ing Medal "for original research and technical leadership in geomagnetism, atmospheric electricity, aeronomy, and related sciences." His work involves measurement of anomalies in the magnetic fields on the ocean floor and their relation to the relative motions of land masses.

Woollard is professor of geophysics at the University of Hawaii. He was awarded the William Bowie Medal "for outstanding contributions to fundamental geophysics and for unselfish cooperation in research." Woollard is also director of the University of Hawaii's Institute of Geophysics. He holds a PhD from Princeton University (1937).

The James B. Macelwane Award was presented to Freeze "in recognition of significant contributions to the geophysical sciences by a young scientist of outstanding ability." Freeze is presently the resident staff member hydrologist at the IBM Thomas J. Watson Research Center in Yorktown, New York, where he works with the application of computers to the construction of models of subsurface water flow. He completed his doctorate at the University of California, Berkeley in 1954.

Engineering academy elects new members

The National Academy of Engineering recently elected 70 new members. Included among them are several physicists and other scientists involved in physics-related activities.

They are Solomon J. Buchsbaum and George C. Dacey of Bell Laboratories; Morris E. Fine of Northwestern University; Nick Holonyak Jr of the University of Illinois, Urbana; Donald E. Hudson of the California Institute of Technology; H. Richard Johnson of Watkins-Johnson Co, Palo Alto, California; Thomas O. Paine of the General Electric Co, New York City; David S. Potter of General Motors Corp, Indianapolis, Indiana; Walter A. Rosenblith of the Massachusetts Institute of Technology; Ian M. Ross of Bell Labs; Rustum Roy of Pennsylvania State University, University Park; Anthony E. Siegman of Stanford University, and Morgan Sparks of Sandia Laboratories, Albuquerque, New Mexico.

Hass presented Civilian Service Award

George H. Hass, a consultant to the US Army Electronics Command's Night Vision Laboratory and former director of the Laboratory's physics research technical area, was recently presented the Exceptional Civilian Service Award for his work in the field of vacuum-deposited thin films and their application.

A member of the Board of Directors and the Board of Editors of the Optical Society of America, Hass received his doctorate from the Institute of Technology in Danzig, Germany in 1943. Subsequently he became a consultant to the US Army Engineers Research and Development Laboratories (1946–52). After a short time as chief of the physics research section there (1952–54), he was named supervisory physicist and chief of the physics research lab, a position he held until 1965, when he was made director of the physics research technical area. Hass is presently a consultant on temperature control of satellites and space astronomy for NASA and the Naval Research Laboratory.

Gravity essay awards announced for 1973

The Gravity Research Foundation has announced its 1973 awards for essays on gravitation. The winners are Arthur E. Fischer and Jerrold E. Marsden, F. W. W. Dilke and D. O. Gough, Andrzej Staruszkiewicz, Patrick J. McCarthy, and Zoltán Perjés.

The $1000 first prize was awarded to Fischer, of the University of California, Santa Cruz, and to Marsden, of the University of California, Berkeley, for the essay "Global Analysis and General Relativity." The second prize of $300 went to Dilke and Gough, both from Cambridge University, for "Solar Gravity Waves: Cause of Terrestrial Ice Ages." Staruszkiewicz, of Jagellonian University, Cracow, Poland, received the third prize of $200 for his essay "On Retardation Effects in the Planetary System." McCarthy, of the University of British Columbia, Vancouver, Canada, was awarded the fourth prize of $150 for "The Asymptotic Symmetry Group of General Relativity." The $100 fifth-place award went to Perjés, of the University of London, for his essay, "Classification of Stationary Space-Times." Thirty additional essays were cited for honorable mention.

NASA awards medal to J. I. Trombka

Jacob I. Trombka, a member of the theoretical studies branch of the Laboratory for Space Physics at NASA's Goddard Space Flight Center in Greenbelt, Maryland, has been awarded a NASA Exceptional Scientific Achievement Medal. He received the Medal for his work in remote-sensing experiments on Apollos 15, 16 and 17.

Trombka, who holds a PhD from the University of Michigan (1961), has worked as a research physicist at the Oak Ridge Institute of Nuclear Studies (1954–56), and as a research associate in nuclear engineering and a fellow in gamma-ray spectroscopy at the University of Michigan (1956–62). Prior to joining NASA in 1965 he was senior scientist at the Jet Propulsion Laboratory, California Institute of Technology (1962–64).

