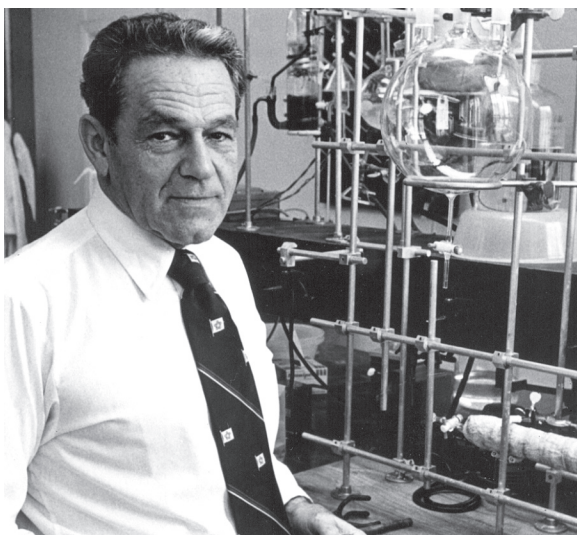


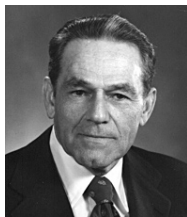


RICE



THE NORMAN HACKERMAN
MEMORIAL SYMPOSIUM:
THE CORRODING OF AMERICA'S INFRASTRUCTURE

THURSDAY, FEBRUARY 28, 2008
JANICE AND ROBERT MCNAIR HALL
RICE UNIVERSITY



NORMAN HACKERMAN, PH.D.
DISTINGUISHED CHEMIST AND FORMER PRESIDENT, RICE UNIVERSITY

MARCH 2, 1912 – JUNE 16, 2007

Norman Hackerman was an internationally known American chemist and former president of both The University of Texas at Austin and Rice University. He was born on March 2, 1912, in Baltimore, Md., to immigrant parents from the Russian Empire. Hackerman earned his bachelor's and doctorate degrees in chemistry from Johns Hopkins University in 1932 and 1935, respectively. Upon completing his education, Hackerman taught at Johns Hopkins University and Loyola College in Baltimore, and the Virginia Polytechnic Institute and State University in Blacksburg, Va., before working on the Manhattan Project during World War II. In 1945, he accepted a post as assistant professor of chemistry with The University of Texas. During his 25 years there, Hackerman served in numerous capacities, including chairman of the department of chemistry (1952–1962), director of the corrosion research laboratory and dean of research and sponsored programs (1961–1962), vice president and provost (1962), vice chancellor of academic affairs (1963–1967), and university president (1967–1970). In 1970, Hackerman joined the faculty of Rice University as a professor of chemistry and served as president of the university until his retirement in 1985. That same year, he was named professor emeritus of chemistry at The University of Texas and taught classes there until the end of his life. Active in a number of academic and scientific organizations, Hackerman's numerous professional affiliations ranged from the chairmanship of the Gordon Research Conference on Corrosion in 1952 to serving as editor of the *Journal of the Electrochemical Society* beginning in 1969. Hackerman served as chairman of the Scientific Advisory Board of The Robert A. Welch Foundation from 1982 until 2006. He was also a member of the American Chemical Society, a member and former president of the Electrochemical Society, and a member of the National Academy of Sciences. Hackerman's work also earned him many awards and honors, including the Whitney Award from the National Association of Corrosion Engineers in 1956, the Palladium Medal from the Electrochemical Society in 1965, and the National Medal of Science in 1993. Norman Hackerman died on June 16, 2007, at the age of 95.

e Norman Hackerman Memorial Symposium: e Corroding of America's Infrastructure

ursday, February 28, 2008

Janice and Robert McNair Hall, Rice University

About the Event

Norman Hackerman was a distinguished electrochemist with strong research interests in corrosion. He also was a civic scientist who played an important role in science policy as chair of the National Science Board, chair of The Robert A. Welch Foundation's Scientific Advisory Board, and chair of the Advisory Committee on Research Programs of the Texas Higher Education Coordinating Board. The symposium seeks to unite these aspects of Hackerman's career through an exploration of the issues involved in the maintenance of public infrastructure with an emphasis on the degradation caused by the ravages of corrosion while celebrating his leadership at Rice University.

Organizing Partners

Rice University

Rice is a private, independent university dedicated to the "advancement of letters, science, and art." Occupying a distinctive, tree-shaded, nearly 300-acre campus only a few miles from downtown Houston, Rice attracts a diverse group of highly talented students with a range of academic studies that includes humanities, social sciences, natural sciences, engineering, architecture, music and business management (graduate study only). The school offers students the advantage of forging close relationships with members of the faculty and the option of tailoring graduate and undergraduate studies to their specific interests. Students each year are drawn to this coed, nonsectarian university by the creative approaches it historically has taken to higher education.

e James A. Baker III Institute for Public Policy

The mission of the Baker Institute is to help bridge the gap between the theory and practice of public policy by drawing together experts from academia, government, media, business and nongovernmental organizations. By involving policymakers and scholars, as well as students (tomorrow's policymakers and scholars), the institute seeks to improve the debate on selected public policy issues and to make a difference in the formulation, implementation and evaluation of public policy, both domestic and international. The Baker Institute is an integral part of Rice University, one of the nation's most distinguished institutions of higher education. The efforts of Baker Institute fellows and affiliated Rice faculty focus on several

ongoing research projects, details of which can be found on the institute's Web site, <http://bakerinstitute.org>.

e Science and Technology Policy Program

The mission of the Science and Technology Policy Program is to provide a space for policymakers and scientists to engage in substantive dialogue. Through this program the Baker Institute sponsors a series of workshops, lectures, research projects and conferences designed to address a broad range of policy issues that affect scientists and their research as well as the application of science for the public good. Issues addressed by the program include space, health and medicine, energy and the environment, national and domestic security, science education, and the federal government's support of science and technology. The program is run by Dr. Neal Lane, senior fellow in science and technology policy, and Dr. Kirstin Matthews, science and technology program manager. Details and descriptions of the projects can be found on the program Web site at <http://science.bakerinstitute.org>.

