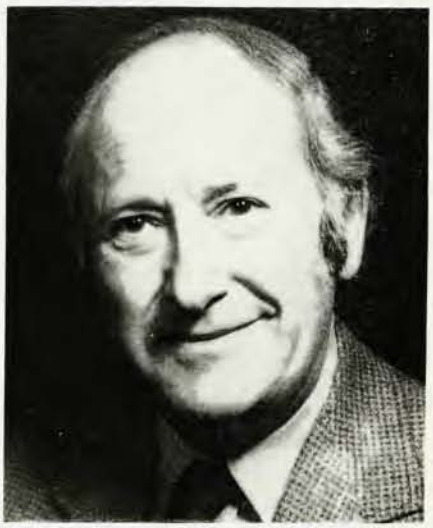
Oppenheimer Prize awarded to Goldhaber and Marshak

Maurice Goldhaber of Brookhaven National Laboratory and Robert E. Marshak of the Virginia Polytechnic Institute and State University were honored jointly with the fourteenth J. Robert Oppenheimer Memorial Prize. The Center for Theoretical Studies at the University of Miami has presented this prize annually since 1969 in recognition of outstanding contributions to the theoretical natural sciences (physics, chemistry, biology), mathematics and the philosophy of science.

Goldhaber and Marshak, who shared the $1000 cash award that accompanies the prize, were each cited for their "contributions to elementary particle physics."

GOLDHABER



MARSHAK

Goldhaber, who is now an Associated Universities Distinguished Scientist, obtained his PhD in 1936 from Cambridge University, continuing his research there as a Bye fellow at Magdalene College until 1938. In 1938, he joined the faculty at the University of Illinois, where he remained for twelve years. Goldhaber then joined the staff at Brookhaven National Laboratory in 1950, as a senior scientist. During his career at Brookhaven he has served as chairman of the department of physics, from 1960 to 1961, and as director of the Laboratory from 1961 to 1973. He also found time to serve as a member of the board of governors for the Weizmann Institute of Science, as Morris Loeb Lecturer at Harvard University, as a member of the nuclear science committee of the National Research Council, and in many other positions as an adviser to the scientific community.

Goldhaber has sustained an interest in fundamental particles throughout his career. One of his earliest contributions was his discovery, working with James Chadwick in 1934, of the nuclear photoelectric effect through observations of the disintegration of the deuteron. In further work with slow neutrons he investigated the disintegration of the light elements and, in collaboration with Gertrude Scharff-Goldhaber, he showed that beta rays are identical to atomic electrons. His studies of nuclear isomers in collaboration with other researchers at Brookhaven established the left-handed helicity of the neutrino and demonstrated that beta rays produce circularly polarized x-rays. Goldhaber's research includes, in addition to his interest in fundamental particles, work in neutron physics, radioactivity, nuclear isomers, and photoelectric effects and models.

After receiving his PhD from Cornell University in 1939, Marshak joined the faculty of the University of Rochester, where he remained until 1970. While at Rochester he served as chairman of the physics department, Harris Professor of Physics, and Distinguished University Professor, and was responsible for starting the Rochester Conference on High Energy Physics in 1950. In 1970 he became president of the City College of the City University of New York, serving in this capacity until 1979. He then joined the faculty of the Virginia Polytechnic Institute and State University, where he is now University Distinguished Professor of Physics.

Throughout his long and distinguished career, Marshak has worked at many institutions including the Institute for Advanced Study, CERN and the University of Paris and was a founder, in 1970, of the International Foundation of Science in Stockholm. He was the Avco Visiting Professor at Cornell University in 1959, the Niels Bohr Visiting Professor at Madras University in 1963, the Buhl Visiting Professor at Carnegie–Mellon University in 1968 and was both a Distinguished Visitor at the University of Texas and the Nobel Guest Lecturer at Gothenberg in 1970. He has also taught at schools both in the US and abroad, including MIT, Columbia, Harvard, the University of Michigan, Tata Institute of Fundamental Research in India, Yalta International School, Les Houches, the University of Tokyo and Hercig Novi.

Marshak is perhaps best known for his contributions to the understanding of weak interactions among elementary particles. He proposed the two-meson hypothesis shortly before the discovery of the pion in 1947. Along with his student Peter S. Signell, he introduced what was to become known as the Signell–Marshak potential; their calculations demonstrated that all of the nucleon–nucleon scattering data up to several hundred MeV could be described by this type of potential. This discovery marked the beginning of the successful semiphenomological theory of the two-nucleon potential. In 1957, Marshak, in collaboration with E. C. G. Sudarshan, developed the universal $V-A$ theory of charged-current weak interaction. Subsequent measurements of strange and non-strange de-

cays on the large accelerators have tended to confirm this theory. Marshak's research interests have included the energy sources of stars, atomic nuclei, and neutron diffusion, along with the work on elementary particles for which he was recognized with this award.

EPS honors von Klitzing with Hewlett–Packard Prize

Klaus von Klitzing of the Technical University of Munich has been selected by the European Physical Society to receive the 1982 Hewlett–Packard Prize. The award is presented annually in recognition of outstanding achievements in solid-state physics and includes a cash prize of 20 000 Swiss Francs (approximately $9700) which is donated by the Hewlett–Packard Co.