At Yale University **Richard B. Larson** and **Robert D. McClure** have been promoted to associate professor of astronomy. **David B. Shaffer**, from the California Institute of Technology, has been appointed J. Willard Gibbs Instructor in the department.

John R. Ficenec has been promoted to associate professor of physics at Virginia Polytechnic Institute and State University.

John M. Palms, chairman of the physics department at Emory University, has been promoted to professor.

At Columbia University **Chien Shiung Wu** has been named the first Michael I. Pupin Professor of Physics. Wu has also been chosen to become the first woman president of the American Physical Society (see PHYSICS TODAY, March, page 100).

At the Massachusetts Institute of Technology **Sidney Yip** has been promoted to professor in the department of nuclear engineering, and **Rainer Weiss** has been promoted to professor in the physics department.

Formerly acting head of the accelerator section at the National Accelerator Laboratory in Batavia, Illinois, **Paul J. Reardon** has been appointed associate director of the Laboratory and head of the accelerator division.

At the University of Rhode Island, Kingston, **William S. Penhallow** has been promoted to associate professor of physics.

Leon M. Lederman, director of Columbia University's Nevis Laboratories in Irvington, New York, has been named to the Eugene Higgins Professorship in Physics at Columbia.

we hear that

The new director of the Argonne National Laboratory is **Robert G. Sachs.** A former associate director of Argonne, Sachs is also director of and professor at the Enrico Fermi Institute and professor in the physics department of the University of Chicago.

Wesley N. Mollard, the former director of program management at ITT Electro-Physics Laboratories, Inc, in Columbia, Maryland, has been made director of advanced development at the Labs.

President Nixon intends to nominate **Gerald F. Tape,** a former member of the Atomic Energy Commission, as the US representative to the International Atomic Energy Agency in Vienna. Tape will continue as president of Associated Universities, Inc.

Itek Corp has promoted **L. Curtis Foster,** formerly vice-president of advanced development in the applied technology division, to the newly created post of vice-president and general manager of the division, which is located in Sunnyvale, California.

The physics department of the University of Illinois, Chicago Circle has promoted **Arthur Licht** to associate professor. **Ram R. Sharma** and **David Vezzetti** have been promoted to professor.

Robert H. Tanner, formerly director of information for Bell-Northern Research in Ottawa, Canada, has become director of industrial research and development for the Department of Communications.

Coherent Radiation in Palo Alto, California has appointed **Steven M. Jarrett** as product manager for scientific lasers. He was formerly president of Quantum Systems in Menlo Park, California.

This fall **Richard E. Michel,** senior research physicist at the General Motors Research Laboratories in Warren, Michigan, will become director of the Technical Institute of Lawrence Institute of Technology.

Phillip Lu has been promoted to chairman of the earth and space sciences department at Western Connecticut State College in Danbury.

In the physics department at Lehigh University **Yong Wook Kim** has been promoted to associate professor.

Scott O. Graham, of Stanford University, has joined the scientific staff of RCA Laboratories at the David Sarnoff Research Center in Princeton, New Jersey.

Kearny Q. Robert Jr, a research physicist at the Gulf South Research Institute in New Orleans, Louisiana, has been promoted to manager of the physics department there.

Albert Gold, the former special assistant to the president and director of postdoctoral affairs at Rockefeller University, has been named vice-president for academic resources.

obituaries

Paul W. Gast

Paul W. Gast, professor of geology at Columbia University and chief of the division of planetary and earth sciences at the Lyndon B. Johnson Space Flight Center in Houston, died on 16 May at the age of 43. He was in charge of the investigation of the lunar rock samples gathered by the Apollo flights to the moon.

Among other accomplishments, Gast was a leader in the development and application of the rubidium-strontium and uranium-lead isotope methods of dating moon rocks. He also conducted studies of trace elements in the terrestrial and lunar crust that have been credited with altering generally accepted ideas about the origin of volcanic fluids.

After receiving his doctorate in geology from Columbia in 1957, Gast taught at the University of Minnesota until 1965, when he returned to Columbia as professor of geology. He was on leave from Columbia at the time of his death.

Eugene Rabinowitch

Eugene Rabinowitch, senior chemist and a section chief on the Manhattan Project, died in Washington on 15 May. At the time of his death Rabinowitch was on leave from his post as professor emeritus of chemistry and biology at the State University of New York at Albany, serving as a Woodrow Wilson fellow at the Smithsonian Institution. He was 71 years old.

His sense of involvement in the development of the first atomic bomb led