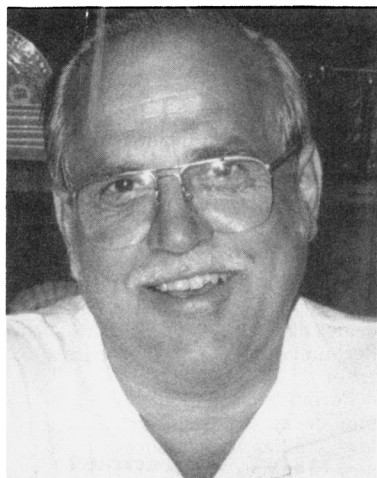




Robert W. Terhune

California, Berkeley, to become a professor of physiological optics and physiology. Ten years later he returned to Cambridge, where he is now the Royal Society Research Professor of Physiology.

Nick Holonyak Jr of the University of Illinois is this year's winner of the Charles Hard Townes Award. He was chosen for his "career in quantum electronics, particularly his contributions to semiconducting, light-emitting sources." Early in his career Holonyak, with Richard Aldrich, invented the shorted-emitter and symmetrical silicon-controlled rectifier and thyristor switches. In 1959 he synthesized and made p-n junctions in the alloy GaAsP; in 1962 he demonstrated GaAsP lasers and light-emitting diodes; and in 1978 he demonstrated room-temperature continuous operation of quantum-well lasers.

Holonyak received a PhD in electrical engineering in 1954 from Illinois, where he worked under John Bar-

deen. He then worked for Bell Telephone Labs, served in the US Army Signal Corps and worked for General Electric. He returned to Illinois in 1963 and is now a professor of electrical and computer engineering at the school's Center for Advanced Studies.

The John Tyndall Award goes to Donald B. Keck of Corning Inc, who was cited for "the invention and development of methods for manufacture and measurement of devices for optical communication, including low-attenuation fibers." Keck did pioneering work on waveguide attenuation and dispersion and the measurement of the optical properties of fibers. He was a member of a research team at Corning that invented the low-loss optical fiber now widely used in telecommunications.

Keck was awarded a PhD in physics from Michigan State University in 1967. He then joined the research, development and engineering laboratory at Corning. In 1986 he was named director of optoelectronics research there.

For the "invention of the Bragg hologram and his other contributions to holography," Yuri N. Denisyuk of the A. F. Ioffe Physical-Technical Institute in St. Petersburg, Russia, is being given the R. W. Wood Prize. Much of the work that has been done on display holograms is based on Denisyuk's invention of thick holograms that rely on the Bragg effect. This kind of hologram is also used in holo-scanners and data storage.

Denisyuk completed a PhD in physics at the Leningrad Institute of Precision Mechanics and Optics in 1954. He then worked as a scientist at the S. I. Vavilov State Optics Institute. In 1988 he became chief of the Ioffe Institute's laboratory of optoelectronics and holography.

try at Harvard University
William R. Dickinson, an emeritus professor of geosciences at the University of Arizona, Tucson

Jerome I. Friedman, the head of the physics department at MIT

Margaret J. Geller, a senior scientist at the Smithsonian Astrophysical Observatory and a professor of astronomy at Harvard

Martin C. Gutzwiller, a research staff member at the IBM T. J. Watson Research Center, Yorktown Heights, New York, and an adjunct professor of metallurgy at Columbia University

Henry W. Kendall, a professor of physics at MIT

Christopher F. McKee, the director of the Space Sciences Laboratory and a professor of physics and astronomy at the University of California, Berkeley

Paul B. Sigler, a professor of molecular biophysics and biochemistry at Yale University and an investigator at the Howard Hughes Medical Institute

Susan Solomon, a senior scientist at the Aeronomy Laboratory of the National Oceanic and Atmospheric Administration, Boulder, Colorado

F. William Studier, a senior biophysicist and the chair of the department of biology at Brookhaven National Laboratory

Harry L. Swinney, the director of the Center for Nonlinear Dynamics and holder of the Sid Richardson Foundation Regents Chair in the department of physics at the University of Texas, Austin

Jan Tauc, a professor of physics and engineering at Brown University

George A. Thompson, an emeritus professor of geophysics at Stanford

David J. Wineland, a fellow of the National Institute of Standards and Technology, Boulder, Colorado.

NEW MEMBERS OF NATIONAL ACADEMIES NAMED FOR 1992

The National Academy of Sciences and the National Academy of Engineering have elected their new members for 1992. The National Academy of Sciences named 59 new members in late April, bringing its total active membership to 1651. In addition 14 foreign associates from 11 countries were elected, making the current number of foreign associates 289.

The National Academy of Engineering chose 79 engineers as new members in February, for a total membership of 1628. Seven new foreign associates bring the current

number to 136.

The new members of the National Academy of Sciences include the following:

Thomas J. Ahrens, a professor of geophysics in the division of geological and planetary sciences at Caltech

Hans G. Andersen, a professor of chemistry at Stanford University and the deputy director of the Stanford Center for Materials Research

James G. Anderson, Philip S. Weld
Professor of Atmospheric Chemis-

The new NAS foreign associates include:

Amyand D. Buckingham, a professor of chemistry at Cambridge University and a fellow of Pembroke College

Jacques Friedel, a professor emeritus of physics at the Université de Paris Sud

Paul F. Hoffman, a research scientist with the Geological Survey of Canada

Stephen W. Hawking, Lucasian Professor of Mathematics in the department of applied mathematics and theoretical physics at Cambridge University

Ernesto A. Medina, a senior researcher at the Instituto Venezolano de Investigaciones Científicas

at the Centro do Ecologia, Caracas, Venezuela
Kurt Wüthrich, a professor of biophysics at the ETH, Zurich.

