

to resume teaching. A dedicated teacher, he believed in careful planning, meticulous attention to details, accuracy as a source of new discovery, and proper care of equipment as a way to conserve funds and avoid frustration in experiment.

In 1951 Slack retired early, but he continued his interest in education, physics and his former students and colleagues, in particular through attendance at meetings of the APS South-eastern Section. In 1977 Vanderbilt University inaugurated the Slack Lecture Series in his honor.

To be in his presence was to feel the force of his personality. A man of rugged integrity, he was candid in his assessment of scientific problems and human affairs. He retained to the last his critical intellect, quick wit and interest in people and events. His death takes from us a highly esteemed mentor and an irreplaceable colleague.

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Norman H. Horwitz

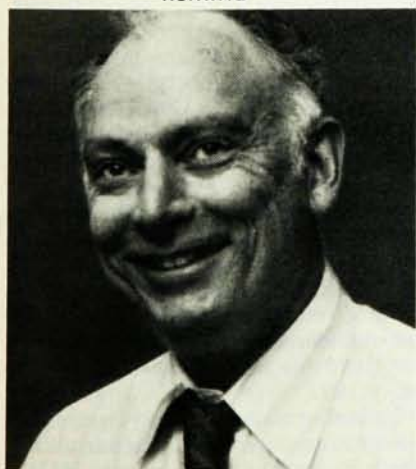
Norman H. Horwitz, director of medical physics and engineering at William Beaumont Hospital in Royal Oak, Michigan, died 28 December 1985. He was 63 years old.

He was a lifelong resident of Detroit and its environs, except for his military service during World War II (1942-46). He served in the Pacific theater and received four decorations, including the Bronze Star.

Horwitz earned his bachelor's (1948), master's (1949) and doctoral (1963) degrees in physics from Wayne State University in Detroit. His doctoral thesis was on ultrasonic attenuation in superconducting metals.

In 1953, after working for the Army at the Detroit Arsenal, Horwitz began his career in medical physics, entering

HORWITZ



the then-infant field of nuclear medicine. One of his first contributions was the development (1955) of a photographic method for recording scintillation-scanning data. Interest in imaging *in vivo* distributions of radionuclides led to his invention of the "spintaricon," a device similar to a spark chamber, which was used to image the thyroid gland. Whether combining solid-state detectors with catheters to monitor *in vivo* uptakes, applying the mechanics of a magic illusion to automatic sampling devices, putting principles of pneumatics to use in patient-care systems or rebuilding outdated laboratory nmr equipment so that it would produce microimages, Horwitz displayed a unique ability for problem solving.

In 1965 he came to Beaumont as head of the applied-physics section. He firmly believed that medical physics should not be limited solely to radiological physics, for he realized that the principles of physics could and should be utilized in all areas of medicine. In 1970, he established the department of medical physics and engineering, bringing together physicists, engineers and instrument makers to support all the services within the hospital. Horwitz served as chairman of the department until his death.

In addition to his departmental responsibilities, he helped develop the Research Institute of the Beaumont Hospital, serving as its director from 1972 until 1976, and as its assistant director from 1976 until his death.

Horwitz was a dedicated teacher who instilled the desire to learn in students, colleagues and friends. He was an extraordinary physicist as well, with a natural ability in mechanical engineering and an insatiable curiosity. He had an uncanny command of the scientific literature. Many a colleague will remember describing to him a "new" idea, only to hear in return his friendly growl of "It has already been done," followed by the literature citation. He demanded excellence of himself and asked of his colleagues that they work at their full potential. Horwitz will be sorely missed but he leaves a legacy of original, innovative ideas and methodology. His life made a difference to those of us who knew him and, in fact, to many who did not.

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Lee J. Kieffer

Lee J. Kieffer, a physicist at the National Bureau of Standards, died unex-

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KIEFFER

pectedly on 16 December 1985 at age 54.

Kieffer was born on 6 July 1931 in Dubuque, Iowa. He obtained his BS (1953) in physics from Iowa State University and his MS (1955) and PhD (1957) in physics from St. Louis University. After postdoctoral work at Argonne National Laboratory (1957-59) and a year at the Aeronautic division of Ford Motor Company (1959-60), he joined NBS in Washington, DC, in 1960.

Kieffer was one of the dozen physicists and astrophysicists who in 1962 founded the Joint Institute for Laboratory Astrophysics, a cooperative institute of NBS and the University of Colorado in Boulder. He was a fellow of JILA and a lecturer in the department of physics of the university until 1975. He then returned to NBS in Gaithersburg, Maryland, where he worked until his death.

