

GOLD MEDAL of the Acoustical Society of America



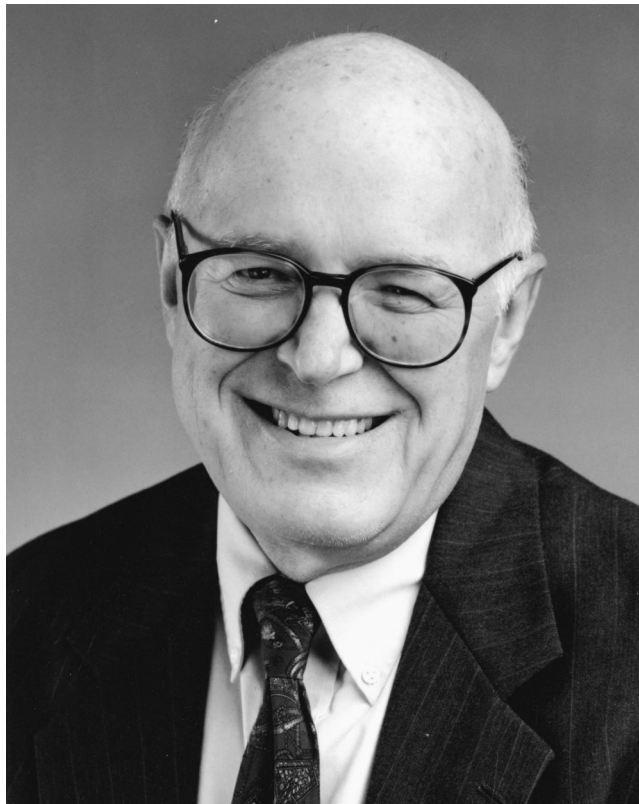
Allan D. Pierce

2005

The Gold Medal is presented in the spring to a member of the Society, without age limitation, for contributions to acoustics. The first Gold Medal was presented in 1954 on the occasion of the Society's Twenty-Fifth Anniversary Celebration and biennially until 1981. It is now an annual award.

PREVIOUS RECIPIENTS

Wallace Waterfall	1954	Cyril M. Harris	1987
Floyd A. Firestone	1955	Arthur H. Benade	1988
Harvey Fletcher	1957	Richard K. Cook	1988
Edward C. Wentz	1959	Lothar W. Cremer	1989
Georg von Békésy	1961	Eugen J. Skudrzyk	1990
R. Bruce Lindsay	1963	Manfred R. Schroeder	1991
Hallowell Davis	1965	Ira J. Hirsh	1992
Vern O. Knudsen	1967	David T. Blackstock	1993
Frederick V. Hunt	1969	David M. Green	1994
Warren P. Mason	1971	Kenneth N. Stevens	1995
Philip M. Morse	1973	Ira Dyer	1996
Leo L. Beranek	1975	K. Uno Ingard	1997
Raymond W. B. Stephens	1977	Floyd Dunn	1998
Richard H. Bolt	1979	Henning E. von Gierke	1999
Harry F. Olson	1981	Murray Strasberg	2000
Isadore Rudnick	1982	Herman Medwin	2001
Martin Greenspan	1983	Robert E. Apfel	2002
Robert T. Beyer	1984	Tony F. W. Embleton	2002
Laurence Batchelder	1985	Richard H. Lyon	2003
James L. Flanagan	1986	Chester M. McKinney	2004



CITATION FOR ALLAN D. PIERCE

. . . for contributions to physical, environmental, and structural acoustics, acoustics education, and leadership as Editor-in-Chief of the Society.

VANCOUVER, CANADA • 18 MAY 2005

Iowa has made important contributions to acoustics; one of them is Allan Pierce, who was born December 18, 1936 in Clarinda. Allan's family lived in Wichita, Kansas during World War Two, then moved to Las Cruces, New Mexico, where he attended New Mexico State University. Two and a half years were sufficient for him to earn a B.S. with highest honors in Physics in 1957. From there, he pursued his graduate studies in the Physics Department of the Massachusetts Institute of Technology, which marks the beginning of his well-known affinity for the Boston area. In 1962 he was awarded the Ph.D. in physics for his thesis on electron lattice interactions in the Born-Oppenheimer approximation. With the encouragement of Philip Morse, who was on his Ph.D. committee, Allan went to work for the Rand Corporation in Santa Monica. We are thankful that Allan was new to the company. Otherwise Albert Latter probably would not have turned to Allan when the senior researchers working in quantum physics turned down a project in atmospheric propagation, thereby diverting Allan from the area of his doctoral work to acoustics.

Allan's second stay in the Boston area came when he transferred to the Avco Corporation in Wilmington from 1963 to 1966. He then returned to MIT as an Assistant Professor, where he was promoted to Associate Professor in 1968. Allan departed for the warmer climate of Atlanta in 1973 when he moved to the Georgia Institute of Technology as a Professor of Mechanical Engineering. He was awarded a Regents' Professorship there in 1976. During his tenure at Georgia Tech he had visiting positions at the Max Planck Institut für Strömungsforschung from 1976 to 1977, and the Transportation Systems Center of the U.S. Department of Transportation, which was his third stay in Boston. He departed Georgia Tech in 1988 for Pennsylvania State University, where he was a Professor and the Leonhard Chair Holder, with joint appointments in the Department of Mechanical Engineering and the Graduate Program in Acoustics. His most recent return to the Boston area was in 1993, when he became the Chair of the Department of Aerospace and Mechanical Engineering at Boston University. He stepped down from that position in 1999, but continues there as a Professor. Throughout his career, his wife Penelope Claffey, who he married in 1961, has been by his side. She and their children, Jennifer and Bradford, are justifiably proud of his accomplishments. He has successfully managed the difficult task of being a devoted husband and father, while simultaneously being fully committed to his profession.

