

GEOPHYSICISTS RECEIVE HONORS AT AGU MEETING

During the most recent meeting of the American Geophysical Union, held last December in San Francisco, several individuals were honored for their contributions to geophysics.

AGU's highest honor, the William Bowie Medal, was presented to **Irwin I. Shapiro** of Harvard University. The award citation said Shapiro "has pushed the limits of geodesy to the very edges of the universe, using the signals from the extragalactic radio sources (quasars) to measure the motions of lithospheric plates, to monitor variations in the rotation of the Earth and to determine the flattening of the Earth's fluid core." The citation went on to say that Shapiro was "arguably the first person to recognize the potential power of [very-long-baseline interferometry] for geophysical studies and quickly became the intellectual and spiritual leader of the geodetic VLBI community." Shapiro is the director of the Harvard-Smithsonian Center for Astrophysics and the Paine Professor of Practical Astronomy and a professor of physics at Harvard.

The James B. Macelwane Medal went to **Margaret A. Tolbert**, an associate professor of chemistry at the University of Colorado's Cooperative Institute for Research in Environmental Sciences, in Boulder. "Her studies of reactions on ice surfaces were pioneering among the laboratory works that advanced scientific understanding of Antarctic ozone depletion and the role of surface reactions on polar stratospheric clouds," the award citation said. (AGU awarded two other Macelwane Medals in 1993, at its spring meeting; see PHYSICS TODAY, De-



Irwin I. Shapiro

cember, page 61.)

The 1993 recipient of the Walter H. Bucher Medal was **Aleksey N. Khramov**, a researcher at the Oil Research and Geology Prospecting Institute in Saint Petersburg, Russia. The citation called Khramov "one of the great pillars on which paleomagnetism has been built worldwide," and it said that he was "the first person to realize the significance of paleomagnetic data from Europe and Asia showing that the Ural Mountains represented the site of the collision between these formerly separated continents."

Kirk Bryan was awarded the Maurice Ewing Medal, given jointly by AGU and the US Navy for contributions to ocean geophysics. Bryan was honored for his "pioneering development of a comprehensive numerical ocean model and for his research over more than 30 years into the physics of ocean circulation and the mechanisms of climate change." Bryan is retiring this month as a

senior researcher at the National Oceanic and Atmospheric Administration's Geophysical Fluid Dynamics Laboratory, located in Princeton, New Jersey.

AGU presented the 1993 Harry H. Hess Medal posthumously to **Alfred E. Ringwood**, who died in November. Among other things, the citation praised him for leading "a pioneering experimental effort that characterized many of the phase transitions in the Earth's mantle." Ringwood was a professor in the Research School of Earth Sciences at the Australian National University in Canberra.

FRANKLIN INSTITUTE MEDALS GO TO BRAAT, COLGATE

At ceremonies this month at the Franklin Institute in Philadelphia, **Joseph J. Braat**, the chief scientist of Philips Research Laboratories in Eindhoven, the Netherlands, will receive the Edward Longstreth Medal, and **Stirling A. Colgate** of Los Alamos National Laboratory will be honored with the John Price Wetherill Medal. The citation commends Braat for "major scientific and practical contributions to the field of optical data recording." Colgate is being honored for "his fundamental contribution to the understanding of stellar collapse and supernova explosions."

OBITUARIES

John Gatenby Bolton

John Gatenby Bolton, a pioneer of radio astronomy, died in his home in Buderim, Queensland, Australia, on

OPTICAL RAY TRACERS

for PC and Macintosh
computer

BEAM TWO **\$89**

- + for student ray tracers
- + traces ray paths
- + lenses, mirrors, prisms
- + exact 3-D model automatic trace
- + 2-D on-screen layouts
- + diagnostic ray plots
- + least squares optimizer
- + Monte Carlo ray generator

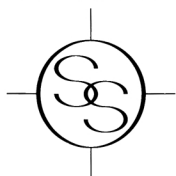
BEAM THREE **\$289**

- + for advanced applications
- + all BEAM TWO functions, plus:
- + 3-D optics placement
- + tilts and decenters
- + cylinders and torics
- + polynomial surfaces
- + 3-D layout views
- + glass tables

BEAM FOUR **\$889**

- + for professional applications
- + all BEAM THREE functions, plus:
- + big tables: 99 surfaces
- + full CAD support: output to DXF, plotter, PostScript
- + point spread function
- + modulation transfer function
- + wavefront display too

Every package includes versions for coprocessor and noncoprocessor machines also manual and sample files. Write, phone, or fax us for further information.



STELLAR SOFTWARE

P.O. BOX 10183
BERKELEY, CA 94709 USA
PHONE (510) 845-8405
FAX (510) 845-2139



John Gatenby Bolton

6 July 1993, at the age of 71.

Bolton was born in Sheffield, UK, in 1922 and studied physics at Trinity College, Cambridge. He began his research in radio astronomy in 1946 at the Australian Commonwealth Scientific and Industrial Research Organization's Radiophysics Laboratory.

In 1948, with Gordon Stanley and Bruce Slee, Bolton detected the first discrete cosmic radio sources and identified them with external galaxies and the Crab nebula. This important result played a major role in the recognition by the international astronomy establishment of the new field of radio astronomy and opened the door for the expansion of astronomical observations throughout the electromagnetic spectrum.

In 1955 Bolton came to the United States, where he developed the very successful radio astronomy program at Caltech. While there, he built a novel radio interferometer in California's remote Owens Valley. With this instrument he and a series of young colleagues and students made the first systematic studies of the structures, spectra, accurate positions and polarizations of hundreds of discrete radio sources, which led to their optical identification. These radio sources included the most distant galaxy then known, 3C 295.

After returning to Australia in 1961, Bolton supervised the construction and served as the first director of the 210-ft radio telescope at Parkes, New South Wales. Under his direction, the telescope was used for many major discoveries. Among these were crucial observations of the radio source 3C 273 that led to the recognition of quasars

by Maarten Schmidt. For several years Bolton devoted much of his time to adapting the 210-ft radio telescope to support the Apollo Moon missions. Bolton was particularly proud of the fact that Neil Armstrong's first walk on the Moon was viewed around the world via the Parkes radio telescope. He also played a key role in the design and construction of the Anglo-Australian 4-meter optical telescope near Coonabarabran, New South Wales.

John Bolton's role in the growth of radio astronomy over more than three decades was seminal. Perhaps even more important than his published works were his forceful leadership in the development of new techniques, ideas and instruments, and the encouragement and guidance he gave to his students and younger associates. He will be remembered by his colleagues as a good friend, a distinguished scientist and a caring teacher.

KENNETH KELLERMANN

*National Radio Astronomy Observatory
Charlottesville, Virginia*

L. Jackson Laslett

Lawrence Jackson Laslett died on 7 May 1993 in Berkeley, California. During his long and splendid career in physics, he had made important contributions to a wide variety of fields, but most importantly to the design of particle accelerators.

Laslett was born in Boston on 12 January 1913 and raised in Pasadena, California. He completed his undergraduate education at the California Institute of Technology and did his graduate work at the University of California, Berkeley, under Ernest



L. Jackson Laslett

Circle number 42 on Reader Service Card