

ACOUSTICAL SOCIETY RECOGNIZES NOTEWORTHY WORK

The Acoustical Society of America each year recognizes individuals for their outstanding research, teaching and other accomplishments in the field.

In 1989 Lothar W. Cremer, a professor emeritus of acoustics at the Technical University of Berlin, received ASA's Gold Medal, the society's most prestigious award. In presenting Cremer with the medal, the society cited him "for identifying and solving key problems in acoustics and acoustical engineering and for the impact of his teachings and writings." The award citation noted that Cremer has made contributions to almost every major area of acoustics and acoustical engineering, including physical acoustics, building acoustics, structure-borne noise and the physics of stringed musical instruments.

From 1934 to 1944 Cremer was a senior research fellow at the Technical University of Berlin's Institute of Mechanics and also worked with the acoustics group of the Heinrich Hertz Institute in Berlin. Following a two-year stint in the German Navy, Cremer became a consultant in acoustics in 1946. Beginning in 1949, he was a lecturer at the University in

Lothar W. Cremer



Munich. From 1954 to 1973, Cremer was a professor and director of the Institute of Technical Acoustics at the Technical University of Berlin. Under his guidance, the institute was transformed from "a few shabby rooms and a partly bombed-out shack" into "one of the best-known and best-equipped laboratories in Europe," the citation said. Cremer is now retired, although he continues to write and consult on the acoustic design of concert halls.

ASA presented two Gold Medals in 1988. One went posthumously to Arthur H. Benade "for pioneering work in the science and art of musical acoustics, emphasizing the interactions among performer, instrument and listener." The award citation praised Benade's ability to apply his "theoretical findings to actual performance problems and to the construction and alteration of [musical] instruments for improved tone and playing qualities." Benade's professional curiosity extended into the past as well as the future: He studied the design of 19th-century woodwinds and other period instruments, and he performed on new, experimental instruments to demonstrate theoretical

Arthur H. Benade



points.

As a young man, Benade had interests in both music and physical science, which eventually led to a career in musical acoustics. He was an instructor and then a professor of physics at Case Western Reserve University from 1952 until his death from cancer in 1987.

The other 1988 Gold Medal was awarded to Richard K. Cook for "outstanding seminal contributions to diverse areas of acoustics and to standardization." Over the years Cook worked on problems in microphone calibration, architectural acoustics, piezoelectric properties of crystalline quartz, and numerous other subjects. Among the accomplishments highlighted in the citation was Cook's 1965 finding that the vertical component of motion of the Earth's surface—such as occurs in an earthquake—radiates sound almost vertically, until a shock wave is formed and the wave then passes into the ionosphere.

From 1935 to 1966 Cook worked as a physicist at the National Bureau of Standards; he was promoted to chief of the sound section at NBS in 1942. From 1966 to 1971 he was chief of the

Richard K. Cook



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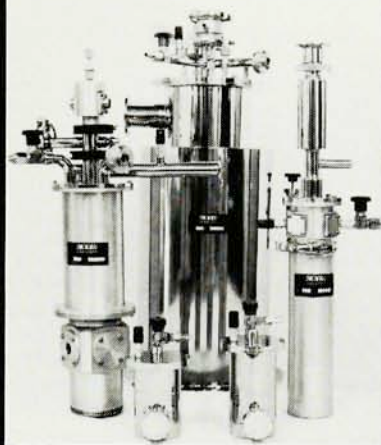
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geoacoustics group at the National Oceanic and Atmospheric Administration, after which he returned to the standards bureau as a special assistant on sound programs. Cook officially retired in 1976 and has worked since then as a consultant to the bureau.

Last year ASA saluted the achievements of several other individuals in addition to Cremer. Mark F. Hamilton of the University of Texas received the R. Bruce Lindsay Award, which each year goes to a young member who has been active in the society or in the field. And for the first time ever, the society presented a Silver Medal in the newly created category of "bioresponse to vibration"; the medal went to Floyd Dunn for his work on ultrasound. The Silver Medal in Engineering Acoustics went to Joshua E. Greenspon and the Silver Medal in Musical Acoustics to Max V. Mathews. Daniel W. Martin received a Distinguished Service Citation.

In presenting Hamilton with the Lindsay Award, the society cited his "contributions to nonlinear acoustics, particularly parametric arrays, intense sound beams and waveguides." The award citation noted that Hamilton has contributed to the understanding of problems such as nonlinear effects in focused sound beams, the scattering of sound by sound and the interaction of a tone with noise.

Hamilton became a research fellow at the University of Texas at Austin in 1984 and an assistant professor in the mechanical engineering department the following year. He was promoted to associate professor in September 1989.

Dunn received the Silver Medal for Bioresponse to Vibration "for contributions to the understanding of the interactions of ultrasound with biological media." The citation praised Dunn's research as having been "important for the safe and effective use of high-frequency sound in diagnostic and therapeutic medicine." Dunn has tackled numerous problems in ultrasonic biophysics, including the study of ultrasound's toxic effects on mammalian reproductive organs and the measurement of heat absorbed by living tissue from ultrasonic waves; his work on the latter topic has helped lead to recent proposals to use ultrasound for treating certain types of cancer.

