Biographical Sketch of Roger L. McCarthy

Dr. Roger L. McCarthy is Chairman of Exponent, Inc, formerly Failure Analysis Associates Incorporated (FaAA). He joined FaAA in 1978, becoming President and CEO in 1982 and Chairman of the Board in 1988. He took the company public in 1990, where it trades today on the NASDAQ exchange under the symbol "EXPO." Exponent employs more than 700 full-time staff in 18 offices throughout the United States, 400 of which are degreed professionals, including more than 200 PhD's.

Dr. McCarthy has been involved in many of the major national discussions of product safety, and acceptable levels of product risk, of the last two decades. Dr. McCarthy appears regularly on the History Channel and the Discovery Channel in programs dealing with failures and disasters. In 1992 he co-hosted the prime time NBC TV show based largely on the case history files of Failure Analysis Associates, titled *What Happened.*

Dr. McCarthy has been involved in analyzing and reconstructing many of the major disasters of the last two decades, including the loss of the Amoco Cadiz, the grounding of the Exxon Valdez, the explosions and fires on the Piper Alpha and Glomar Artic II Platforms, the collapse of the walkways at the Kansas City Hyatt, and the roof of the Kemper Arena.

Dr. McCarthy earned his bachelor's degree in mechanical engineering at the University of Michigan, as well as an A.B. in philosophy. At Michigan he graduated Phi Beta Kappa; Summa Cum Laude; a James B. Angell Scholar; a National Science Foundation Fellow; and the Outstanding Undergraduate in Mechanical Engineering (1972). He did his graduate study at the Massachusetts Institute of Technology (MIT), earning the S.M. degree, the mechanical engineer's degree (Mech.E.) and a Ph.D. in mechanical engineering. He is a registered professional Mechanical Engineer in Arizona and California, and a Registered Engineer in Georgia. He is a member of the Mechanical Engineering Department's Visiting Committee at MIT and a member of the External Advisory Board of the University of Michigan's Department of Mechanical Engineering. He is former Chairman of the Safety Engineering and Risk Analysis Division of the American Society of Mechanical Engineers (ASME). He is currently a member of the ASME's Board of Safety Codes and Standards.

Dr. McCarthy was awarded the Outstanding Civilian Service Gold Medal by the U.S. Army in 1998. In 1994 the University of Michigan awarded Dr. McCarthy the Alumni Society Merit Award in Mechanical Engineering. In 1992 President Bush appointed Dr. McCarthy to a two-year term on the President's Committee on the National Medal of Science.

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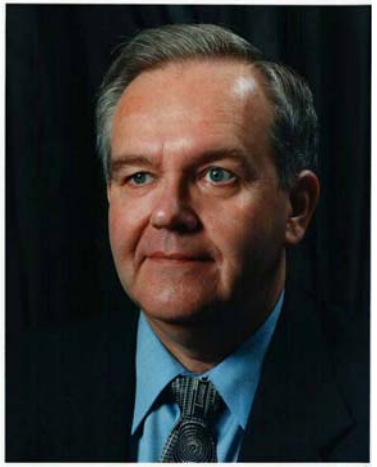
The George W. Woodruff School of Mechanical Engineering Presents the Eighth Annual

Harold W. Gegenheimer Lecture on Innovation



Dr. Roger L. McCarthy

Thursday
October 31, 2002
3:30 P.M.
Van Leer (ECE) Auditorium

Georgia Institute of Technology

Lecture Synopsis

Engineering Disasters:
Those who cannot remember
[innovation's] past are condemned to repeat it

Disasters can and do result from innovators failing to remember the experience we gained from past innovation. Invention often tests the known and takes us into regimes where we have no experience, and unintended effects have to be accepted as a risk of this exploration. The challenge to present and future engineers is to insure that we only suffer the consequences of the unknown, lest we have to endure, again, the previously learned lessons of past innovation.

A challenge to our system of engineering and scientific education is to formally teach students to learn and codify lessons gains from failure, as well as success. There is invariably deeper meaning in a disaster than the facts of the specific event. Most every engineering student emerges having seen some dramatic film footage of the Tacoma Narrows Bridge resonating in the wind prior to its collapse, illustrating the importance of both aerodynamics and vibration. However, how often is that spectacular example used to teach the principle that engineering disasters can result from known, but normally ignored, second order effects in a previous design becoming important first order effects in a scaled up design? This happenstance appears too often in engineering history.

Exponent, Inc., formerly Failure Analysis Associates, Inc., since its founding in 1967, has emerged as the largest engineering and scientific firm in the world specializing in investigating failures and disasters. Our computerized accident and incident databases alone contain over 350,000,000 records. Over the past 35 years, we have learned some important lessons that we believe should be part of every formal engineering curriculum, and a few of the most important for innovators will be discussed in this lecture.

Cases of spectacular engineering innovation, such as the design and construction of the Titanic, the Piper Alpha platform in the North Sea, and the Space Shuttle Challenger, will be used to illustrate lessons gained from these remarkable engineering feats. The next generation of innovators will be taking the lead to raise our technologies to the next level and will be challenged to remember that while they often *can* and *must* "think outside the box" Mother Nature never leaves "the box." Inventors can attempt to operate outside the heuristic "six-sided space" formed by the three laws of thermodynamics and three laws of motion, but only at their peril.

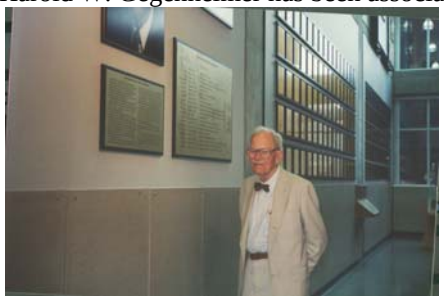
Program

Introduction	Dr. Ward O. Winer Eugene C. Gwaltney, Jr. Chair of the Woodruff School of Mechanical Engineering
Lecture	Dr. Roger L. McCarthy Chairman of Exponent, Incorporated
Question-and-Answer Session	Drs. McCarthy and Winer
Concluding Remarks	Dr. Winer

Please join us after the lecture for a reception under the tent at the George P. Burdell Plaza (adjacent to the Love Building).

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 develop-ment 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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