

University of Nottingham in the UK, received the Guthrie Medal and Prize. He was recognized for "his outstanding contributions to the field of semiconductor physics, especially on the quantum transport properties of semiconductors."

Three winners shared the Charles Chree Medal and Prize for "their part in the discovery of the 'ozone hole' over the Antarctic and for linking this to the growth of 'CFCs' [chlorofluorocarbons] in the atmosphere." **Joseph Charles Farman** is a consultant with the European ozone research coordinating unit in Cambridge, UK; **Brian Gerard Gardiner** is the head of the meteorological and ozone monitoring unit at the British Antarctic Survey; and **Jonathan David Shanklin** is a senior scientist also with that unit at the Survey.

James K. Gimzewski received the Duddell Medal and Prize for "his contribution to nanoscale science in the use of scanning probe microscopy for the understanding and development of nanomechanics and tunnelling phenomena in atoms and molecules." He is a professor of chemistry and biochemistry at UCLA.

Volker Heine was awarded the Max Born Medal and Prize for "his pioneering theoretical and computational studies of the electronic structure of solids and their application to physical properties." Heine is a retired professor of theoretical physics at Cambridge University in the UK.

The recipient of the Paterson Medal and Prize was **Joseph Keddie**, a lecturer in the department of physics and an experimental physicist at the UK's University of Surrey. He was acknowledged for "his major contributions of industrial importance to the understanding of the dynamics of polymers at surfaces, in thin films, and in colloidal dispersions."

George Marx was honored with the Bragg Medal and Prize in recognition of "a lifetime of achievement in physics education." He is a professor emeritus of atomic physics at Roland Eötvös University in Budapest.

Stephen J. Pennycook, leader of the electron microscopy group in the Oak Ridge National Laboratory's solid-state division, received the Thomas Young Medal and Prize for "his pioneering work in the development of atomic-resolution scanning transmission electron microscopy (STEM)."

The Paul Dirac Medal and Prize went to **Brian Kidd Ridley** in recog-

nition of "his profound influence on semiconductor theory stretching over four decades." He is a research professor of physics at the UK's University of Essex in Colchester.

Benjamin Simons was awarded the Maxwell Medal and Prize for "his major contribution of profound insight into mesoscopic physics over the past 10 years, particularly in the area of 'quantum chaos.'" He is a reader at Cambridge University's Cavendish Laboratory.

The Harrie Massey Medal went to **Anthony W. Thomas** for "his outstanding contributions to a broad variety of problems in nuclear and particle physics." He is Elder Professor of Physics and director of the Special Research Centre for Subatomic Structure of Matter at the University of Adelaide in Australia.

Colin Webb won the Glazebrook Medal and Prize for "his leading role in the organization and promotion of laser physics in the UK and internationally." He is the ad hominem professor of laser physics at Oxford University; a senior research fellow of Jesus College in Oxford; chair of Oxford Lasers Ltd in Abingdon, UK; and president of the UK Consortium for Photonics and Optics.

IOP's new honorary fellows are **Georges Charpak**, **Cyril Hilsun**, and **Joseph Rotblat**. Charpak, who won the 1992 Nobel Prize in Physics for his invention of particle detectors, retired from CERN as a physicist in 1989. He continues to work on the development of the Micromegas detector at Saclay near Paris; the detector will be used at CERN in the n-TOF experiment and in the instrumentation industry. Charpak also is involved in the reform of primary school science programs, called "Main à la Pâte" (Hands On), with the help of the French Academy of Sciences and the French Ministry of Education.

Hilsun is a visiting professor in physics with University College London. He also is a corporate research adviser for the European Commission in Brussels, Belgium; Unilever PLC in London; and Cambridge Display Technology in Cambridge, UK.

Rotblat, who, with the Pugwash Conferences on Science and World Affairs, won the Nobel Peace Prize in 1995 for efforts to diminish the role played by nuclear arms in international politics and to eliminate nuclear arms in the longer term, is the president emeritus of Pugwash. He also is an emeritus professor of physics at the University of London at

St. Bartholomew's Hospital Medical College.

AAAS Hands Out Awards to Scientists

The American Association for the Advancement of Science presented several awards for 2000 at its annual meeting in San Francisco in February. Each prizewinner received a \$2500 cash award and a commemorative plaque.

Among the recipients was **Leon M. Lederman**, who was honored with the AAAS Philip Hauge Abelson Prize for "his scientific scholarship, leadership, and advocacy of international collaborations in science, and a strong commitment to the improvement of math and science education at the local, state, and national levels," according to the citation. Lederman is Pritzker Professor of Science at the Illinois Institute of Technology in Chicago. He shared the 1988 Nobel Prize in Physics with Melvin Schwartz and Jack Steinberger for the discovery of the muon neutrino.

Howard Schachman won the AAAS Scientific Freedom and Responsibility Award for being "at the forefront of efforts to eliminate research misconduct in federally funded research while ensuring that such efforts do not impinge on the freedoms that allow scientists to be creative in their pursuit of knowledge. . . . [He] has had a distinguished career as a biochemist and biophysicist." He is Professor of The Graduate School in the Department of Molecular and Cell Biology at the University of California, Berkeley.

The AAAS Award for Public Understanding of Science and Technology went to **Vaclav Smil**, a Distinguished Professor at the University of Manitoba's department of geography. He was recognized for "his unique integration of information concerning energy, environment, and hunger in a manner that is accessible to the general public and policy makers who must address these difficult global issues."