Acknowledgments

We would like to thank the following organizations for their generous support of this symposium:

Morning break provided courtesy of **Schmidt + Clemens**

Lunch provided courtesy of **Corrpro**

Speaker List

Eric Berger

Science Writer, *The Houston Chronicle*

Robert Curl, Ph.D.

University Professor Emeritus, Pitzer-Schlumberger Professor of Natural Sciences Emeritus, Professor of Chemistry Emeritus, Rice University

e Honorable Ed Emmett

Harris County Judge

Larry R. Faulkner, Ph.D.

President, Houston Endowment, Inc.

Sergio Kapusta, Ph.D.

Chief Scientist and Manager, Engineering Innovation and Technology, Shell Global Solutions International B.V.

Tony Keane

Executive Director, NACE International

James Kinsey, Ph.D.

Chairman of the Scientific Advisory Board, The Robert A. Welch Foundation;
D.R. Bullard–Welch Foundation Professor of Science Emeritus, Rice University

Neal Lane, Ph.D.

Senior Fellow in Science and Technology Policy, Baker Institute; Malcolm Gillis
University Professor and Professor of Physics, Rice University

David W. Leebron

President, Rice University

Carl MacDowell

Former Assistant to the President, Rice University

William Marcuson, Ph.D.

Director Emeritus of the Geotechnical Laboratory, Engineering Research and
Development Center, U.S. Army Corps of Engineers

Roger Newman, Ph.D.

UNENE Research Chair, Department of Chemical Engineering,
University of Toronto

Michael O'Toole

Director of Project Development, Bridge Division, Texas Department of
Transportation

Jamie Padgett, Ph.D.

Assistant Professor of Civil Engineering, Rice University

Alberto Sagues, Ph.D.

Distinguished University Professor, Department of Civil and Environmental
Engineering, University of South Florida

Pol D. Spanos, Ph.D.

Lewis B. Ryon Professor in Mechanical and Civil Engineering, Rice University

Ronald Stebbings, Ph.D.

Professor of Space Physics Emeritus and Former Vice President for Student
Affairs, Rice University

e Norman Hackerman Memorial Symposium: e Corroding of America's Infrastructure

Thursday, February 28, 2008

Janice and Robert McNair Hall, Rice University

Agenda

7:30 am Registration and Continental Breakfast – Shell Oil Auditorium

8:30 am Welcoming Remarks

8:50 am Morning Address 1: Remembering Norman Hackerman,
with Remarks about Corrosion in the Petroleum Industry

Sergio Kapusta, Ph.D.

Chief Scientist and Manager, Engineering Innovation and Technology,
Shell Global Solutions International B.V.

9:30 am Morning Address 2: Bridge Corrosion

Alberto Sagues, Ph.D.

Distinguished University Professor, Department of Civil and
Environmental Engineering, University of South Florida

10:20 am Coffee Break

10:40 am Morning Address 3: Corrosion in Nuclear Plants

Roger Newman, Ph.D.

UNENE Research Chair, Department of Chemical Engineering,
University of Toronto

11:30 am Morning Address 4: Infrastructure Under Stress

Jamie Padgett, Ph.D.

Assistant Professor of Civil Engineering, Rice University

12:35 pm Lunch and Presentation – Anderson Family Commons

Moderator: David W. Leebron, President, Rice University

Ronald Stebbings, Ph.D.

Professor of Space Physics Emeritus and Former Vice President for
Student Affairs, Rice University

Carl MacDowell

Former Assistant to the President, Rice University

James Kinsey, Ph.D.

Chairman of the Scientific Advisory Board, The Robert A. Welch
Foundation; D.R. Bullard–Welch Foundation Professor of Science
Emeritus, Rice University

Larry R. Faulkner, Ph.D.

President, Houston Endowment, Inc.

Neal Lane, Ph.D.

Senior Fellow in Science and Technology Policy, Baker Institute;
Malcolm Gillis University Professor and Professor of Physics,
Rice University

2:10 pm Afternoon Address 2: Dams – Shell Oil Auditorium

William Marcuson, Ph.D.

Director Emeritus of the Geotechnical Laboratory, Engineering
Research and Development Center, U.S. Army Corps of Engineers

3:00 pm Panel Discussion: Addressing Infrastructure Problems: Policy Options
Moderator: Neal Lane, Ph.D., Senior Fellow in Science and Technology Policy, Baker
Institute; Malcolm Gillis University Professor and Professor of Physics, Rice University

William Marcuson, Ph.D.

Director Emeritus of the Geotechnical Laboratory, Engineering
Research and Development Center, U.S. Army Corps of Engineers

Eric Berger

Science Writer, *The Houston Chronicle*

e Honorable Ed Emmett

Harris County Judge

Michael O'Toole

Director of Project Development, Bridge Division, Texas Department
of Transportation

Pol D. Spanos, Ph.D.

Lewis B. Ryon Professor in Mechanical and Civil Engineering,
Rice University

Tony Keane

Executive Director, NACE International

4:30 pm Closing Remarks

Robert Curl, Ph.D.

University Professor Emeritus, Pitzer–Schlumberger Professor of
Natural Sciences Emeritus, Professor of Chemistry Emeritus,
Rice University

