CHEMICAL HERITAGE FOUNDATION

JAMES S. MURDAY

Transcript of an Interview
Conducted by

Cyrus Mody

at

Washington, D.C.

on

29 May 2007

(With subsequent corrections and additions)

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This oral history series is an important resource for the history of nanotechnology, documenting the lives and career of key scientists and engineers that shaped and contributed to the contemporary practice of science and technology.

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JAMES S. MURDAY

Education

1964	B.S. , Physics, Magna Cum Laude, Case Inst. of Technology
1969	Ph.D., Physics, Cornell University

Professional Experience

Naval Research Laboratory

1970-1973	Research Physicist, Chemistry Division
1974-1980	Head, Advanced Surface Spectroscopy and Carbon Sections
1974-1987	Part-time Consultant and Program Officer, Office of Naval Research
1981-1987	Head, Surface Chemistry Division
1988-2006	SES-4 Head, Chemistry Division
1989-1992	Chair, Invention Evaluation Board
1995	Member, InfoVision/2000 (Library) Steering Committee
1995-1998	Chair, Performance Management Committee in NRL Lab Demonstration Project
1997-2002	Chair, Library Committee
1999-2001	Technical Coordinator, construction project for NRL Nanoscience Building
2000	Member, Working Group on Defenses Acquisition Workforce Improvement Act (DAWIA)
2000	Chair, NRL E.O. Hulburt Award Selection Committee
2000-2002	Member, Naval Fuels and Lubricants IPT
2001-2003	Chief Scientist, Office of Naval Research
2001-2006	Chair, Naval Working Group on Nanoscience

American Vacuum Society

1977-1987	Chair, Mid Atlantic Chapter
1982	Chair, National Symposium Local Arrangements Committee
1982-1985	Chair, Trustees
1986	Chair, National Symposium Local Arrangements Committee
1986-1988	Editorial Board, JVST
1987-1988	Board of Directors
1991-1993	President cycle
1996	Chair, Nanometer Structures Division
1998-2001	Chair, Intersociety Interactions Committee
1993-2007	Member, Long Range Planning Committee
1999-2001	Member, Long Range Technical Planning Committee

American Chemical Society

1983-1985	Executive Committee, Colloid and Surface Chemistry Division
1988	Symposium Co-chairperson 3rd Chemical Congress of North America
1991	Symposium Co-chairperson 4th Chemical Congress of North America

American Institute of Physics

1986-1989	Governing Board
1988-1991	Member, Nominating Committee
1990	Chair, Nominating Committee
1991-1993	Chair, Development Committee
1994-1996	Member, Committee of Committees
1996	Chair, Committee of Committees

International Union of Vacuum Science, Techniques and Applications

1992-1995	Chair, Steering Committee on Science and Technology of Nanometer Structures
1995-1998	Chair, Nanometer Structures Division

Institute of Physics, United Kingdom

1994-2001	Editorial Board, Nanotechnology Journal

Federation of Materials Societies

1995-2003	Trustee

Department of Defense

1997-1997	Directory of Research (acting), Research and Engineering
1999-2006	Chair/member, Committee on Nanoscience Strategic Research Objective
1999-2006	NSTC Nanoscale Science, Engineering and Technology Subcommittee

Office of Science and Technology Policy

1999-2006	Executive Secretary, NSTC Nanoscale Science, Engineering and Technology Subcommittee

National Nanotechnology Coordination Office

2001-2003	Director (half time position)

University/College (General)

2003-present	Chair, External Advisory Board for University of South Carolina NanoCenter
2004-2006	Chair, External Advisory Board for University of Pennsylvania

Nano-Bio Interface Center

2008-present Member, International Advisory Board, King Abdullah Institute For Nanotechnology

2009-present Member, External Advisory Board for InterNano at University of Massachusetts, Amherst

2010-present Member, External Advisory Board for Nanolink at Dakota County Technical College

Office of Research Advancement, University of Southern California, Washington, D.C.

