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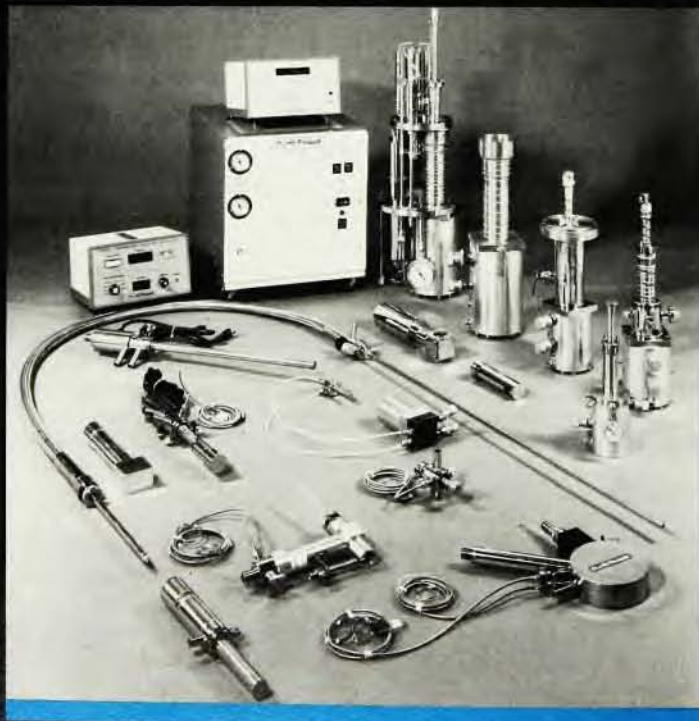
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phic Association at its May 1984 meeting in Lexington, Kentucky, in recognition of their major contributions to the theory of direct methods of crystal structure determination.

Hauptman received his PhD in mathematics from the University of Maryland in 1955 and is now Director of the Medical Foundation of Buffalo in Buffalo, New York. Karle received his PhD in physical chemistry from the University of Michigan in 1944 and is head of the Laboratory for the Structure of Matter at the Naval Research Laboratory in Washington, D.C.

Working together at the Naval Research Laboratory during the 1950s, Hauptman and Karle analyzed the statistical properties of the intensities and phases of waves scattered in crystal diffraction experiments. Starting with the known intensities, their theories permit one to predict the phase of a scattered wave and also to calculate the probability that this prediction is correct; thus one can avoid some of the false signals that occur in this analysis. When these phases are known for enough reflections, the crystal structure is solved.

The "direct methods" based on this work as developed by them and others are now in very wide use in crystal-structure research. For crystals of some complicated compounds containing many independent atoms of similar scattering power no other method is effective.

This award honors the memory of A. Lindo Patterson (1902-1966), who discovered the vector function that bears his name while he was an unpaid guest at Massachusetts Institute of Technology during the Great Depression. Later he taught physics at Bryn Mawr College and then studied the structures of biological compounds at the Institute for Cancer Research in Philadelphia.

Karle and Hauptman share an award of \$2000. They presented lectures at Lexington entitled "The origin and basis of direct methods and some recent developments with macromolecules" and "Combining direct methods with anomalous dispersion."

NAE awards to Harold E. Edgerton and Simon Ramo

The National Academy of Engineering gave its highest honor, the 1983 Founders Award, to Harold E. Edgerton, Institute Professor Emeritus, Massachusetts Institute of Technology. NAE President Robert M. White cited Edgerton for his "seminal achievements in ultra-high-speed photography which have captured and revealed hitherto unseen beauty and order in phenomena which range from the arts

to underwater archaeological exploration." Edgerton's famous photograph of a crown-shaped splashing milk drop, which he took in 1938 to dramatize the potential uses of the high-speed electronic flash, now hangs in the Museum of Modern Art in New York. In the 1930s, Edgerton's strobe was adapted for night reconnaissance, permitting round-the-clock aerial surveillance of enemy forces. Later, Edgerton and his colleagues developed stroboscopic equipment to photograph nuclear weapons tests.

The National Academy of Engineering has also honored Simon Ramo with its first annual Arthur M. Bueche Award for statesmanship in science and technology. Bueche, who was General Electric Company's senior vice president for corporate technology before his death, was a recognized spokesman for the technical community on matters such as energy policy and industrial innovation. Ramo, who was presented with the Bueche award last November, is a director of TRW Inc. (originally known by its Founders' names, Thompson-Ramo-Wooldridge). He did pioneering work in microwaves and guided-missile technology, and he served as chief scientist for the nation's intercontinental ballistic missile program from 1954 to 1958. He was chairman of the President's Committee on Science and Technology under President Ford and co-chairman of the Transition Task Force on Science and Technology for President Reagan.

National Academy of Sciences elects 60 new members

The National Academy of Sciences has elected 60 new members in recognition of their distinguished and continuing achievements in original research. Among these are the following whose work is in physics or related fields: Ira B. Bernstein, applied science, Yale University; William F. Brinkman, director, physical research laboratory, AT&T Bell Laboratories; Marshall H. Cohen, astronomy, California Institute of Technology; Stirling Colgate, Los Alamos National Laboratory; Roger F. Dashen, physics, The Institute for Advanced Study; Michael H. Freedman, mathematics, University of California, San Diego; James G. Glimm, Courant Institute of Mathematical Sciences, New York University; William A. Goddard III, chemistry and applied physics, California Institute of Technology; John L. Hall, Joint Institute for Laboratory Astrophysics, National Bureau of Standards and University of Colorado; Nick Holonyak Jr, electrical engineering, University of Illinois at Urbana; Elliott H. Lieb, mathematics and physics, Princeton University; William

W. Mullins, applied sciences, Carnegie-Mellon University; Jack E. Oliver, geology, Cornell; Murray Rosenblatt, mathematics, University of California, San Diego; Charles V. Shank, head, quantum physics and electronics research department, AT&T Bell Laboratories; Frank H. Stillinger Jr, AT&T Bell Laboratories; Edward C. Stone, physics and chemistry, California Institute of Technology; Karl K. Turekian, geology and geophysics, Yale University; and Ray J. Weymann, astronomy, Steward Observatory, University of Arizona.

Among the 14 foreign scientists also elected are David Robert Bates, physics and mathematical sciences, Queen's University of Belfast, and Gerard 't Hooft, theoretical physics, University of Utrecht, Netherlands. These elections bring the total number of American members to 1428, and the total number of foreign members to 224.

New prize for materials research established in Holland

The Foundation for Fundamental Research on Matter (FOM) in the Netherlands has established a prize in honor of Jacob Kistemaker, the recently retired director of the FOM Institute for Atomic and Molecular Physics. The award—which includes a cash prize of Dfl 25 000 (about \$9000)—honors research in physics that may lead to a technological innovation or practical applications.

The first Kistemaker prize has been awarded to W. Werner, of the Institute of Applied Physics in Delft. His work on diffraction gratings has seen applications in astronomy (for example, on IRAS), in energy research (tokamak diagnostics, for example) as well as in other practical applications of spectroscopy.

Hans Michael Mark to head University of Texas system

The University of Texas System Board of Regents has named Hans Michael Mark, a nuclear physicist and Deputy Administrator of NASA, as the new Chancellor of the university system, effective 1 September 1984.

Mark was born in Mannheim, Germany, on 17 June 1929. He obtained an AB in physics from the University of California at Berkeley in 1951 and a PhD in physics from the Massachusetts Institute of Technology in 1954. He has held academic appointments at Boston University, the Massachusetts Institute of Technology, and the University of California at Berkeley, where

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