In 1956 Dunn joined the faculty of the University of Illinois at Urbana-Champaign, where he is now a professor of engineering, bioengineering and biophysics. He has been director of the Bioacoustics Research Labora-

tory in the department of electrical and computer engineering since 1977.

The engineering acoustics medal was awarded to Greenspon "for his leadership in and contributions to the solution of underwater radiation and scattering problems." The citation praised Greenspon's extensive study of the radiation and scattering of acoustic and elastic waves from underwater structures. His work has played a key role in the detection and classification of underwater vessels.

Greenspon worked for the Navy from 1953 to 1956 and for the Martin Company (now Martin Marietta Corp) from 1956 to 1958, when he left to form his own engineering company, J G Engineering Research Associates, based in Baltimore, Maryland. Greenspon's firm consults for the Navy on underwater acoustics, for the Army on the vulnerability of aircraft and ground structures, and for NASA on the vibration of structures.

The musical acoustics medal went to Mathews for his "pioneering work in electronic music and the applications of digital computers to musical acoustics." The citation noted that Mathews is primarily known as the inventor of computer-synthesized music. He has also been instrumental in helping musicians and composers understand the principles of acoustics, electronics and computers; his book *The Technology of Computer Music* (MIT P., Cambridge, Mass., 1969) is still a standard in the field, the citation said.

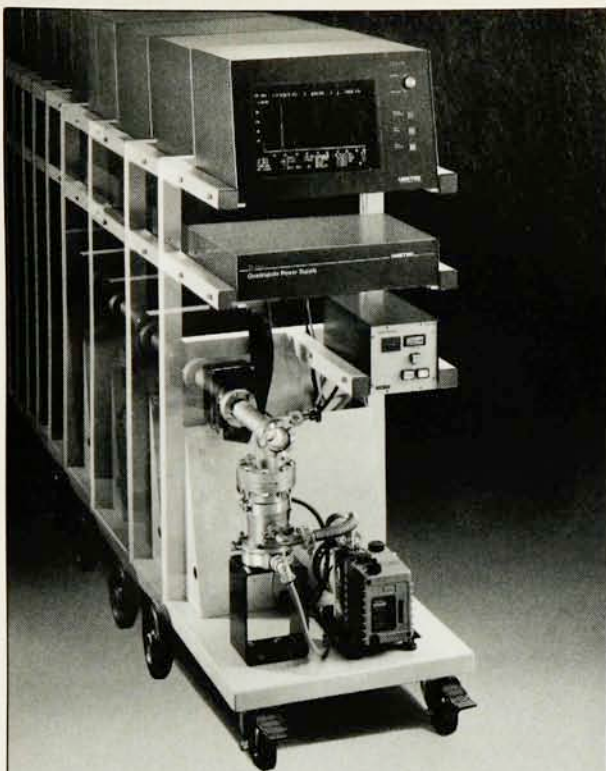
From 1955 to 1987 Mathews worked at AT&T Bell Laboratories. From 1974 to 1980 he was also on the committee that created the Institut de Recherche et Coordination Acoustique/Musique in Paris and helped to establish the computer music program there. Since 1987 Mathews has been a professor of music at Stanford University's Center for Computer Research in Music and Acoustics.

Martin received the Distinguished Service Citation in recognition of his "more than 30 years of wide-ranging and untiring service to the society" as president, member of the executive council and chairman of various committees, and "above all for his extraordinary contributions to the society journal as a patent reviewer, associate editor and editor in chief." Martin has been the editor in chief of the *Journal of the Acoustical Society of America* since 1985.

Martin worked for RCA from 1941 to 1949, after which he joined Baldwin Piano Co. He retired from Baldwin in 1983 and is now a consultant in acoustics.

In 1988 ASA presented the Lindsay

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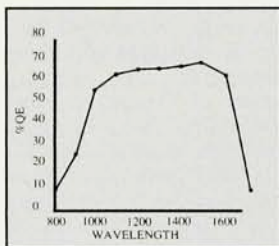
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Award to Gilles A. Daigle, the Silver Medal in Physical Acoustics to Mack A. Breazeale and the Silver Medal in Noise to William J. Galloway. Robert J. Urick received the Pioneers of Underwater Acoustics Medal.

Daigle, a researcher in the acoustics section of the National Research Council of Canada, received the Lindsay Award "for theoretical and experimental studies of the effects of micrometeorology and of the contours and acoustical properties of the ground on sound propagation outdoors." Daigle's research has had important social implications, including the prediction of noise levels around airports and highways, the citation noted.

In 1981 Daigle began his career at the National Research Council in Ottawa, where he was first a postdoctoral research associate and then an assistant research officer. Most recently he has been an associate research officer.