At St. Louis, Kieffer worked on the theory of pressure broadening of spectra of linear molecules. At Argonne he turned to atomic-beam magnetic-resonance techniques to measure hyperfine structure and determine nuclear spin and dipole moments. His research at JILA focused on the measurement of anisotropies in the angular and kinetic-energy distributions of dissociation products resulting from electron-molecule collisions. This research remains the definitive work in the field.

Concurrent with his laboratory research at JILA, Kieffer created and managed the JILA Information Center. The center was established to disseminate atomic- and molecular-collision data to the astrophysics, plasma-physics and atomic-physics communities in the form of reviews, data compilations and bibliographies. Between 1962 and 1975 he developed methods for the identification, acquisition and cataloging of all data sources for low-energy electron and photon collisions with gas-phase atoms and simple molecules, and for the retrieval, storage, manipulation

and review of the numerical data. He guided the center through its automation and computerization, prepared annotated bibliographies and initiated and participated in fundamental reviews. In 1970 Kieffer received the Department of Commerce's Gold Medal, the highest award given by the department to its employees, for "exceptional contributions in the establishment of criteria for valid atomic-collision measurements."

While at the Gaithersburg laboratories (1975-85), Kieffer assisted NBS in the delivery of measurement services to technical users all over the world. His earliest responsibilities included providing calibration services to help scientists obtain measurement traceability to NBS. Later he served for three years as a project manager in the development, certification and delivery of Standard Reference Materials. One of the last projects he managed in that capacity was the certification of SRM 1960: 10-micron polystyrene spheres, which are certified as length standards in the micro domain. These spheres have been widely publicized as the first commercialized product produced by NASA aboard a space shuttle.

Lee Kieffer's life was distinguished by probity; by encouraging others to strive for integrity, accuracy and completeness, he had a lasting impact on the fields to which he contributed.

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JEAN GALLAGHER

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Jerzy Mycielski

Jerzy Mycielski died at the age of 56 on 10 February 1986 in Warsaw, Poland. He was a professor of physics at the University of Warsaw, where he headed the solid-state-theory group.

Mycielski was well known internationally for his many significant contributions to the physics of semiconductors. His achievements played a key role in the creation and growth of an internationally recognized center for semiconductor physics in Warsaw. His papers on hopping conductivity in semiconductors, on the absorption of radiation in the hopping regime, on the role of plasmons in optical processes, on the screening of short-range potentials by free carriers and on the properties of semiconductors with graded energy gaps have become classics in their respective fields. The most recent scientific passion of his life was the theory of diluted magnetic (semimagnetic) semiconductors, a subject that he guided from its very beginning. The in-

tense worldwide research activity that this subject currently enjoys owes much to his intellectual leadership.

While these activities in themselves represent accomplishments of major scientific magnitude, at least equal in importance was the role that Mycielski played in the Polish scientific community by generating enthusiasm for science in others, by catalyzing interactions among scientists and by his characteristically intuitive way of explaining things. He thrived on interacting with experimenters and possessed the rare gift of making even the most difficult problems easy to understand without sacrificing their intricacies.

Mycielski's scientific interest ranged beyond solid-state physics, and in fact beyond physics itself. He made, for example, important contributions to nonlinear quantum mechanics and earned international recognition in the field of mathematical economics by successfully casting certain problems in the language of mathematical models. These encounters with economics—which he referred to as his "hobby"—resulted in the United Nations selecting him to serve as an expert on the UN Committee on Asian and Far East Economics in 1966. He was a member of many international committees and organizations, and was to play a key role—as head of the program committee—in the planning and organization of the 19th International Conference on the Physics of Semiconductors, which will be held in Warsaw in 1988.

As an extremely popular educator, a person of great depth, warmth, tact and the highest personal integrity, Mycielski represented a major moral authority at a very difficult time in his country. During the tumultuous years 1980-81 he became a leading intellectual force in the Solidarity movement in academic circles.

J. K. FURDYNA
*Purdue University
West Lafayette, Indiana*

Wayne Lo

Wayne Lo, a senior staff research scientist in the physics department at General Motors Research Laboratories, died accidentally on 24 December 1984 while vacationing in Florida.

Lo was born in Hupei, China, on 5 July 1937. He earned his undergraduate degree at Cheng-Kung University in Taiwan, an MS from the University of Rhode Island and his PhD in electrical engineering from Columbia University (1972); he joined General Motors in early 1973.

Lo was an internationally recognized leader in research on tunable semiconductor lasers and spectroscopy. He led