Biographical Sketch of Leo Beranek

Dr. Leo Beranek received his Bachelor of Arts degree from Cornell College in 1936 and his Doctor of Science from Harvard University in 1940. During World War II he headed the Electro-Acoustic Laboratory at Harvard. He served as Associate Professor of Communications Engineering at MIT from 1947 to 1958.

He was co-founder, in 1948, of the firm, Bolt Beranek & Newman (BBN) of Cambridge, Massachusetts, and was its president for sixteen years from 1953 to 1969. During his time there, he changed the business of the company from principally architectural acoustics and noise control, to an equal emphasis on acoustics and computer software. The most prominent of his efforts at BBN in the computer field was putting together the group that invented the forerunner of the INTERNET, namely the ARPANET, which was the world's packet-switched computer network and operated from 1969 to 1989.

The architectural acoustics part of the company is now a separate company called ACENTECH, Inc.; BBN Technologies has been merged into GTE, and the network business is now Genuity, Inc.

A lifelong interest in music led Dr. Beranek to specialize in concert hall and opera house acoustics in recent years. Following trips to more than one hundred of the world's leading halls and interviews of several hundred conductors and music critics, he wrote *Concert and Opera Halls: How They Sound* (Acoustical Society of America, 1996).

He was the Acoustical Design Consultant for the Tokyo Opera City complex, a concert hall, opera house, and drama theater which opened in 1997. In or near Tokyo, he has consulted on the Hamarikyu-Asahi Concert Hall, the Mitaka City Concert Hall, and the Tokyo, Dai-ichi Seimei Hall, which opened in September 2001. He has been the consultant or co-consultant on many other concert halls, including the Tanglewood Music Shed in Western Massachusetts, the Aula Magna in Caracas, and the Meyeroff Hall in Baltimore.

Dr. Beranek has received numerous awards, including Gold Medals from the Acoustical Society of America and the Audio Engineering Society, and the Silver Commemorative Medal from the Society of French Language Acousticians. From 1989 to 1994, he served as President of the American Academy of Arts and Sciences and was honored in 2000 with their first Scholar-Patriot Distinguished Service Award. This year he became an Honorary Member of the American Institute of Architects.

Dr. Beranek is a charter member of the Board of Overseers of the Boston Symphony Orchestra, honorary chairman of the Handel and Haydn Society, vice-president of the Massachusetts Historical Society, and he is affiliated with the Museum of Fine Arts in Boston. He is a fellow of the American Academy of Arts and Sciences, the National Academy of Engineering, the Acoustical Society of America, the Institute of Electrical and Electronics Engineers, and the American Physical Society.

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The George W. Woodruff School of Mechanical Engineering Presents the Seventh Annual

Harold W. Gegenheimer Lecture on Innovation

Dr. Leo Beranek

Thursday
November 1, 2001
3:30 P.M.
Howey Physics Building
Lecture Room 4

Georgia Institute of Technology

Lecture Synopsis

Concert Halls of the World and Their Design

The first concert hall designed with some scientific acoustical principles is Symphony Hall in Boston, which opened in 1900. I will explain how this hall happened to embody all the architectural features 900 to rank it acoustically the highest-rated concert hall in the world today.

The search for acoustical parameters that describe how to build concert halls without exactly duplicating Symphony Hall has been ongoing since about 1950. The architects' desire not to copy has often lead to the same kind of trouble that would occur if a maker of violins decided that the instrument ought to be square like a cigar box. But, since architects won't oblige, the acoustical engineer faces the need to know how to recommend successful halls that don't look alike.

The first stage in the investigation that I am reporting is a series of interviews and questionnaires with conductors, music critics, and classical-music aficionados that has led to a rank ordering of about fifty well-known halls in the world according to their acoustical quality. Simultaneously, leading acoustical laboratories in Europe, Japan, and the Americas have been searching for physical measures that would enable one to tell the extent to which a hall is good. We now have a set of parameters that we feel will lead to successful concert hall design. These parameters have been measured in all of the fifty halls and compared with the rank-order list. The results of the interviews and a series of photographs and drawings of good and bad designs will be presented in order to demonstrate where concert hall design stands today. Questions will be answered cheerfully.

Program

Introduction	Dr. Ward O. Winer Eugene C. Gwaltney, Jr. Chair of the Woodruff School
Lecture	Dr. Leo Beranek Co-Founder, Past President, and CEO of Bolt, Beranek & Newman
Question-and-Answer Session	Drs. Winer and Beranek
Concluding Remarks	Dr. Ward O. Winer

Please join us after the lecture for a reception under the yellow tent in the courtyard between the Howey and Mason Buildings.

Biographical Sketch of Harold W. Gegenheimer (BME 1933)

Harold W. Gegenheimer has been associated with the printing industry all his life: As a machinist, machine design engineer, inventor, product development manager, and corporate chief executive. He is the Chairman Emeritus of the Baldwin Technology Company, an international manufacturer of material handling, press accessory, and prepress equipment for offset printing.

His father, William, started the Baldwin Company in 1918 in a small building next to their house in Baldwin (Long Island), New York. He invented the Baldwin Press Washer and the company emerged as a manufacturer of printing press accessories and controls.

Harold always took an interest in things mechanical, so it was natural that he came to Georgia Tech, where he received his bachelor's degree in mechanical engineering in 1933. Later, he invented the Convertible Offset Perfecting Press, a feature used by most press manufacturers, that allows for one or more colors to be printed on both sides of the paper with just one pass through the press. His inventions, for which many United States and foreign patents have been obtained, were keys to the great growth of the offset printing process after World War II.

Mr. Gegenheimer was President of the National Printing Equipment and Supply Association from 1977 to 1979. He has been an officer or director of other industry associations and the recipient of numerous technical and educational awards. In 1983 he was elected Graphic Arts Man of the Year.

Mr. Gegenheimer is a long-time contributor to Georgia Tech's *Thousand Club*, served as co-chair of his 50th Reunion Committee, and was the recipient of the 1996 Woodruff School Distinguished Alumnus Award.

An endowment given to the Woodruff School in 1995 by Mr. Gegenheimer established the Harold W. Gegenheimer Lecture Series on Innovation to support student programs that encourage creativity, innovation, and design. Through the lecture series and support of capstone design projects, students are exposed to processes that stimulate creativity and lead to inventions and patents. As an inventor, Mr. Gegenheimer continues to express an interest in the great advances made at his alma mater through innovative programs that link industry with graduate and undergraduate studies. In 2001, his endowment supported the School's new display, *Patents of the Woodruff School Faculty*.

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