Allan is an intellectual in the truest sense. If you cannot find Allan during a professional meeting, look for him in an antique bookstore. His interests are universal, and his research in a diverse range of topics always blends physical insight and mathematical rigor. Allan's early work addressed propagation of sound in the atmosphere. In a Letter to the Editor in *Nature*, he described how the magnitude of an explosion could be determined from its measured waveform, which was used to verify the ban on atmospheric testing of nuclear weapons, and subsequently to estimate the magnitude of the Mt. Saint Helen's eruption. His analysis explaining the effects of turbulence on sonic boom rise time remains one of the best available theories. It was a logical transition for him when he turned to problems in propagation in natural waveguides. The theory he developed to predict propagation in natural waveguides whose properties vary slowly with horizontal distance is still quoted today. Interestingly, this work was guided by analogies he drew with his thesis work. In fact, Allan's ability to recognize analogies between apparently different areas is an important attribute of his approach.

A complete survey of Allan's work would need to describe his contribution to development of the surface variational principle for radiation and scattering, and his application of geometrical acoustics concepts to describe wave propagation of plates and shells, which led to new insights into the interpretation of experimental data. A hot topic several years ago was "fuzzy structures," about which he provided mathematical insight to a much debated subject. One should also recognize his efforts in laser generation of sound, and diffraction around thick barriers. In each area, Allan's papers are at the core, and often the first to be cited by others.

Research is only one aspect of Allan Pierce. He was the chief architect of two outstanding programs in acoustics. At Georgia Tech, the prospect of working with him enticed several individuals, including me, to join the School of Mechanical Engineering. As department chair at Boston University he convinced the administration to expand the faculty, with many of the subsequently recruited faculty having research interests in acoustics. At Penn State, where the acous-

tics program was highly respected prior to his arrival, Allan provided an intellectual focus as a faculty colleague, as well as the Technical Director of the Center for Acoustics and Vibrations. In every academic position Allan has held, he has had a profound impact on a generation of young acousticians who he nurtured and mentored, and now are highly accomplished members of our Society. An important aspect of Allan's educational activities is his textbook, *Acoustics: An Introduction to Its Physical Principles and Applications*, which is one of the best-sellers in the ASA Books program. What a wonderful treatise it is, filled with theory, data, explanations, and references. I begin each acoustics course by telling the students that they will hate using his book in class, because it is more intense than most books they will encounter, but they will recognize upon completion of their studies that it has made them an acoustics expert.

Perhaps education will be his greatest legacy, and yet there is much more that is important. Allan is tireless in his professional activities, especially within our Society. Is there an area where he has not participated? Is there an activity where he has not taken a leadership role? Technical committees, Executive Council, Education, Membership, Chair of the American Society of Mechanical Engineers (ASME) Noise Control and Acoustics Committee, US National Committee for Theoretical and Applied Mechanics, and countless other activities that do not show up on a resumé. He was an area editor for our *Journal*, founding co-editor of the *Journal of Computational Acoustics* and co-editor of the Physical Acoustics series published by Academic Press. Presently he is a member of the Editorial Board of the *Journal of Sound and Vibration*. All this while serving as Editor-in-Chief for our *Journal*. He has taken over in a perilous time, with technology threatening our old ways. He has launched major initiatives to ensure that our *Journal* continues to be the premiere vessel for disseminating knowledge of acoustics. He has converted a part-time job into a full-time avocation. There are no better hands than his to guide the *Journal* into the future.

If Allen has an idol, it is Lord Rayleigh, which is a demonstration of the standards that he sets for himself and others. Allan delivered the Rayleigh Lecture at the ASME annual meeting in 1992. In November of last year at our meeting in San Diego, he was the first recipient of the Rossing Prize in Acoustics Education, for which he gave an enthralling talk on the life of Rayleigh. An incident when he was on the faculty of Georgia Tech vividly illustrates Allan's esteem for Rayleigh. We were conducting the oral part of the Ph.D. qualifying exam in acoustics. One student had done quite well, but we had some time left, so Allan asked him "Who was the greatest acoustician?" The student had studied everything, but not in a historical context, and clearly was flustered. After thinking for approximately a minute, he said to Allan "You!" Allan corrected him by simply saying "Rayleigh", then thanked him for the compliment. The student passed despite this serious gap in his knowledge!

Other recognitions Allan Pierce has received include the Senior U.S. Scientist Award from the Alexander von Humboldt Foundation in 1976, the Silver Medal in Physical Acoustics from ASA in 1991, and the Per Bruel Gold Medal for Noise Control and Acoustics from ASME in 1995. He was named the Outstanding Thesis Advisor by the Georgia Tech Chapter of Sigma Xi in 1988. I do not think that any one now alive has done as much as he to advance acoustics, not just as an area in which to work, but as a place in which to make a home. It is most appropriate that the prior recognitions of Allan Pierce's contributions be capped by our Gold Medal.

JERRY H. GINSBERG