WE HEAR THAT

AAPT Honors Four at Summer Meeting in College Park

At its summer meeting in College Park, Maryland, the American Association of Physics Teachers honored several individuals for their contributions to physics education and to the association. The Award for Excellence in Pre-College Physics Teaching, presented this year for the first time, went to **Paul Hickman**, a teacher at Belmont High School in Belmont, Massachusetts. The award citation noted Hickman's effectiveness as a teacher and mentor, as well as his "impressive record of service in the science education community at large," including his workshop on "Fractals in Science."

The recipient of this year's Klopsteg Memorial Lecture Award was **Margaret J. Geller**, a professor of astronomy at Harvard University and senior scientist at the Harvard–Smithsonian Center for Astrophysics. In addition to noting her research on mapping the nearby universe, AAPT cited Geller's efforts in educating the public about science through her public lectures, radio interviews and television programs.

Priscilla W. Laws was chosen as the recipient of the Robert A. Millikan Medal for "her extraordinary work in physics education with the Workshop Physics Project," a microcomputer-based physics laboratory curriculum that she developed (see the article by Laws, PHYSICS TODAY, December 1991, page 24). Laws is a professor of physics at Dickinson College.

The Melba Newell Phillips Award, given for contributions to physics education through leadership in AAPT, went to **Reuben E. Alley Jr**, a professor emeritus of electrical engineering at the US Naval Academy in Annapolis, Maryland. The award citation praised Alley's service as AAPT treasurer and president and as a member of the executive board: "He provided 14 years of dedicated service on the executive board, tending to the fiscal health and scholarly reflection of all that AAPT represents in promoting excellence in physics teaching and physics in our culture."

OSA Awards Highlight Optics Contributions

The Optical Society of America has recognized the following six individuals for their achievements in optics.

The winners of this year's Engineering Excellence Award are **Gary Blough** and **Teddi Laurin**. Blough, a senior optical engineer at Rochester Photonics Corp, is being honored for "his outstanding technical achievements in the design and fabrication of high-performance diffractive master elements and replicas operating in the visible spectral range for commercial products, industrial applications and government systems." Laurin, head of Laurin Publishing Co, which publishes *Photonics Spectra*, *Biophotonics International* and the *Photonics Directory*, is being recognized for "fostering broader recognition of optical engineers' achievements and creating a greater awareness of the technology's potential new applications."

The winner of the Esther Hoffman Beller Medal is **Donald C. O'Shea**, a professor of physics at the Georgia Institute of Technology. O'Shea was cited for "his contributions to optics education, including key leadership and ideas for the development of the OSA Optics Discovery Kit, the cornerstone for OSA education activities at the K–12 level."

Giuseppe Zerbi is the recipient of the Ellis R. Lippincott Award, which is cosponsored by OSA, the Coblentz Society and the Society for Applied Spectroscopy. Zerbi, the chair of the materials science department at the Politechnic of Milan in Italy, was recognized as "a pioneer in the use of vibrational spectroscopy to develop a better understanding of the relationships between physical properties and structure so that new and better polymers can be tailor made by industry."

Stanley Whitcomb and **Robert Spero** are the winners of the Archie Mahan Prize for their July 1995 article in *Optics & Photonics News* on "The Laser Interferometer Gravitational-Wave Observatory (LIGO)." Both recipients work at Caltech.

IN BRIEF

Sara A. Solla, a senior member of the technical staff at AT&T Research Labs (formerly part of AT&T Bell Labs), will become a professor at Northwestern University in January. She will hold a joint appointment in the department of physics and astronomy and the department of physiology at the university's medical school. She plans to develop a program of computational neurobiology within the recently established Institute for Neuroscience at the university.

Leonard J. Brillson, the former director of the materials research laboratory at the Xerox Corp in Stamford, Connecticut, has moved to the Center for Materials Research (CMR) at the Ohio State University to become the first CMR Scholar.

In June, **Arthur Hebard** became a professor of physics at the University of Florida. Previously he was a member of the technical staff at Bell Laboratories (first under AT&T, then Lucent Technologies) in Murray Hill, New Jersey.

The first recipients of the European Physical Society's newly created Quantum Electronics Prize are **Claude Cohen-Tannoudji** and **Sune Svanberg**. Cohen-Tannoudji, a professor of atomic and molecular physics at the College of France in Paris, was honored for "developing the dressed-atom approach in quantum optics and for fundamental contributions to the understanding of radiative forces with ground-breaking experiments in laser cooling and trapping of atoms." Svanberg is a professor of atomic physics at the Lund Institute of Technology in Sweden, and the director of the Lund Laser Center there. He was cited for "pioneering laser applications in the fields of combustion diagnostics, remote sensing and biomedicine."

In June, EPS also gave its Accelerator Prize, designed to recognize young scientists or engineers, to **Jeffrey S. Hangst** of the University of Aarhus in Denmark. Hangst received the biannual award for his "work with laser cooling of ion beams in the ASTRID storage ring."

Peter Eisenberger joined Columbia University in September as vice-provost for the Earth Institute at Columbia University in New York City and director of the Lamont-Doherty Earth Observatory in Palisades, New York. Before then, Eisenberger had been director of the Princeton Materials Institute at Princeton University.

At the 18th International Free-Electron Laser Conference in Rome in August, **Charles A. Brau** was honored with the FEL Prize for 1996. Until last year, Brau, a professor of physics at Vanderbilt University, had directed Vanderbilt's FEL development program.

