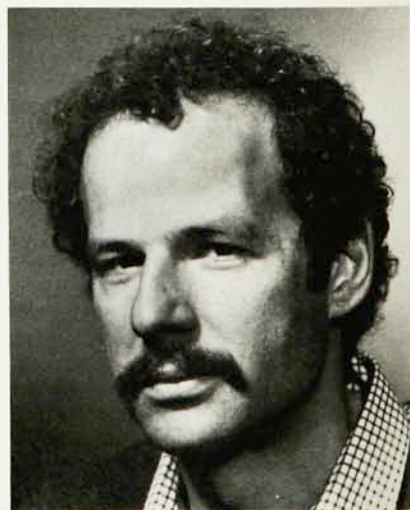
The Helen B. Warner Prize is given annually by the Society to honor the contributions of an astronomer under 36 years old. Roger D. Blandford, of the California Institute of Technology, was cited for "his achievements in the theoretical understanding of the interaction of fast particles and magnetic fields in the formation of tremendous high-speed jets of material in active galaxies, radio galaxies, and quasars."

Blandford obtained his PhD from Cambridge University in 1974. During his stay at Cambridge he spent three years doing research at the Institute of Astronomy under Martin J. Rees. He was at the Institute for Advanced Study at Princeton University from 1974 until 1975. He came to the California Institute of Technology in 1976 and is now professor of astronomy there.

The Newton Lacy Pierce Prize is given by the Society to an astronomer under 36 years old whose research has primarily involved observations and measurements of radiation from astronomical objects. This year's winner, Marc Davis, now at the University of California, Berkeley, was recognized for work he did as part of a team at the Harvard-Smithsonian Center for Astrophysics. Davis was the principal investigator for the Red Shift Survey, working with John Huchra, David Latham and John Tonry; the survey found that "the space distribution of galaxies is frothy, characterized by large filamentary structures of up to 60 megaparsecs in extent, and corresponding large holes devoid of galaxies." (See PHYSICS TODAY, January 1982, page 17.) Davis, who obtained his PhD in physics from Princeton University in 1973, is currently collaborating with Peebles on an investigation of large-scale structures in the universe.

Davis left Princeton in 1975 to join

DAVIS





YOUNG

the staff at Harvard University. In 1981 he became professor of astronomy and physics at the University of California, Berkeley. His chief research interests are in extragalactic astronomy and cosmology. He has worked on the kinetic theory of clustering galaxies and gravitational radiation in the vicinity of Schwarzschild black holes.

The Annie Jump Cannon Award is presented by the society to recognize a female astronomer at the beginning of her research years; there is no specific age limitation. Judith S. Young of the University of Massachusetts, Amherst, was recognized for studies of giant molecular clouds in our galaxy and in other galaxies. Young's research of giant molecular clouds may add to our understanding of the formation of stars. These clouds, whose mass is about 10^5 or 10^6 solar masses, may contain a large fraction of the interstellar gas of some galaxies; they are believed by some investigators to be the birthplaces of stars. (The nebula in Orion is one such cloud.)

Young received her PhD in physics from the University of Minnesota in 1979. Prior to obtaining her degree, she had worked at Harvard University from 1971 to 1974. Since 1979 she has been at the University of Massachusetts. Her research interests include extragalactic radio astronomy, galactic evolution and cosmic-ray physics.

The Division of Dynamical Astronomy of the Society has presented the Dirk Brouwer Award to George Contopoulos of the University of Athens in recognition of "his excellence in scientific research, impact and influence in dynamical astronomy, excellence in teaching, and other service to science."

Contopoulos has studied the integrals of motion for stellar orbits in galaxies. He enlarged the study of stellar orbits through his application of topological methods, the theorems of Kolmogorov, Arnold and Moser, and

the methods of celestial mechanics. His work has emphasized the importance of resonance phenomena in stellar motions, and has clarified the role of the interaction of resonances in the onset of chaotic behavior.

After receiving his doctorate from the University of Athens in 1953, Contopoulos served until 1957 as assistant and chief assistant in the Laboratory of Astronomy. Since 1957 he has been professor of astronomy at the University of Athens and director of the Astronomical Institute of the National Observatory of Athens.

The George Ellery Hale Prize of the Solar Physics Division of the AAS has been presented to John W. Evans Jr, now acting as a consultant for the Sacramento Peak Observatory. Evans was recognized for his career-long contributions to solar physics.

Evans, who served as the director of the Sacramento Peak Observatory from its beginning in 1952 until his retirement in 1974, is now working on developing an advanced Fourier tachometer capable of measuring the sight-line velocity of the surface of the Sun with great accuracy. Evans has followed an interest in solar astronomy throughout his career. In 1952 he led an eclipse expedition to Khartoum which used a spectrographic technique to determine that the chromosphere is hotter than the photosphere, which lies directly beneath it. He studied oscillations of the solar atmosphere, and was able to learn about the internal regions of the Sun by quantitatively determining different modes of oscillation. Evans is perhaps best known for his many contributions to our ability to observe the Sun by developing or enhancing instrumentation. His improved design for the birefringent filter is the standard used today, the externally occulted coronagraph he designed has been mounted on spacecraft to obtain clear pictures of eclipses, he originated the

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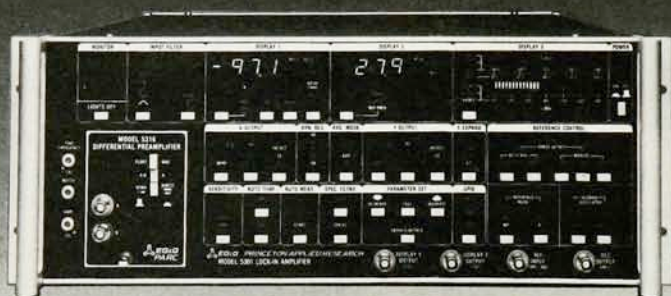
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guided spar, used to point several solar telescopes simultaneously, and he built the first flare patrol instrument.

Evans obtained his PhD in astronomy from Harvard in 1938. He taught astronomy at Mills College from 1938 to 1942, conducted optical research and taught at the University of Rochester from 1942 to 1946, and conducted research at the High Altitude Observatory in Boulder and Climax, Colorado. In 1952 he came to Sacramento Peak Observatory as its first director.

APS awards Maxwell Prize to Bernstein

Ira B. Bernstein of Yale University has won the James Clerk Maxwell Prize for Plasma Physics. The prize is given annually by The American Physical Society in recognition of outstanding contributions to our understanding of the "properties of highly ionized gases of natural and laboratory origin." A \$4000 cash award, sponsored by Maxwell Laboratories, Inc., accompanies the prize.

The Society cited Bernstein "for his pioneering contributions to the theory of plasmas; his incisive studies of the physics of waves, stability and transport have provided essential guidance to a generation of colleagues and disciples."

Throughout his career Bernstein has maintained an interest in wave propagation, equilibrium and stability in plasmas. Currently he is working on linear wave propagation in plasmas, including geometric optics, generalized Fourier integral transforms and stability. He is also interested in reduced kinetic equations for plasmas, variational techniques applied to Alfvén wave heating in plasmas, and problems associated with gyrotrons and free-electron lasers.

Bernstein received his PhD in physics from New York University in 1950. Following graduation, he worked as a physicist for Westinghouse Research Labs from 1950 to 1954. He joined the staff of the Plasma Physics Lab at Princeton University as a senior research physicist in 1954 and remained there until 1964, when he moved to Yale.

obituaries

George Kistiakowsky

When George Kistiakowsky died on 7 December 1982, at the age of 82, humanity lost a fighter for its survival. A world-renowned chemist and