

given out in the categories of astronomy and geophysics. In astronomy, **Hermann Bondi**, retired master of Churchill College, University of Cambridge, was recognized for "his outstanding contributions to scientific and intellectual leadership and his distinguished career in astrophysics and gravitation, and also for his work in the area of the public understanding of science," according to the citation. Since his retirement, Bondi has been very active in science and education, and in international welfare issues. In geophysics, **Henry Rishbeth**, emeritus professor of physics and astronomy at Southampton University, was acknowledged for "his inspiring leadership within the geophysical community and his distinguished career in ionospheric physics."

Jeremy Bloxham, professor of geophysics and chair of the department of Earth and planetary sciences at Harvard University, received the 2001 Chapman Medal for "his major contributions in both observational and theoretical geomagnetism."

The 2001 Hannah-Jackson (née Gwilt) Medal and Gift went to **John Baldwin** for "his major contribution to astronomical instrumentation through the design, development, and exploitation of a series of highly productive synthesis telescopes." In 1999, he retired from his position as head of the Mullard Radio Astronomy Observatory, University of Cambridge. He is currently involved with using large telescopes to obtain diffraction-limited imaging of faint objects without adaptive optics.

The Herschel Medal was presented to **Patrick Thaddeus**, Willson Professor of Applied Astronomy and professor of applied physics at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts. He was cited for "his contribution to our understanding of astrophysical chemistry, in particular, to the mapping of molecular clouds and carbon monoxide in the Galaxy, which has laid the foundation for rapid advances in many astrophysical problems."

National Academy Elects New Members

At the 138th annual meeting of the National Academy of Sciences in May, 72 new members and 15 foreign associates were elected, bringing the total number of active members to 1874 and 325, respectively. In a rare event in the academy's history, one member, **Leonard Mandel**, was

elected posthumously. Among the other newly elected members are

Charles Alcock, professor of physics and astronomy at the University of Pennsylvania.

Michael L. Bender, professor of geosciences at Princeton University.

Pamela J. Bjorkman, professor of biology at Caltech and an investigator with the Howard Hughes Medical Institute in Chevy Chase, Maryland.

Maurice S. Brookhart, William R. Kenan Jr. Professor of Chemistry at the University of North Carolina, Chapel Hill.

Robert A. Brown, provost and Warren K. Lewis Professor of Chemical Engineering at MIT.

Robert J. Cava, professor of chemistry and associate director of the Princeton Materials Institute at Princeton University.

Thure E. Cerling, professor of geology and biology at the University of Utah.

F. Fleming Crim, John E. Willard and Hildale Professor of Chemistry at the University of Wisconsin-Madison.

Alexander Dalgarno, Phillips Professor of Astronomy at the Harvard-Smithsonian Center for Astrophysics, in Cambridge, Massachusetts.

Charles B. Duke, vice president and senior research fellow in Xerox's Wilson Center for Research and Technology in Webster, New York.

John H. Exton, professor of molecular physiology and of pharmacology at Vanderbilt University and an investigator with the Howard Hughes Medical Institute in Chevy Chase, Maryland.

George W. Flynn, Higgins Professor of Chemistry and director of the Environmental Molecular Sciences Institute at Columbia University.

Stuart J. Freedman, Luis W. Alvarez Chair of Experimental Physics at the University of California, Berkeley.

Inez Y. Fung, director of the Berkeley Atmospheric Sciences Center at the University of California, Berkeley.

Alexander N. Glazer, professor of biochemistry and molecular biology at the University of California, Berkeley.

Arthur C. Gossard, professor of materials and electrical and computer engineering at the University of California, Santa Barbara.

James N. Gray, senior researcher at Microsoft Corp, San Francisco, California.

Alan J. Heeger, professor of physics and materials at the University of California, Santa Barbara.

Russell J. Hemley, staff member at the Geophysical Laboratory of the Carnegie Institution of Washington.

J. R. Jokipii, Regents' Professor in the department of planetary sciences and in the Lunar and Planetary Laboratory at the University of Arizona.

Mimi A. R. Koehl, professor of integrative biology at the University of California, Berkeley.

John Kuriyan, Patrick E. and Beatrice M. Haggerty Professor of structural biology at Rockefeller University and an investigator with the Howard Hughes Medical Institute in Chevy Chase, Maryland.

J. Clark Lagarias, Paul K. and Ruth R. Stumpff Professor of Plant Biochemistry at the University of California, Davis.

Lynn T. Landmesser, chair of the department of neurosciences at Case Western Reserve University.

Leonard Mandel, who was the Lee A. DuBridge professor emeritus of physics and optics at the University of Rochester.

James L. McClelland, professor of psychology and computer science at Carnegie Mellon University.

Charles Y. Prescott, professor of physics at SLAC.

Frank M. Richter, Sewell L. Avery Distinguished Service Professor in the department of geophysical sciences at the University of Chicago.

Marlan O. Scully, Hershel Burgess Distinguished Professor of Physics and Texas Engineering Experiment Station Distinguished Research Chair at Texas A&M University.

David Tank, head of biological computation research at Bell Labs, Lucent Technologies, in Murray Hill, New Jersey.

Edwin W. Taylor, Louis Block Professor in the departments of molecular genetics and cell biology, and biochemistry and molecular biology at the University of Chicago.

Leslie G. Valiant, Gordon McKay Professor of Computer Science and Applied Mathematics at Harvard University.

Robert M. Wald, professor in the department of physics and in the Enrico Fermi Institute at the University of Chicago.

