

AAS ANNOUNCES 1989 RUSSELL LECTURER; HEINEMAN, WARNER AND PIERCE PRIZES

The American Astronomical Society has announced its major awards for 1989.

Icko Iben Jr has been selected for the annual Henry Norris Russell Lectureship, the highest AAS honor, "in recognition of his exceptional contributions to the study of stellar evolution." The award citation continues: "His work of a quarter-century is a coherent body that explores and illuminates stellar evolution in every region of the Hertzsprung-Russell diagram. He has enormously enriched our understanding of the structure and evolution of stars."

Iben was one of the pioneers in the numerical solution of the equations of stellar structure. He developed the theory of nucleosynthesis by slow neutron capture in the convective shells of asymptotic-branch giant stars during thermal pulses, and he showed how products of interior nucleosynthesis, including carbon, are brought to the stellar surface following a pulse. (Asymptotic-branch giant stars are thought to be the main source of carbon in the universe.) Iben's early work focused on the evolution of intermediate-mass stars through the helium-burning phase in

Icko Iben Jr



the core, and on the evolution of low-mass stars in globular clusters, for which he developed dating methods.

Iben received his BA (1953) from Harvard and his PhD (1958) from the University of Illinois, Urbana-Champaign, both in physics. In 1972, after appointments at Williams College, Caltech and MIT, he joined the faculty of the University of Illinois as head of the department of astronomy and professor of astronomy and of physics. This fall he will start as Eberly Professor of Astronomy at Pennsylvania State University.

Carl Heiles (University of California, Berkeley) was chosen as the 1989 recipient of the Dannie Heineman Prize for Astrophysics, an annual honor given jointly by AAS and AIP. Heiles has made "numerous important contributions to our understanding of the structure, dynamics and distribution of the interstellar medium. He has exhibited unusual persistence and tenacity in his study of the magnetic fields in interstellar space. Finally, he has, by the high standards that he has set, been able to inspire the students who have worked with him."

Observing the 21-cm line of atomic hydrogen, Heiles has created maps of supershells, high-density regions caused by the shock fronts produced by several supernovae in a single cluster. His measurements of the Zeeman splitting in interstellar clouds and shocks show that a magnetic field inhibits density build-up in at least some cases. In his present research, Heiles is trying to determine the effects of magnetic fields on gas dynamics and to answer fundamental questions concerning the morphology and dynamics of the diffuse interstellar gas.

Heiles received his BA (1962) from Cornell University and his PhD (1966) from Princeton University. He is a professor in the department of astronomy at Berkeley.

The Helen B. Warner Prize, an annual prize recognizing work done

during the previous five years, will be presented to Nick Kaiser (Canadian Institute for Theoretical Astrophysics, Toronto) for "his important research contributions in physical cosmology and the origin of structure in the universe." The citation continues: "He has investigated the consequences of a variety of candidate theories for structure formation, including cosmic strings, massive neutrinos and cold dark matter. He has stressed the importance of cold dark matter scenarios because they make a wide variety of testable predictions, and has been one of the leading participants in the program of comparing the predictions of the cold dark matter model with observations. Kaiser has worked on a variety of other subjects in cosmology, including cosmic strings, statistical techniques for data analysis, and anisotropy of the microwave background. He has been a leader in interpreting the significance of the large-scale streaming velocity data. (See *PHYSICS TODAY*, October 1987, page 19.) Kaiser's contributions are marked by their independence and originality."

Kaiser received his BSc (1978) from Leeds University, UK, and his PhD

Carl Heiles

