Clyde E. Wiegand FREE

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WE HEAR THAT

Acoustical Societies of America and Japan Present Awards

The Acoustical Society of America held its fall meeting this December in Honolulu in conjunction with the Acoustical Society of Japan. The two societies recognized several individuals for their contributions to acoustics and to the societies.

ASA presented the Trent–Crede Medal to **Preston W. Smith Jr**. This award, last given in 1991, honors outstanding contributions to the science of mechanical vibration and shock. Smith, who retired from Bolt, Beranek and Newman Inc in 1995, was praised for his "pioneering contributions to statistical energy analysis and structural–acoustical interaction."

John C. Burgess, professor emeritus of mechanical engineering at the University of Hawaii at Manoa, was given a Distinguished Service Citation by ASA for "contributions to international cooperation through the organization of joint meetings with the Acoustical Society of Japan."

In a special exchange of awards, several other individuals received recognition for their contributions to the friendship between the two societies. ASA presented Special Distinguished Service Certificates to **Juichi Igarashi** of the Kobayashi Institute of Physical Research, **Seiichiro Namba** of the Takarazuka University of Art and Design, and **Hideki Tachibana** of the University of Tokyo.

Medals of Special Merit were given by the Acoustical Society of Japan to **Burgess**, **Robert E. Apfel**, a professor of mechanical engineering at Yale University, **Stanley L. Ehrlich**, principal acoustical consultant at Stan Ehrlich Associates, **Tony F. W. Embleton**, formerly with the National Research Council of Canada, **Patricia K. Kuhl**, chairman of the department of speech and hearing sciences at the University of Washington, and **Jiri Tichy**, head of the graduate program in acoustics at Pennsylvania State University.

Peter Narins, professor of auditory physiology at the University of California, Los Angeles, received the ASA Science Writing Award for a Professional in Acoustics for his article "Frog Communication" in the August 1995 issue of *Scientific American*.

The ASA Science Writing Award for a Journalist went to **A. Richard Immel**, a freelance writer, for "Shhhh . . . Those 'Peculiar People' Are Listening" published in *Smithsonian* in April 1995.

In Brief

In August, **Terry M. Tritt** returned to his alma mater, Clemson University in South Carolina, as an assistant professor in the department of physics and astronomy. At Clemson, he will establish a research program on the next generation of thermoelectric materials. Tritt worked previously as a research physicist in the materials science division at the Naval Research Laboratory in Washington, DC.

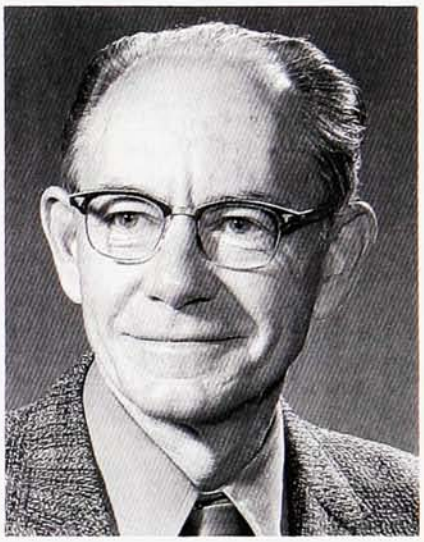
Ray Goldstein became an associate professor at the University of Arizona in September. He had been an assistant professor at Princeton University.

The Carnegie Foundation has named **Dean A. Zollman** Professor of the Year for 1996, one of four individuals to be so honored by the organization. Zollman is a professor of physics and a distinguished university teaching scholar at Kansas State University.

OBITUARIES

Clyde E. Wiegand

Clyde E. Wiegand, an experimental physicist who made major contributions to nuclear and particle physics for more than five decades, died of prostate cancer at his home in Oakland, California, on 5 July 1996. He is perhaps best known for his central role in the discovery of the antiproton in 1955. He was a key contributor to all phases of the experiment, and as participants in that work, we feel it is fair to say that no one deserves more credit for its success than he did. His design of the quadrupole magnets and the novel velocity-selecting Čerenkov counter, his prowess with fast electronics and his ability to put together an experiment and make it work were crucial ingredients in the successful outcome of this experiment. Unfortunately, he was not included among those who were awarded the 1959 Nobel Prize for this discovery.



CLYDE E. WIEGAND

Wiegand was born on 23 May 1915, in Long Beach, Washington. He received an undergraduate degree in physics from Willamette University in 1940. He began his graduate work in physics in 1941 at the University of California's Berkeley campus under the direction of Emilio Segrè.

In his autobiography, *A Mind Always in Motion*, Segrè recalls his first encounter with Wiegand: "One day I was trying to build a power supply for an electronic apparatus on my own. A student started looking at me, and after a while, with a half-disgusted expression, asked whether he could help me. I was happy to accept, and within half an hour he provided me with a much better power supply than I could ever have made. The student was Clyde Wiegand . . ."

Wiegand joined the Lawrence Radiation Laboratory (now the Lawrence Berkeley National Laboratory) as a graduate student in 1941 and remained there his entire career. In 1943, while still a graduate student, Wiegand went with Segrè and his group to Los Alamos to work on the Manhattan Project. There, Wiegand helped to determine the spontaneous fission half-lives of the uranium and plutonium isotopes that were critical to the design of the atomic bomb. In 1946, he returned to the Berkeley campus, where he measured the lifetime of the positive pi meson for his PhD

thesis in 1950.

