GILLEO

ly interest in electronics led him to the Electrical Engineering Department of the University of Michigan, where he received his BS in 1944. After graduation, Alten joined the staff of the Naval Research Laboratory, where he designed an infrared communications system, directed construction of the prototype, and sea-tested the device himself. He received his PhD in electrophysics at MIT in 1952, then joined the Physical Research Department of Bell Telephone Laboratories. At Bell, he was codiscoverer with Seymour Geller of the ferrimagnetism of yttrium iron garnet, which has become an important microwave material.

In 1958, Alten left solid-state physics to work briefly in plasma physics as staff scientist in the Research Laboratories at Lockheed Missiles and Space Company, where he developed a theory of the interaction of a high-speed high-temperature plasma with a magnetic barrier.

In 1961, returning to solid state physics, Alten joined the Amelco Semiconductor Division of Teledyne. There he did some of the first studies on the optical coupling of semiconductor elements for possible applications in integrated optical systems. From 1964 to 1969, he held various positions at the Central Research Laboratory of Monsato, where his personal research efforts involved the III–V semiconductors, principally GaAs.

In 1969, Alten came to Allied Chemical Corporation to manage the Optical Processes Department in the newly formed Materials Research Center. His expertise in garnets brought Allied into the synthetic-crystals business as a supplier of substrates for magnetic-bubble films and finally of the magnetic-bubble films themselves. His department developed neodymium-doped lanthanum beryllate and alexandrite, a tunable vibronic laser, synthesized berlinite, a quartz isomorph, for surface acoustic wave devices, and devised an efficient method for the laser isotope separation of deuterium from fluoroform by infrared multiphoton absorption of CO_2 laser radiation.

Since Alten Gilleo's career spanned so many fields, his absence will be felt by many.

J. J. BARRETT
D. M. GUALTIERI
Allied Chemical Corporation

William E. Stephens

William E. Stephens, professor of physics at the University of Pennsylvania, died on 16 July 1980.

Stephens was the son of a professor. He obtained his undergraduate and master's degrees from Washington University. After he received a PhD in physics from the California Institute of Technology in 1938, he became a Westinghouse Research Fellow at the Westinghouse Laboratories and then a lecturer in physics at the University of Pittsburgh. After a year at Stanford University, he moved to the University of Pennsylvania in 1941. He became professor of physics in 1948, and was Dean and Vice-Provost of the College of Arts and Sciences from 1969 to 1973.

Having joined the University of Pennsylvania shortly after the Second World War began, Stephens entered a program of research at Pennsylvania on silicon crystal rectifiers. This work, which remained classified until a number of years after the war, was partly directed toward the use of silicon crystals as detectors in high-frequency receivers.

While at Westinghouse Laboratories, Stephens had been involved in the design and construction of an electrostatic generator with which he studied, among other subjects, photofission reactions. This interest in energetic photon-induced processes provided much of impetus for Pennsylvania in 1949 to acquire a commercially built 25-MeV betatron and initiate a very fruitful program in photonuclear reactions.

In 1961, largely as a result of Bill's determined efforts, the University of Pennsylvania acquired a tandem accelerator, which provided the basis for a new program of nuclear-structure research that flourished under Bill's leadership and that, with a new and larger tandem, continues. In spite of an increasing involvement in University affairs, Stephens remained a very active research worker and extensively used the new accelerator to further his studies of photonuclear reactions.

About this time he developed an interest in astrophysics and cosmology that remained with him throughout the rest of his career. He studied nuclear reactions important to stellar evolution, and in the early 1970s he published a series of papers on the cross sections of the carbon-plus-carbon and carbon-plus-oxygen burning reactions. These studies were typical of Bill: To be of value the measurements had to be extended to very low energies, where the cross sections became exceedingly small. Executing them successfully was an experimental *tour de force*.

In spite of his illness, to the time of his death, Bill remained active in the laboratory and continued to formulate experiments. The breadth of his interests is indicated in the variety of his last research: on solar neutrino flux, on an upper limit on the existence of superheavy elements, and on the rate of stellar collapse in the galaxy.

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Karl Bechert

On 1 April 1981 Karl Bechert, an educator and a physicist who investigated combusion and explosions, died in Weilmunster, FRG. His death deprives the scientific community of a rare leader who combined success in science with a commitment to consider the social impact of one's work, including unintended but unavoidable side effects of scientific efforts.

Bechert was the last anti-Nazi to become a professor of Giessen University during the Hitler regime; he steadfastly refused to join the Nazi party, promoted Jewish colleagues in his department, and later hid Jewish coworkers in his home. He maintained his independence and dignity, often protecting the area villagers against Nazis, by hiding whole families in the surrounding woods. For a great Nazi celebration, where all other faculty members wore caps and gowns, Bechert appeared in dirty dungarees, together with his two small sons and a wheelbarrow.

Following Hitler's defeat, the American Army Command made him mayor of Giessen, the town to which he moved his Institute. Subsequently, he became a professor at the ancient University of Mainz. He was active in furthering the growth of the Society for Social Responsibility in Science in Germany. Later he shared in the leadership of the Pugwash movement, a worldwide effort to unite scientists to work for peace, with Lord John Boyd Orr, Linus Pauling and Bertrand Russell.

VICTOR PASCHKIS
Fellowship Farm
Pottstown, Pa. □