political leaders."

Weinhous received a BS in physics from Rensselaer Polytechnic Institute in 1966, then earned MS and PhD degrees in physics from the University of New Hampshire in 1970 and 1974. After postdoctoral training in radiation oncology physics at Yale University, he worked at several institutions before joining the Cleveland Clinic in 1994. His research interests include radiation therapy physics.

Four new at-large members of AAPM's board of directors will also take office on 1 January 2002 for three-year terms. They are **J. Daniel Bourland**, an associate professor and head of the physics section in the department of radiation oncology at Wake Forest University School of Medicine in Winston-Salem, North Carolina; **Sherry Connors**, a senior medical physicist at the Cross Cancer Institute in Edmonton, Alberta, Canada; **Douglas J. Simpkin**, senior medical physicist at St. Luke's Medical Center in Milwaukee, Wisconsin; and **Andrew Wu**, director of the medical physics division at the University of Pittsburgh Cancer Center in Pennsylvania.

IN BRIEF

In a September ceremony in Kyoto, Japan, the American Nuclear Society presented the Edward Teller Medal for 2001 to **Stefano Atzeni** and **Mordecai D. Rosen**. Atzeni was acknowledged for his "leading contributions to understanding and teaching the high-energy-density physics related to inertial confinement fusion." He is an associate professor of general physics at the University of Rome I ("La Sapienza") and the National Institute for the Physics of Matter (INFM) in Italy. Rosen was recognized for his "major contributions to the development of laboratory soft x-ray lasers and to the design and analysis of complex experiments carried out on the Nova laser at Lawrence Livermore National Laboratory." He is a laser and plasma physicist with LLNL.

Susan Coppersmith joined the faculty of the University of Wisconsin–Madison in August as a professor of physics. She previously was a professor of physics at the University of Chicago.

The Honda Foundation of Japan announced that **Donald Mackay** will receive the 2001 Honda Prize during a ceremony planned for this month. Mackay, director of the Canadian Environmental Modelling Centre at Trent University, was recognized for his "contribution to environmental chemistry by developing techniques to apply the theoretical concept of fugacity by means of comprehensive systematic techniques of modeling to predict the fate of chemicals in environmental media such as air, water, soils, sediments, and biota." He also was acknowledged for his "work on elucidating the behavior of oil spills on land, in oceans, and especially in cold Arctic waters."

Ralph B. James joined Brookhaven National Laboratory last June as the new associate laboratory director for energy, environment, and national security. He previously was a distinguished member of the technical staff at Sandia National Laboratories in Livermore, California.

The South African Institute of Physics in Faure awarded its Silver Jubilee Medal this past July to **Robert de Mello Koch**, a senior lecturer in the department of physics and Center for Theoretical Physics at the University of the Witwatersrand in Johannesburg. At the ceremony held during the institute's annual conference in Durban, de Mello Koch was honored for his work in superstring theory. According to the citation, he "has produced significant work explaining how to obtain lump solutions in open string field theory in the context of tachyon condensation. . . . " The medal is awarded biannually for outstanding achievement to a physicist younger than age 35.

This past May, **Jonathan F. Ormes** became the director of space sciences at NASA's Goddard Space Flight Center in Greenbelt, Maryland. He previously served for 10 years as the chief of Goddard's Laboratory for High Energy Astrophysics. **Nicholas White** now heads that lab. Ormes replaced **Steve Holt** as director. Holt is now a professor of physics at Franklin W. Olin College of Engineering in Needham, Massachusetts, and director of science at Babson College in Wellesley, Massachusetts.

Da Hsuan Feng, vice president for research and graduate education and a professor of physics at the University of Texas at Dallas, was awarded the Distinguished Award for Science and Technology by the Greater Dallas Asian American Chamber of Commerce this past August. He was acknowledged as "an expert in mathematical physics, nuclear physics, and nuclear astrophysics."

Acta Materialia Inc in Pittsburgh, Pennsylvania, has announced that **Craig R. Barrett**, president and CEO of Intel Corp, has won its 2002 J. Herbert Hollomon Award. Barrett was acknowledged for his "outstanding contributions concerning the interactions between materials and society." **Robert W. Cahn** has received the 2002 Acta Materialia Inc Gold Medal, which recognizes "demonstrated ability and leadership in materials research." Cahn is a distinguished research fellow in the materials science and metallurgy department of the University of Cambridge in the UK.

OBITUARIES

Fred Hoyle

Fred Hoyle's varied and prolific output spanned more than 60 years. Indeed, throughout the entire period 1945–70, he was preeminent among astrophysicists in the range and influence of his contributions. His engaging wit and relish for controversy—which he retained throughout his long life—gained him a high public profile. He had a wide following as a popularizer of science and as a successful writer of science fiction. He also played an active organizational role in UK science. Hoyle died on 20 August 2001 in Bournemouth, England. He was physically and mentally robust until the year before his death, during which he suffered a series of strokes.

Born on 24 June 1915 in Bingley,

RAMSEY & MUSPRATT, COURTESY AIP/ESVA

FRED HOYLE

Yorkshire, in the UK, Hoyle was the son of a wool merchant. He attended the local grammar school, from which he gained a scholarship to Cambridge University's Emmanuel College, where he studied mathematics. The university awarded Hoyle a BA in mathematics in 1936; that year, Hoyle also won Cambridge's Mayhew Prize for his outstanding performance. He was elected to a fellowship at St. John's College, Cambridge, in 1939 for work on beta decay. His shift toward astrophysics was stimulated by his colleague Raymond Lyttleton, with whom he wrote papers on accretion and stellar evolution.