The physical acoustics medal went to Breazeale "for pioneering work on nonlinear phenomena in ultrasonic wave propagation in solids and liquids." From 1954 to 1962 Breazeale was on the faculty of Michigan State University. He then moved to the University of Tennessee, Knoxville, where he is now a professor of physics. The citation praised Breazeale for making the University of Tennessee "one of the centers in physical acoustics." His research there has been on nonlinear acoustics of fluid media and crystalline solids.

Shortly after his arrival at the University of Tennessee, Breazeale also became a consultant to the solid-state physics division at Oak Ridge National Laboratory, where he has studied nonlinear distortion of ultrasonic waves in crystalline solids.

Galloway received the Silver Medal in Noise "for contributions to aircraft and traffic noise assessment and community noise reduction." The standard procedures now used to ensure that aircraft noise levels comply with the Federal Aviation Administration's limits are based largely on Galloway's work, the citation stated. He has also been active in efforts by government and industry to establish regulations for environmental noise exposure.

From 1951 to 1952 Galloway was a staff physicist with the US Army Signal Corps Engineering Laboratories at Fort Monmouth in New Jersey. In 1953 he began working for Bolt, Beranek and Newman Inc. He eventually became a vice president and principal scientist of the company's Los Angeles office. Galloway retired

in 1982 and continues to work as a consultant.

The Pioneers of Underwater Acoustics Medal was presented to Urick "for his book *Principles of Underwater Acoustics* and his many experiments on sound propagation, scattering, reverberation and ambient noise." Much of Urick's work was done for the US Navy and "provided the foundation for countless system designs, modifications and improvements," the citation said. It also noted that the book, first published in 1967 and now in its third edition, "has become a standard reference text for... the design and utilization of sonar equipment."

Before becoming involved in underwater acoustics, Urick worked as a seismologist for Shell Oil and for Texas Company from 1936 to 1942. He then worked in various Navy laboratories, including the Naval Research Laboratory in Washington, DC, and the Naval Ordnance Laboratory in Silver Spring, Maryland. Since retiring in 1975, Urick has lectured on underwater acoustics at Catholic University of America.

IN BRIEF

James Bjorken has returned to SLAC as a member of the theory group, after a ten-year absence. Bjorken was most recently a member of the theory group at Fermilab.

David Arnett now has a joint appointment as a professor in the physics department of the University of Arizona and at the university's Steward Observatory. Before coming to Arizona, he was the B. and E. Sunny Distinguished Service Professor of Astronomy, Astrophysics and Physics at the University of Chicago and a member of the Enrico Fermi Institute.

The physics department of the University of Illinois at Urbana-Champaign has gained six new faculty members in the past two years.

Klaus Schulten, who was an associate professor at the Technical University of Munich, is now a professor at Illinois; **David Ceperley**, formerly a staff scientist at Lawrence Livermore National Laboratory, joined the university as an associate professor; and **Tony Liss**, who recently completed a postdoctorate assignment at the University of Chicago, is now an assistant professor at Illinois. More recently, **George D. Gollin**, formerly an assistant professor at Princeton, joined the department as an associate professor; **Douglas H. Beck**, who was a senior research fellow at Caltech, joined as

an assistant professor; and **Karl-Heinz A. Winkler**, previously the director of the Numerical Laboratory at Los Alamos, became a professor at Illinois.

J. Robert Dorfman, a theoretical physicist specializing in the statistical mechanics of nonequilibrium phenomena, has been appointed vice president for academic affairs and provost of the University of Maryland, College Park. Dorfman was formerly dean of the college of computer, mathematical and physical sciences at Maryland.

Charles C. Baker, who was director of the Argonne National Laboratory's fusion power program for 12 years, has become associate director for technology at the fusion energy division of the Oak Ridge National Laboratory.

Roger D. Blandford, a theorist who has worked on pulsars, cosmic jets and black holes, has been named the Richard Chace Tolman Professor of Theoretical Astrophysics at Caltech.

OBITUARIES

Frank J. Feigl

Frank J. Feigl died suddenly from a heart attack on 26 November 1988, at the age of 52. He was a professor of physics and chair of the physics department at Lehigh University. His research did much to advance the science of the defect properties of insulating thin films, typified by silicon dioxide on silicon in the metal-insulator-semiconductor configuration.

Feigl was born and raised in Chicago. He earned an AB in physics, *magna cum laude*, from the University of Notre Dame in 1958. He received his PhD in physics in 1965 from the University of Pittsburgh, where he studied defects in quartz by electron spin resonance. After a postdoctoral appointment at the University of Illinois, he joined the Lehigh faculty in 1967.

Feigl's research blossomed with Lehigh's growing reputation in the field of defects in semiconductors and insulators, and his activities contributed significantly to the establishment and development of the Sherman Fairchild Laboratory for Solid State Studies. Feigl's research activities were characterized by cooperative programs within, across and outside of academic boundaries. At various times his research programs involved scientists from IBM, the RCA Sarnoff