The newly elected foreign associates include

Theodor W. Hänsch, professor of physics at the Ludwig-Maximilian University of Munich and a director at the Max Planck Institute for Quantum Optics in Garching, Germany.

Ronald Ernest Oxburgh, recently retired rector of the Imperial College of Science, Technology, and Med-

icine in London.

Jacob Palis, professor at the Institute for Pure and Applied Mathematics in Rio de Janeiro, Brazil.

Michael J. D. Powell, John Humphrey Plummer Professor of Applied Numerical Analysis at the University of Cambridge.

Jean-Michel Saveant, director emeritus of research at CNRS in Paris.

Ewine F. Van Dishoeck, professor of molecular astrophysics at Leiden Observatory at the University of Leiden in the Netherlands.

IN BRIEF

Eugene L. Tattini will become the Jet Propulsion Laboratory's deputy director in August, succeeding **Larry N. Dumas**, who will be retiring after nine years in that position. Tattini, who joined JPL this month to spend several weeks in orientation before taking his new post, was commander of the Space and Missile Systems Center at Los Angeles Air Force Base. He retired from the Air Force after nearly 36 years of service.

Orlando Figueroa became the acting director of NASA's Mars exploration program, Office of Space Science, at NASA headquarters in Washington, DC, this past May. Formerly the deputy chief engineer for systems engineering at NASA headquarters, Figueroa replaced **G. Scott Hubbard**, who is now the deputy center director for research at NASA's Ames Research Center at Moffett Field, California.

At a ceremony in May in Canberra, the Australian Academy of Sciences awarded **Bruce Hobbs** the Jaeger Medal for "investigations of a high order into the solid earth or oceans of Australia," according to the citation. Hobbs is deputy chief executive of the minerals and energy research sector of CSIRO, the Commonwealth Scientific and Industrial Research Organization, in Perth, Australia.

Last month, the Ho-Am Foundation, located in South Korea, presented awards to winners in five categories at a ceremony in Seoul. Of those winners, two are doing physics-related work. **Edward C. Lim**, Goodyear Professor of Chemistry at the University of Akron, received the 2001 Ho-Am Prize for Science in recognition of "his distinguished contribution to and pioneering research in laser spectroscopy and photophysics of organic molecules, which resulted in his discovery of the proximity effect governing the rate of

electronic relaxation in photoexcited organics," according to the foundation. **Dong Nyung Lee**, a professor of materials science and engineering at Seoul National University, won the 2001 Ho-Am Prize for Engineering, which acknowledged "his distinguished contribution to the field of metallic materials and his discovery of the strain energy release maximization theory explaining the transformation of fabrication textures into recrystallization textures." Each honoree received a diploma, gold medal, and 100 million won (about \$77 000).

OBITUARIES

Marcus Laurence Elwin 'Mark' Oliphant

Marcus Laurence Elwin "Mark" Oliphant, a leader during World War II in both radar development and the separation of uranium-235 for the atomic bomb, died on 14 July 2000 in Canberra, Australia, of natural causes.

Oliphant was born in Adelaide, South Australia, on 9 October 1901. In 1927, he received an MSc in physics at Adelaide University and won an 1851 Exhibition scholarship for research abroad. He joined Ernest Rutherford's group at the Cavendish Laboratory in Cambridge, England. He received a PhD in physics there in 1929; his thesis topic was the interaction of positive ions with metal surfaces.

In 1932, Oliphant began nuclear research with Rutherford, using 0.5 milliliters of heavy water given to Rutherford by Gilbert Lewis of the University of California, Berkeley. With a 300-keV accelerator, Oliphant and Rutherford investigated the transmutation of light nuclei, bombarding them with protons and deuterons (heavy hydrogen). Remarkably, with deuterated targets, "protons" of anomalously large range were emitted jointly with very slow protons. Oliphant and Rutherford realized that these "protons" were "still-heavier hydrogen," which they named "tritium," and that the "alpha particles" they saw were helium-3.

Oliphant joined Birmingham University in 1937 as Poynting Professor of Physics. While visiting primitive radar stations around Britain's coast, he realized that much finer radar was needed urgently. Early in 1939, he obtained a grant from the British Admiralty to develop radar with a wavelength less than 10 cm; the best available at the time was 150 cm.

Fusion researcher and plasma diagnostics specialist **Kenneth Young** received the US Department of Energy's Distinguished Associate Award in April at a dinner in Princeton, New Jersey. The occasion was his retirement that same month as head of international collaborations at the Princeton Plasma Physics Laboratory. The DOE citation acknowledged, in part, that his "dedicated efforts have had a major impact on the diagnostics systems that bind theory and experiment together in advancing fusion." Young had joined the lab in 1974.



MARCUS L. E. "MARK" OLIPHANT

That same year, he visited the Radiation Laboratory at Berkeley, California, where he met Ernest Lawrence, who would become a major influence in Oliphant's life. Oliphant was impressed by Lawrence's 60-inch cyclotron. Lawrence kindly gave him a complete set of specifications. In mid-1939, having gained funding, Oliphant began to build a 60-inch cyclotron at Birmingham. This project progressed slowly because of the war. An internal beam was achieved in 1950.

Congratulating Lawrence on his 1939 Nobel Prize in Physics for the invention of the cyclotron, Oliphant wrote, "[Your Nobel] Prize shows that the technical side of the subject is now recognized as of equal importance to the advances that follow from [their use]." This view would soon govern Oliphant's scientific life.

On radar research at Birmingham, John Randall and Harry Boot soon invented the resonant-cavity magnetron. In early 1940, their model