The newly elected members of the National Academy of Engineering include:

John L. Anderson, head of the department of chemical engineering at Carnegie Mellon University
Stanley Backer, a professor emeritus of mechanical engineering at MIT
David T. Blackstock, a professor of mechanical engineering and a faculty research scientist at the University of Texas, Austin
William M. Brown, the president of the Environmental Research Institute, Ann Arbor, Michigan
Lance A. Davis, vice president for research and development at Allied Signal Inc, Morristown, New Jersey
Roger P. Kambour, a member of the research staff at the GE Research and Development Center, Schenectady, New York
Walter F. Kosonocky, holder of the Foundation Chair for Optoelectronics and Solid-State Circuits at the New Jersey Institute of Technology
John H. Nuckolls, the director of Lawrence Livermore National Laboratory
Stewart D. Personick, assistant vice president of the Information Networking Research Laboratory at Bellcore, Morristown, New Jersey
Johanna M. H. L. Sengers, a senior fellow of the National Institute of Standards and Technology, Gaithersburg, Maryland
Robert R. Shannon, director of the Optical Sciences Center at the University of Arizona, Tucson
Arnold H. Silver, chief scientist at the Superconductivity Research Center of the TRW Space and Technology Group, Redondo Beach, California.

Among the new NAE foreign associates is Keith A. Browning, director of research in the Meteorological Office of the Government of the UK, Bracknell, England.

OBITUARIES

Isadore Perlman

Isadore Perlman died quietly in his sleep on 3 August 1991 at the John Douglas French Center for Alzheimer's and Related Diseases in Los Alamitos, California. He was 76



Isadore Perlman

years old.

I first met Isadore Perlman at UCLA in the fall of 1933, when he was an undergraduate. The following fall, Iz came to the University of California, Berkeley, to finish his junior and senior years as a chemistry major, and my contacts with him continued there. After obtaining his bachelor's degree in chemistry (1936), and following a short time in industry, he went on to obtain a PhD in physiology (1940) under Israel L. Chaikoff at Berkeley. Between 1937 and 1943 he published several pioneering papers describing the use of radioactive isotopes of phosphorus, bromine and iodine in physiological investigations.

In January 1942, immediately after the US entered World War II, Iz joined my research group. We were then investigating, first at Berkeley and then at Chicago, the development of chemical methods for the separation of plutonium from uranium and its fission products. Iz played a key role in the successful accomplishment of this objective, and he moved to the Clinton Laboratories at Oak Ridge, Tennessee, and then to Hanford, Washington, when the plutonium project moved successively to those sites. Due in large part to his efforts, a successful process for the chemical separation and purification of plutonium was put into operation in an unbelievably short time with the result that a plutonium bomb was made available to bring an end to the war with Japan.

Immediately after the war Perlman returned to Berkeley, first as an associate professor and then as a full professor (1949) of chemistry, to help direct the newly established nuclear chemistry division in the Radiation Laboratory (now the Lawrence Berkeley Laboratory). There, research on

the transuranium elements continued with great success: Ten more such elements were synthesized and identified. Iz and his student Louis B. Werner were the first to isolate a compound of curium in macroscopic quantity.

In 1947 Iz began publishing articles on alpha decay; for about the next 20 years he was known as the world leader in this field. His student Frank Asaro continued as his coworker. The Bohr-Mottelson collective model of the nucleus owed much to Perlman's experimental research program.

Perlman concentrated on the alpha decay process, nuclear energy level studies and the identification of new isotopes. For example, he worked with Stanley G. Thompson on nuclear structure; Frank S. Stephens on odd-parity rotational states; Richard Diamond and Stephens on multiple Coulomb excitation; Albert Ghiorso and John Rasmussen on alpha decay systematics; David H. Templeton, Jerome J. Howland and Manfred Lindner on new radioactive isotopes; Robert H. Goeckermann on the fission process; and Jack M. Hollander, Donald Strominger, C. Michael Lederer and me on several compilations of widely used tables of isotopes. He published a two-volume book with Earl K. Hyde and me called *The Nuclear Properties of the Heavy Elements*.

In 1967 Perlman became interested in a completely new field, the determination of the origin of ancient pottery by elemental analysis of the pottery fabric. His group developed new measurement techniques for neutron activation analysis and new methodologies for interpreting the data. Their work led to fundamental changes in archaeological concepts, particularly in Eastern Mediterranean studies, and it also was important to geological studies. Perlman's work infused new vigor into the field of neutron activation analysis, and laboratories using similar procedures were started in France, Israel and Germany.

Perlman "retired" from the University of California and the Lawrence Berkeley Laboratory in 1973 and began his next career. He obtained a dual professorship in archaeology and chemistry at the Hebrew University of Jerusalem. There, with Joseph Yellin, he built a neutron activation analysis laboratory for studying ancient pottery; it soon became the top-rated facility in the world for this purpose. The facility, called the Department of Archaeometry, was intimately connected