The advent of polarized nucleon beams at the 184-inch synchrocyclotron in 1953 opened an intensive program of nucleon–nucleon scattering experiments, which turned into the major activity of our research group during the following few years. Wiegand played a key role in this work and provided much of the technical leadership.

After the antiproton discovery, Wiegand and colleagues turned their attention to measuring the interaction cross sections of these particles. In 1957, he spent six months at CERN, the European laboratory for particle physics near Geneva, where he set up electronic systems that were of great value to the fledgling experimental program there. Wiegand and his colleagues then turned their attention to studying the pion–pion interaction, and later to measuring rare kaon decay modes.

Wiegand preferred to do interesting small-scale experiments, and in the 1970s he and a number of graduate students pioneered the study of K-mesonic atoms, a task that occupied him until his retirement. In all his experiments and research activities, he followed a straightforward approach to get to the heart of a problem and then used great skill and meticulous care to carry out the actual measurements.

Wiegand was a prolific technical innovator. In the late 1940s, he developed one of the first distributed amplifiers, a precursor of the kind of high-speed electronics widely used today in many fields of science and technology. He was among the first to realize the tremendous importance of coupling detection systems to computers. Though he officially retired in 1980, after 38 years at the Lawrence Berkeley National Laboratory, he continued to develop state-of-the-art electronic systems for x-ray and gamma-ray detectors used both in spacecraft and in terrestrial applications.

In sum, Wiegand was a master of his trade, who delighted in being confronted by experimental challenges, and who more often than not came up with innovative solutions to the problems at hand. He was a quiet, unassuming person who was always ready to help others and who had a profound influence on the scores of colleagues and students with whom he worked over the years.

Wiegand was a man of varied interests outside of physics. He traveled throughout the world shooting home movies and collecting footage from all seven continents. He hiked in the Himalayas and camped on both Mount Everest and K2, piloted his own plane, played the organ and was an avid ham radio operator. He loved listening to big band music, growing apricots and boysenberries (which he canned for family and friends), and watching Oakland Athletics baseball games.

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Kenneth Tompkins Bainbridge

Kenneth Tompkins Bainbridge, the George Vasmer Leverett Professor of Physics, Emeritus, at Harvard University, died in Lexington, Massachusetts, on 14 July 1996, just thirteen days before his 92nd birthday and two days before the 51st anniversary of the test explosion of the first nuclear bomb, which he had directed.

Born in Cooperstown, New York, Ken grew up in New York City. He started to experiment with radio transmission as a teenager. He was able to purchase surplus 5-watt radio tubes from the radio operators from naval vessels returning after World War I that were docking near his house on Riverside Drive.

In 1921, he gave up radio to enroll in a five-year combined SB and SM program in electrical engineering at MIT. Through a cooperative arrangement with the General Electric Co, he spent his summers in the GE research laboratories at Schenectady. His experience there led to his obtaining patents on cesium–oxygen–silver photoelectric cathodes and on electrodes for secondary emission. He had become especially interested in physics and was advised by his associates at GE that, if he wished to go further in physics, "Princeton was the place to go."

KENNETH TOMPKINS BAINBRIDGE

As a graduate student at Princeton University, he became interested in nuclear physics, little of which had come into the regular course work by that time. He pursued his interest largely through reading the limited literature then available. He designed his first mass spectrograph to search for element 87, eka-cesium. Ken then spent some years as a postdoctoral fellow at the Bartol Research Foundation, where he continued to use his mass spectrographs to measure isotopic masses and to compare nuclear mass differences with the energies measured in transitions as a check on Einstein's mass–energy equivalence. He had become widely recognized as the designer of one of the most advanced mass spectrographs of that era.

From July 1933 to September 1934, Bainbridge visited the Cavendish Laboratory of Ernest Rutherford, where he became acquainted with the many distinguished nuclear physicists there. He entered into a lifelong friendship particularly with John D. Cockcroft. In 1934, Ken joined the physics department at Harvard University, where his former colleague from Bartol, J. Curry Street, was by then also employed. At Harvard, Ken continued his pursuit of mass spectroscopy of nuclear isotopes, but in 1936, with Street's collaboration, he undertook to build a cyclotron. Ernest O. Lawrence of the University of California at Berkeley helped by providing detailed drawings of his newest, 37-inch cyclotron. Ken's first graduate student, Edward M. Purcell, also joined in the development of the cyclotron. The instrument became operational well before the widespread disbandment of physics research at the start of World War II.

Prior to 1940, Ken had proposed a method of isotope separation using counter flow in a Holweck pump and had enlisted the collaboration of the chemists E. Bright Wilson and George B. Kistiakowski. When these three brought their work to the attention of the Navy in Washington, they were told to forget it, that classified work was under way and the situation was well in hand.

In September 1940, Ken was the first physicist to be recruited by Lawrence for the microwave "radio location" project that became the Radiation Laboratory at MIT. Ken's friendship with British scientists was an asset in this activity, which had begun in close collaboration with them. He oversaw the development of radars of increasing power, especially for the Navy. In the spring of 1941, he made a visit to Britain to observe and report