At the 19th International Congress of Radiology in Beijing in June, the International Society of Radiology presented its Bélère Medals to **Maurice Tubiana** of Paris, France, a past president of ISR; **Philip Palmer** of Davis, California, a former chairman of the International Committee on Radiologic Education; and **Gerald Hanson** of Washington, DC, who recently retired as chief of the Radiation Medicine Section of the World Health Organization.

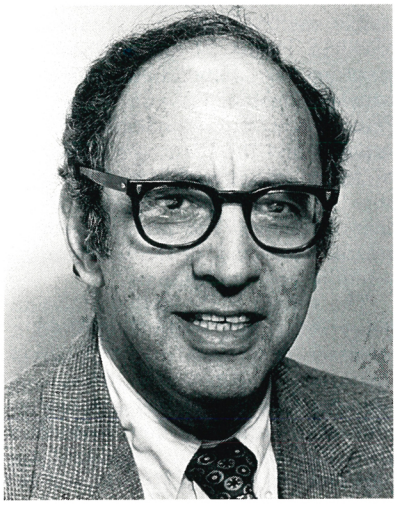
The new director of the Institute for Systems Research at the University of Maryland, College Park, is **Gary W. Rubloff**. Rubloff had been associate director of the National Science Foundation's Engineering Research Center for Advanced Electronic Materials Processing and a professor of electrical and computer engineering at North Carolina State University.

OBITUARIES

Thomas S. Kuhn

Thomas S. Kuhn, a widely influential historian and philosopher of science, died of cancer on 17 June 1996 at his home in Cambridge, Massachusetts. Born in Cincinnati on 18 July 1922, Kuhn trained in physics at Harvard University, where he received an SB in 1943, an AM in 1946 and a PhD in 1949. He published three papers in physics and mathematics before his interests turned decisively in the early 1950s to the history, and eventually to the philosophy, of science. Over the next 40 years, he wrote four books and many articles in these areas and taught the history of science at Harvard (1951–56), the University of California at Berkeley (1956–64), Princeton University (1964–68) and finally MIT (starting in 1979). At MIT, Kuhn retired as Laurence S. Rockefeller Professor of Philosophy in 1991 and became an emeritus professor.

Kuhn is best known for his 1962 monograph, *The Structure of Scientific Revolutions* (University of Chicago Press), which has appeared in many editions and translations. In *Structure*, Kuhn argued that the development of science cannot be understood simply as a process in which more accurate conceptions gradually replace less accurate ones under the impetus of experiment. Though he certainly did think that the body of scientific knowledge becomes increasingly coherent and powerful over time, Kuhn insisted that scientific theories, and the instruments and experiments associated with them, should be understood



THOMAS S. KUHN

as tightly integrated wholes that do not easily, or perhaps ever, change bit by bit. Nor, he further argued, is it historically fruitful to estimate the power of one scientific scheme in comparison with that of its successor or predecessor.

In the earliest stages of scientific development, Kuhn argued, individuals usually disagree fundamentally with one another over the most elementary aspects of their subject, including the standards according to which success itself is to be evaluated. Eventually the community of practitioners reaches agreement on fundamental matters, perhaps even constituting thereby a new discipline; this process takes place in conjunction with the production of a coherent theory about, and instruments for the investigation of, the natural phenomena with which the practitioners are concerned. The resulting amalgam of theory and experiment—which Kuhn initially termed a paradigm—could not, he insisted, be altered bit by bit over time. Instead, science develops thereafter through the wholesale replacement of one paradigm by a successor, occasionally budding new disciplines in the process.

Kuhn's *Structure* did not thoroughly develop every element of this scheme. The concept of a paradigm was not entirely well defined; nor did Kuhn fully lay out the conditions that would transform an anomaly into a crisis. Perhaps most challenging of all to *Structure's* readers was Kuhn's concept of incommensurability between paradigms, a notion that undergirds his entire theory. According to this concept, competing paradigms cannot be compared piecemeal with one another because their respective sets of objects, and relations between objects, are certain to be entirely different from one another. In the years after the publication of *Structure*, Kuhn attempted to refine and to clarify his system, and especially this fundamental aspect of it, often in response to criticism from philosophers of science.

Kuhn's most detailed study of a particular scientific development, his *Black-Body Theory and the Quantum Discontinuity, 1894–1912*, appeared in 1978 (Oxford University Press). Here, he provided an account of Max Planck's route to his new theory of black-body radiation, an account that strikingly exemplifies Kuhn's understanding of science. Although he did not use the language of paradigm, normal science, anomaly and crisis, Kuhn's argument in *Black-Body Theory* depended quite directly on these notions. In his study, Kuhn argued that Planck had initially conceived his innovations to lie entirely within the purview of what was later termed classical physics. Like most of his work, Kuhn's arguments in *Black-Body Theory* engendered a great deal of discussion, and they were not fully accepted by all historians of physics. Nevertheless, this book stands as his most detailed attempt to carry through for one episode what Kuhn claimed held true for all of science.

During the last two decades of his life, Kuhn sought to develop in a rigorous manner the central concept of incommensurability, or what he later referred to as untranslatability. In his last publications, he accordingly developed for science a taxonomy for categories of objects (such as kinds of optical waves or kinds of force) that was built upon the principle that proper