IN BRIEF

This month, the Science and Technology Foundation of Japan, which is based in Tokyo, awarded the Japan Prizes to two scientists, one of whom works in a physics-related

field. **John B. Goodenough**, Virginia H. Cockrell Centennial Chair in Engineering at the University of Texas at Austin, was acknowledged for his “discovery of environmentally benign electrode materials for high-energy density rechargeable lithium batteries,” according to the foundation. He received a cash prize of ¥50 million (about \$432 000).

In February, the Royal Society honored **David Sherrington** as the presenter of the 2001 Bakerian Lecture, the society’s premier annual prize lecture in the physical sciences, given under the title “Magnets, Microchips, Memories and Markets: The Statistical Physics of Complex Systems.” Sherrington is Wykeham Professor of Physics and Head of Theoretical Physics at the University of Oxford, and a fellow of the Royal Society.

The Heinz Family Foundation in Pittsburgh announced the winners of the five Heinz Awards in February. Of those awards, two are related to the physical sciences. The Heinz Award for Public Policy went to **John Holdren**, Teresa and John Heinz Professor of Environmental Policy at Harvard University. According to a foundation spokesperson, Holdren was honored for “the significant role he has played over the years in such complex issues as arms control, global energy resources, and sustainable development. A rare scholar who inspires colleagues, students, and world leaders alike, he has participated in the formation of public policy at the highest levels.” The Heinz Award for the Environment was given to **James Hansen** for showing “exemplary courage and leadership by going public with his concerns over the threat of global climate change. His dogged pursuit of this pressing problem has attracted supporters as well as critics, and he continues to serve as a lightning rod in this often-contentious debate.” Hansen is head of the NASA Goddard Institute for Space Studies in New York. Each recipient received a medallion and a cash prize of \$250 000.

The National Academy of Sciences has elected **James Langer** as its new vice president for a term running July 2001 through June 2005. Langer is a professor of physics at the University of California, Santa Barbara, and immediate past president of the American Physical Society.

The Natural Sciences and Engineering Research Council of Canada awarded its first Gerhard Herzberg Canada Gold Medal for Science and Engineering to **Howard Alper** last December. Alper, a professor of chemistry and vice-rector of research at the University of Ottawa, was recognized for, among his other accomplishments, “his work in developing tools to synthesize and modify molecules,” said the citation. The medal, NSERC’s highest honor, is awarded to an individual who has demonstrated sustained excellence and influence in research for a body of work conducted in Canada that has substantially advanced the natural sciences or engineering fields. NSERC will provide Alper with Can\$1 million (about US\$651 000) for his research over the next five years.

Barry Taylor, manager of the Fundamental Constants Data Center at NIST in Gaithersburg, Maryland, is the first recipient of the CODATA Prize, which was awarded last fall by the Committee on Data for Science

Technology (CODATA) of the International Council for Science. Taylor was cited for “major contributions to the advancement of our understanding of the physical world through critically evaluated values of the fundamental physical constants.” The CODATA secretariat, located in Paris, serves a worldwide network of national committees, scientific union members, and other supporting organizations.

In Calcutta last September, the Indian Association for the Cultivation of Science in Calcutta awarded its first Professor K. Banerjee Endowment Lecture Silver Medal to **John R. Helliwell** during a centenary celebration of Banerjee’s birth. At that celebration, Helliwell delivered the lecture “New Opportunities in Biological and Chemical Crystallography,” which was published in the January 2001 issue of *The Indian Journal of Physics*. He is the professor of structural chemistry at the UK’s University of Manchester and editor-in-chief of *Acta Crystallographica*.

OBITUARIES

Cornelius Anthony ‘Toby’ Tobias

Cornelius Anthony “Toby” Tobias, a pioneer in radiation biology who was known as the “Father of Hadron Therapy,” died of cancer on 2 May 2000 in Eugene, Oregon.

Born in Budapest, Hungary, on 28 May 1918, Toby earned his BS in physics at the Hungarian University of Electrical and Technical Sciences in Budapest. In 1939, he went to the University of California, Berkeley, to work in Ernest Orlando Lawrence’s laboratory on a fellowship. That one-year visit extended to a 45-year distinguished teaching and research career at Berkeley and Lawrence Berkeley National Laboratory (LBNL). At Berkeley, Toby received his PhD in nuclear physics in 1942; Emilio Segrè and Louis Alvarez were his academic advisers. As part of his dissertation research, Toby was the first to accelerate carbon nuclei in a cyclotron and one of the first to apply accelerated ions to the study of biology and medicine.

In 1955, Toby teamed with John H. Lawrence to work at the Donner Laboratory at Berkeley. Because of its proximity to the 60-inch cyclotron, this laboratory became the birthplace



CORNELIUS ANTHONY “TOBY” TOBIAS

of nuclear medicine. The synergy of the Lawrence brothers and Toby ushered in a remarkable era for nuclear medicine, fundamental radiobiology research, and hadron therapy.

At Berkeley, Toby became a professor of medical physics (1955) and chair of medical physics (1967–71), and was advanced to Professor-Above-Scale (1978). He also became a professor of electrical engineering at Berkeley, a professor of radiology at the University of California, San Francisco (UCSF),