

CHEMICAL HERITAGE FOUNDATION

HENRY I. SMITH

Transcript of an Interview
Conducted by

Cyrus Mody

at

Cambridge, Massachusetts

on

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(With Subsequent Corrections and Additions)

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HENRY I. SMITH

1937 Born in Jersey City, New Jersey

Education

1958 B.S., physics, Holy Cross College
1960 M.S., physics, Boston College Graduate School
1966 Ph.D., physics, Boston College Graduate School

Professional Experience

1960-1963 U.S. Air Force Cambridge Research Laboratory
1st Lieutenant

1966-1968 Boston College
Assistant Professor of Physics

1968-1977 Massachusetts Institute of Technology
Staff Member, Lincoln Laboratory
1977-1980 Group Leader, Lincoln Laboratory
1977-1980 Adjunct Professor of Electrical Engineering
1977-present Director, Nanostructures Laboratory
1980-present Professor of Electrical Engineering
1990-2005 Keithley Professor of Electrical Engineering

Honors

1960 Member of American Physical Society
1966 Member of Sigma Xi
1978 Member of Materials Research Society [MRS]
1980 Member of American Vacuum Society [AVS]
1987 Institute of Electrical and Electronics Engineers [IEEE] Fellow
1989 Member of National Academy of Engineering
1990 Member of Optical Society of America [OSA]
1995 IEEE Cledo Brunetti Award
2003 The International Society for Optical Engineering [SPIE] Bacus Award

ABSTRACT

Henry I. Smith begins the interview with a description of his childhood in New Jersey, his early aptitude in science, and his decision to pursue the sciences. After obtaining an undergraduate degree at Holy Cross College, Smith enrolled in Boston College Graduate School to pursue his interest in physics. Upon receiving his master's degree, Smith took a research position at the Air Force Cambridge Research Laboratory (AFCRL) in order to fulfill his ROTC requirement. At AFCRL he worked with top scientists and proved himself an able researcher. Smith returned to Boston College following his stint at the Air Force to pursue his Ph.D. His research in x-ray diffraction formed the basis for his pioneering work on x-ray lithography later in his career. While working at the MIT Lincoln Laboratory, Smith realized the importance of fabrication technology and submitted a grant proposal to the National Science Foundation for building a national research and fabrication center. Despite his unsuccessful proposal, Smith established a Submicron Structures Laboratory with MIT funding. Migrating to MIT's campus, Smith investigated a variety of lithography methods such as x-ray, conformable photomask, interferometric immersion-projection, and zone plate array lithography. He concludes the interview by offering some insights on the semiconductor industry, and how to best develop a research culture that stimulates innovation.

INTERVIEWER

Cyrus Mody is the manager of the Nanotechnology and Innovation Studies programs in the Center for Contemporary History and Policy at the Chemical Heritage Foundation. He has a bachelor's degree in mechanical and materials engineering from Harvard University and a Ph.D. in science and technology studies from Cornell. He was the 2004-2005 Gordon Cain Fellow at CHF before becoming a program manager. Mody has published widely on the history and sociology of materials science, instrumentation, and nanotechnology.

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