The Society cited von Klitzing for "his work on the quantized Hall resistance in a two-dimensional electron gas." His experimental work employed the thin inversion layer of a metal-oxide semiconductor field effect transistor to form a two-dimensional electron gas. At low temperature and in the presence of a high magnetic field, von Klitzing observed that the Hall voltage went through well-defined plateaus as the gate voltage was varied. He determined that these plateaus occurred when the Landau level was fully occupied; the Hall conductivity was then a simple multiple of e^2/h (PHYSICS TODAY, June 1981, page 17).

The results of von Klitzing's experimental work have made it possible to verify with very high precision the value of the fine-structure constant, limited chiefly by the precision of voltage measurements. The effect also promises to provide an absolute standard of resistance, good to one part in 10^8. Following von Klitzing's discoveries, many other experimenters have duplicated his results with other materials and extended the understanding of the phenomenon.

in brief

Steven Weinberg has been apointed to the Jack S. Josey Chair of Science at the University of Texas at Austin. He will also hold the title of Regental Professor, a designation for faculty who have won the Nobel Prize. Weinberg had held the Higgins Professorship at Harvard University and was a senior scientist at the Smithsonian Astophysical Laboratory.

Kenneth L. Kliewer has joined Argonne National Laboratory's staff as associate laboratory director for physical research. Kliewer was senior physicist and professor of physics at Iowa State University and associate director for science and technology at Ames Laboratory.

Robert L. Merlino of Columbia University has become assistant professor of physics and astronomy at the University of Iowa.

Milton Chang, executive vice-president and chief operating officer of Newport Corporation, has been elected to the Board of Directors of Uniphase Corporation.

New York Academy of Sciences honored several physicists: **Marvin L. Goldberger**, President of Caltech received the Presidential Award for service; **Ralph Alpher** of General Electric in Schenectady, New York, and **Robert Hermann** of the University of Texas, Austin, shared the Award in Physical and Mathematical Sciences; **Robert Griffiths** of the Department of Physics at Carnegie–Mellon University received the A. Chriessy–Morrison Award; and **Theodore Brewster Taylor** of the Applied Solar Technology Institute won the Boris–Pregel Award.

Kenneth Teegarden has been named as the new director of the Institute of Optics in the University of Rochester's College of Engineering and Applied Science. He succeeds Nicholas George, who will now be able to devote his full time to research and teaching.

The University of Toronto has chosen **Irvine I. Glass**, professor of aerospace studies, to receive the highest honor the University bestows, that of University Professor. This title, usually held until age 65, is conferred in recognition of excellence in teaching and research and includes a research grant of $4000 per year for five years.

J. David Cohen, formerly with Bell Laboratories, has become assistant professor in the physics department of the University of Oregon in Eugene. **John W. Farley**, from the University of Arizona, has become an assistant professor. **Roger Haydock**, from Cambridge University, has joined the staff as an associate professor. **Nilendra Deshpande**, formerly of the Institute of Theoretical Science, has become an associate professor. **John T. Mosley** has been appointed Director of the University's new Chemical Physics Institute.

obituaries

Merle A. Tuve

Merle A. Tuve (1901–1982) pursued a distinguished career in science for half a century, making fundamental contributions in fields as diverse as atmospheric physics, nuclear spectroscopy, explosion seismology, biophysics, radio astronomy and image intensification for optical telescopes.

Tuve was born in Canten, South Dakota, on 27 June 1901. He acquired his early interest in electricity by building a telegraph line to the home of his childhood friend, Ernest O. Lawrence. He studied engineering at the University of Minnesota, receiving a graduate degree in physics, and became an instructor at Princeton before studying and teaching at Johns Hopkins.

Tuve's doctoral thesis at Johns Hopkins (1926) described the method by which he and Gregory Breit verified directly the existence of the ionosphere and measured its height. At a receiver several kilometers from a radio transmitter modified to emit short pulses, they measured the delay of signals reflected from the ionosphere relative to ones following a direct path. This work opened the field to research on the upper levels of the atmosphere. In addition, their studies of echoes from buildings demonstrated the practicability of pulsed radar. At Tuve's urging, the US Navy initiated its development of this device.

In 1926, Tuve joined the staff of the Carnegie Institution of Washington, and in 1927 he and Breit undertook the investigation of the atomic nucleus with beams of accelerated particles. Their first accelerator, though technically a success in that it eventually produced a beam of 1-MeV protons, gave them many disappointments. An oil-insulated Tesla coil indeed produced the voltages required but punctured any vacuum tube tried except at voltages well below their goal of 5 MV.

With co-workers Lawrence R. Hafstad and O. Dahl, Tuve developed out of the adversity of the oil baths the multistage accelerator tube that is the heart of so many accelerators today. Learning of Van de Graaff's electrostatic generator, he immediately substituted it for the Tesla coil to produce the combination of multistage tube and belt generator that quickly led to the first Van de Graaff accelerator. It was a device that Tuve and his co-workers developed into a splendid instrument. They invented methods for controlling the voltage and distributing it evenly along the tube, for focusing the beam