During the years of World War II, Hoyle was engaged mainly on technical problems related to radar. He found himself working with Hermann Bondi and Thomas Gold; in spare moments the trio discussed astronomy. The most celebrated outcome of this collaboration was the steady-state cosmology, put forward in two papers in 1948. Bondi and Gold's arguments were general (almost philosophical). But Hoyle's model was more specific: He introduced a negative-pressure *C*-field into Albert Einstein's equations. As Hoyle enjoyed pointing out, this formulation was, in some sense, a precursor of currently fashionable inflationary models. The steady-state theory was a serious contender for 15 years. It had the virtue of being testable, and was the focus of often acrimonious controversy, especially with Martin Ryle and other radio astronomers. Hoyle held out against Big Bang theory, even post-1965, when the discovery of the microwave background led most cosmologists to favor it. He nonetheless contributed important studies of Big Bang nucleosynthesis with Roger Tayler, Willy Fowler, and Bob Wagoner.

From 1945, Hoyle was based in Cambridge, first as lecturer in mathematics, and subsequently, from 1958, as the Plumian Professor of Astronomy. But he derived stimulus from frequent visits to the US. At Princeton University, he and Martin Schwarzschild modeled the evolution of low-mass stars right through to the red-giant branch. He spent much time at Caltech, where he followed up the ideas adumbrated in his famous 1946 paper, "The Synthesis of the Elements from Hydrogen" (published in the *Monthly Notices of the Royal Astronomical Society*), in a long and fruitful collaboration with Fowler on nuclear processes in stars and supernovas. This research was codified in a classic 1957 article, universally referred to as "B^2FH" (published in *Reviews of Modern Physics*), which Hoyle and Fowler coauthored with Geoffrey and Margaret Burbidge. Many of us felt that Hoyle should have shared Fowler's 1983 Nobel Prize in Physics, but the Royal Swedish Academy of Sciences later made partial amends by awarding Hoyle, with Edwin Salpeter, its 1997 Crafoord Prize.

Throughout the 1950s and 1960s, Hoyle kept up his wide-ranging interests in solar physics, on the origin of the Solar System, the structure of galaxies, and the nature of gravity. The discovery of quasars in the 1960s led to a stream of stimulating papers, many coauthored with the Burbidges, on supermassive objects and various aspects of high-energy astrophysics.

Committee work and administration held little attraction for Hoyle. Nonetheless, especially during the 1960s and early 1970s, he served effectively on the UK's Science Research Council and the Council of the Royal Society, among other UK bodies. In Cambridge, his energetic advocacy and fundraising led to the creation, in 1966, of an Institute of Theoretical Astronomy. Its building, now named after him, was modeled on the University of California's Institute of Geophysics and Planetary Physics in La Jolla, California, although it overlooks a field of cows rather than the Pacific Ocean. The Institute of Theoretical Astronomy quickly made an international mark, and Hoyle organized an extensive visitors' program. Key ideas on supernovas and explosive nucleosynthesis were developed by Hoyle's US colleagues during such visits.

Hoyle's regular collaborators Jayant Narlikar and Nalin Wickramasinghe were part of the institute's full-time staff. In addition, a lively group of postdoctoral scientists benefited from the stimulating environment of the institute. I was privileged to be one of these scientists. Hoyle was supportive to us all, even when our researches were orthogonal (or even contradictory) to his own.

On the broader UK scene, Hoyle's role was pivotal in establishing the Anglo–Australian Observatory, in the early 1970s. As a result, for the first time, UK astronomers had guaranteed access to a world-class optical telescope.

A regrettable dispute led to Hoyle's premature retirement from Cambridge in 1972. He thereafter based himself for many years in a remote part of England's Lake District (hill-walking being one of his lifelong enthusiasms) before moving to the more sedate environs of Bournemouth. His consequent isolation from the broad academic community was probably detrimental to his own science; it was certainly a sad deprivation for the rest of us. His later scientific writings, which continued throughout the 1980s and 1990s, dealt, often controversially, with topics as disparate as Stonehenge, panspermia, Darwinism, paleontology, and viruses from space. But he never lost his interest in cosmology: His book *A Different Approach to Cosmology: From a Static Universe through the Big Bang towards Reality,* coauthored with G. Burbidge and Narlikar, appeared in 2000 (Cambridge U. Press).

His lifelong success as a popularizer started in 1950—in the pre-Sagan era, long before the dominance of television—with a celebrated series of radio talks. Huge numbers of people (including many who later achieved scientific distinction) were inspired by these talks, by books such as *Frontiers of Astronomy* (Heinemann, 1970), and by his lectures. Throughout his life, he retained the agreeable manner and accent of his native Yorkshire.

Hoyle's first novel, *The Black Cloud* (Harper, 1957), about an alien intelligence embodied in a cloud of interstellar gas, has achieved classic status. It was followed by a dozen others, including *A for Andromeda: A Novel for Tomorrow* (Souvenir Press, 1962), coauthored with John Elliot, which was dramatized as a television series; *Ossian's Ride* (Harper, 1959); and *October the First is Too Late* (Harper & Row, 1966). Some of Hoyle's books, including those he wrote for children during his later years, were coauthored with his son Geoff Hoyle. Hoyle's autobiography *Home Is Where the Wind Blows: Chapters from a Cosmologist's Life* (University Science Books, 1994) sensitively evokes his early life in Yorkshire and offers entertaining perspectives on later academic disputes.

Hoyle's enduring insights into stars, nucleosynthesis, and the large-scale universe rank among the greatest achievements of 20th-century astrophysics. Moreover, his theories were unfailingly stimulating, even when they proved transient. He will be remembered with fond gratitude not only by colleagues and students, but by a much wider community who knew him through his talks and writings.

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