ACOUSTICAL SOCIETY OF AMERICA

GOLD MEDAL

Brian C. J. Moore

2014

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	Manfred R. Schroeder	1991
Floyd A. Firestone	1955	Ira J. Hirsh	1992
Harvey Fletcher	1957	David T. Blackstock	1993
Edward C. Wente	1959	David M. Green	1994
Georg von Békésy	1961	Kenneth N. Stevens	1995
R. Bruce Lindsay	1963	Ira Dyer	1996
Hallowell Davis	1965	K. Uno Ingard	1997
Vern O. Knudsen	1967	Floyd Dunn	1998
Frederick V. Hunt	1969	Henning E. von Gierke	1999
Warren P. Mason	1971	Murray Strasberg	2000
Philip M. Morse	1973	Herman Medwin	2001
Leo L. Beranek	1975	Robert E. Apfel	2002
Raymond W. B. Stephens	1977	Tony F. W. Embleton	2002
Richard H. Bolt	1979	Richard H. Lyon	2003
Harry F. Olson	1981	Chester M. McKinney	2004
Isadore Rudnick	1982	Allan D. Pierce	2005
Martin Greenspan	1983	James E. West	2006
Robert T. Beyer	1984	Katherine S. Harris	2007
Laurence Batchelder	1985	Patricia K. Kuhl	2008
James L. Flanagan	1986	Thomas D. Rossing	2009
Cyril M. Harris	1987	Jiri Tichy	2010
Arthur H. Benade	1988	Eric E. Ungar	2011
Richard K. Cook	1988	William A. Kuperman	2012
Lothar W. Cremer	1989	Lawrence A. Crum	2013
Eugen J. Skudrzyk	1990		

CITATION FOR BRIAN C. J. MOORE

. . . for leadership in research on human hearing and its clinical applications

PROVIDENCE, RHODE ISLAND • 7 MAY 2014

Brian Moore's name has been synonymous with psychoacoustics for several decades. Having studied Natural Sciences at the University of Cambridge, and completed a Ph.D. there in 1971, it took him only 6 years to be recruited back to Cambridge as a faculty member, where he was promoted to his current position as Professor of Auditory Perception in 1995 and where he continues to reside with his wife and fellow psychoacoustician, Hedwig Gockel.

His textbook "An Introduction to the Psychology of Hearing," published in 1977 and now in its sixth edition, has been an exciting first step into the world of auditory perception for generations of students around the world, and remains an important reference for researchers throughout their careers. Browsing through the chapter titles, it is easy to see why Brian has become such an icon in the field: from frequency selectivity and masking, through loudness, pitch, auditory pattern and object perception, to practical applications, there is scarcely an area to which Brian has not made substantial and seminal contributions.

Frequency selectivity is established in the cochlea of the inner ear, and has profound effects on practically all aspects of auditory perception. Beginning in the late 1970s, Brian and his team produced a series of elegant experiments that devised and refined behavioral methods to probe the frequency selectivity of the human auditory system, using masking techniques to systematically avoid many of the artifacts and confounds that had plagued earlier attempts. Brian refined the notched-noise technique, pioneered by his long-time Cambridge colleague, Roy Patterson, to provide a "map" of frequency selectivity over the audible range of frequencies. This 1990 study, published with long-time lab associate Brian Glasberg, has become the classic reference for estimating human auditory frequency tuning and has been cited more than a thousand times.

Loudness is one of the primary perceptual attributes of sound, and here again Brian has made some of the most lasting contributions to our understanding of how loudness relates to peripheral auditory processing, and how loudness is affected by hearing loss. His computational models of loudness have been met with near-universal acceptance (a rarity in this field), and have found application in the design of hearing aids and in noise assessment and abatement.

Pitch is another fundamental aspect of auditory perception and again Brian has shaped research in this area since his earliest work in the 1970s through his most recent contributions to the ongoing debate on the role of temporal fine structure. Combining ingenious experimental design with computational modeling, he has helped to answer long-standing questions about the nature of pitch perception and its neural bases.

A constant theme running through his career has been the application of his research to the theory, diagnosis, and treatment of hearing loss. His theoretical contributions include demonstrations of how the reduced compression in the impaired cochlea influences loudness and temporal resolution in people with sensory hearing loss, and how a reduction in frequency selectivity affects how these people hear the pitch of both simple and complex sounds. His practical contributions have been equally diverse and influential, including a widely adopted method for fitting hearing aids, an effective automatic-gain control system that has been incorporated in a commercial cochlear implant, and the development of a test that allows audiologists to identify "dead regions" in a patient's cochlea. When evaluating the latest high-tech solutions to hearing impairment, it is perhaps worth reflecting that Brian's achievements have required little more than a computer and a pair of headphones.

Brian is by far the most prolific psychoacoustician of all time with over 480 peer-reviewed journal articles published, about half of them in the *Journal of the Acoustical*

Society of America (JASA). At a time when British university departments were undergoing national research productivity assessments, the point was made, only half-jokingly, that Brian himself would be categorized as an internationally leading department.

Although the Acoustical Society has always been his scientific home, his enormous contributions have not gone unnoticed in the wider scientific world. He has received honors from numerous societies, including the 2008 Award of Merit from the Association for Research in Otolaryngology and the first International Award in Hearing from the American Academy of Audiology. In 2002 he was elected a Fellow of the Royal Society, Britain's highest scientific honor.

Those fortunate enough to have been trained under his mentorship as Ph.D. students or postdocs have known that despite his unrivalled productivity, he is always generous with his time, open to new ideas, and unfailingly enthusiastic in his support of promising young scientists. Scientists from around the world have found it a pleasure to collaborate with Brian; a hallmark of his work is the ability to work easily and successfully with a wide variety of people. The relaxed and friendly atmosphere in his lab is legendary, and in part explains how he has maintained a strong group of senior researchers, Tom Baer, Brian Glasberg, and Michael Stone, in his lab for over 20 years. However, to our knowledge, none of his students or co-workers ever discovered how he maintained his daunting scientific output and submitted detailed and insightful reviews on a near-weekly basis for myriad journals – always on time, if not early – while at the same time always appearing relaxed, having time to play guitar with his jazz band, sing in the college choir, and even play bridge for the college club. Perhaps the secret lies in his passion for fine wines, which he raised to a professional level when he was appointed wine steward of Wolfson College, making him responsible for a substantial annual wine budget, and consequently putting him on very friendly terms with a network of local wine merchants. Regardless of the full answer to this puzzle, the entire community of acoustic science is grateful for the contributions that Brian Moore has made in his distinguished career through his books, his papers, and his personal presence at meetings, where he provides inspiration and encouragement to those around him. The Acoustical Society's Gold Medal is a fitting recognition of his fine achievements.

ANDREW J. OXENHAM
ROBERT P. CARLYON