2006-present Associate Director, Physical Sciences

Honors

Navy Research Lab, Navy, and Department of Defense

1973 Special Achievement Award, NRL
1974 Letter of Commendation from the Chief of Naval Research
1975 Special Achievement Award, NRL
1976 Outstanding Performance Rating
1977 Outstanding Performance Rating
1980 Chemistry Division Publication Award
1981 Certificate of Appreciation, Strategic Systems Project Office
1986 Outstanding Performance Rating
1987 PMRS Performance Awards
1988 PMRS Performance Awards
1990 Outstanding Performance Rating
1990 Technology Transfer Award
1991 SES Bonus Award
1993 Certificate of Commendation, Joint Directors of Laboratories
1995 Leadership Award
1995 Combined Federal Campaign Vice Chairman
1996 SES Bonus Award
1997 Certificate of Appreciation (Dept. of Defense Executive Leadership Development Program)
2000 Meritorious Civilian Service Award, Naval Research Laboratory
2000 Hammer Award
2001 SES Bonus Award
2002 Presidential Rank of Meritorious Executive in the Senior Executive Service
2004 SES Bonus Award
2005 SES Bonus Award

Professional

Fellow, Washington Academy of Sciences

	Fellow, American Vacuum Society
	Fellow, Institute of Physics, United Kingdom
	Honorary Member, American Vacuum Society
1991	Plenary Speaker, Inaugural Meeting of Korean Vacuum Society
1993	Plenary Speaker, Brazilian Vacuum Society Conference
1993	AVS Commendation
1995-2000	Citation of Appreciation from R&D Magazine (R&D100 Award)
2007-2008	Participant, Digitalized Globe Conferences, Allianz SE

ABSTRACT

James S. Murday, at a young age, decided he wanted to be a second Einstein; he wanted to bring important change to the world. In school he always did better in the sciences and math, so he liked them more. He was most interested in the physical sciences, though he liked biology well enough to consider biophysics for a graduate program. He entered Case Institute of Technology, working with Arthur Benade. Case was across the street from Severance Hall, where music offered scope for the practical application of physics, and Murday wrote his senior thesis on the acoustics of flutes. William Gordon, Murday's other major mentor, introduced Murday to nuclear magnetic resonance (NMR).

Fascinated by solid-state physics, Murday entered Cornell University, where he was research assistant for Robert Cotts. Murday's interests expanded to include diffusion. At the time, chemistry's new pulse techniques provided greater impetus for NMR, and Murday exploited the growing interface between chemistry and physics.

When he finished his PhD he was recruited by Henry Resing into the NMR lab at the Naval Research Laboratory (NRL). Resing was working on protective chemistry and needed a diffusion person. Later, Murday became head of the new surface chemistry branch, an event he regards as a turning point in his career, the first step to nanoscience.

Murday discusses his early experiences in the NRL, beginning with the relationship between NRL and the Office of Naval Research, where he was drafted to survey the state of surface science. He describes how he liked being a decision-maker as well as a lab worker, and further describes his experiences as the man who could see the big picture and could find reasons for various agencies and departments to join the American Vacuum Society (AVS).

Murday joined the AVS, which united chemistry, materials science, and electronics. He helped organize AVS's applied division and established the Mid-Atlantic chapter of AVS, thus enhancing his own position there and eventually being elected to the board of directors. When scanning and tunneling microscopes came along, clearly nanostructures were next. AVS officially became the first home of nanoscience. Murday influenced the Defense Advanced Research Projects Agency and the National Science Foundation, both of which had funding in abundance, to get involved in nano. Usefulness of nano for unmanned aircraft drew in the Department of Defense, and all then came up with the Interagency Working Group, which hoped to promote nano to the President and Congress of the United States. It took a couple of years and two presidents, but finally Nanometer Science and Engineering Technology (NSET), a subcommittee of the National Science and Technology Council (NSTC), was born and Murday was named Executive Secretary. Murday was also appointed Director of the National Nanotechnology Coordination Office (NNCO), set up to support NSET. NSET has continued to expand its membership as well as to change its purpose. The character of nano has changed with this expansion and with new technology. Murday felt he was getting stale as Head of the NRL Chemistry Division and that new blood was needed, so he accepted the position of Associate Director for Physical Sciences with University of Southern California's Office of Research Advancement in Washington, D.C.

INTERVIEWER

Cyrus Mody is an assistant professor of history at Rice University. Prior to that position he was 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.

TABLE OF CONTENTS

INDEX

N

O

P