CHEMICAL HERITAGE FOUNDATION

A.R. RAVISHANKARA

Transcript of Interviews
Conducted by

Hilary Domush and Sarah Hunter-Lascoskie

at

National Oceanic and Atmospheric Administration
Boulder, Colorado

on

7 and 9 May 2013

(With Subsequent Corrections and Additions)

CHEMICAL HERITAGE FOUNDATION
Center for Oral History
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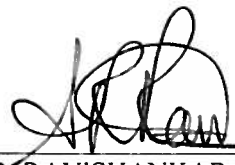
(Signature) 
A.R. RAVISHANKARA

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A.R. RAVISHANKARA

1949 Born in Shimoga, India, on 16 November

Education

1968 B. Sc., University of Mysore, India, Physics and Chemistry
1970 M.Sc., University of Mysore, India, Physical Chemistry
1975 Ph.D., University of Florida, Physical Chemistry

Professional Experience

University of Maryland
1976 Research Associate
Georgia Institute of Technology
1976-1980 Research Scientist II
1980-1983 Senior Research Scientist
1983-1985 Principal Research Scientist
Georgia Institute of Technology, Research Institute
1979-1985 Head of Molecular Sciences Branch
University of Colorado-Boulder
1989-2014 Professor of Chemistry, Adjunct
National Oceanic and Atmospheric Administration
1984-1992 Research Chemist
1992-1997 Supervisor Research Chemist
1993-2007 Chief, Atmospheric Chemical Kinetics Program
1997-2007 Senior Scientist (ST)
2006-2007 Acting Director, Chemical Sciences Division, Earth System Research Laboratory
2007-2014 Director, Chemical Sciences Division, Earth System Research Laboratory
2007-2014 Senior Executive Service (SES)
2014-present Professor, Departments of Chemistry and Atmospheric Science, Colorado State University, Fort Collins, CO

Honors

1995 U.S. Department of Commerce, Silver Medal
1996 U.S. Environmental Protection Agency, Stratospheric Ozone Protection Award
1997 Fellow, American Geophysical Union

1998	Polanyi Medal of the Royal Society of Britain (Gas Kinetics Division)
1999	Robertson memorial Lecturer, U.S. National Academy of Sciences
2000	Member, U.S. National Academy of Sciences
2001	Fellow, American Association for the Advancement of Science
2003	Crawford Lecture, University of Minnesota
2003	Royal Society of Chemistry (U.K.) Centenary Lecturer
2004	U.S. Presidential Rank Meritorious Award for a senior professional
2005	American Chemical Society's Award for Creative Advances in Environmental Sciences
2005	Chancellor Lecturer, Louisiana State University
2005	Fellow, Royal Society of Chemistry (United Kingdom)
2007	U.S. Department of Commerce, Bronze Medal
2008	U.S. Department of Commerce, Bronze Medal
2008	National Oceanic and Atmospheric Administration Administrator's Award
2008	Fellow, International Union of Pure and Applied Chemistry
2008	Centenary Lecturer, Indian Institute of Science, India
2009	Welch Foundation Lecturer, Texas
2009	Morino Foundation Fellow, Japan
2010	Hinshelwood Lecturer, University of Oxford, United Kingdom
2012	U.S. Department of Commerce, Bronze Medal
2013	Harold Schiff Lecture, York University, York, Canada
2013	Randall Lecture, University of Texas at Arlington, Texas

ABSTRACT

A.R. Ravishankara was born in Shimoga, India, and grew up mostly in Mysore and Bangalore, India. His father was a farmer who died when A.R. was ten years old. Ravishankara attended a private school and graduated from high school when he was fourteen. He obtained a bachelor's degree in physics and chemistry and a master's degree in physical chemistry from the University of Mysore.

Ravishankara entered the PhD program at the University of Florida, working with Robert Hanrahan; his thesis dealt with hydrofluorcarbon (HFC). He and his wife then moved to the University of Maryland, where he worked on chlorine nitrate with Douglas Davis. From Maryland he accepted a position at Georgia Institute of Technology (Georgia Tech) and began research into ozone layer depletion.

From warm Georgia Ravishankara moved to Boulder, Colorado, recruited by Carleton Howard and Daniel Albritton, the head of the Aeronomy Lab at National Oceanic and Atmospheric Administration (NOAA). That same year Ravishankara's son was born, and the ozone hole was discovered. He went to Antarctica to investigate the ozone hole. While on the field study, they could not talk about the discovery because the Montreal Protocol (MP) was being negotiated. Ravishankara and his wife also adopted a daughter during this period. He and Susan Solomon published twelve papers together. Hydrofluorocarbons (HFCs) seemed to be good substitutes for CFCs; bringing him back to his PhD thesis. Moving from kinetics to photochemistry and heterochemistry, Ravishankara became senior scientist. He then began working with cavity ring-down spectroscopy on nitrate (NO_3) and dinitrogen pentoxide (N_2O_5) and nighttime chemistry. He also worked on aerosols. Ravishankara and his wife also adopted a daughter during this period.

When Albritton left to organize the Earth System Research Laboratory, Ravishankara became first the acting head, then the head, of the Chemical Sciences Division. Much of his work entails explaining his research to government policy makers and members of the Montreal Protocol. As members have differing problems and agendas; science is a small part of the meetings, so Ravishankara attends MP meetings only if asked to present. Nitrous oxide is difficult to work with, as it is produced by growing food, so the attempt now is to limit the increase of agricultural use of nitrous oxide.

Ravishankara explains how climate with people outside his field. He recognizes that individuals have a tiny, indirect, and often invisible effect on climate, making them resistant to changing their own behavior. He says that science is only one input for decision-making.

INTERVIEW

Hilary Domush was a Program Associate in the Center for Oral History at CHF from 2007-2015. Previously, she earned a BS in chemistry from Bates College in Lewiston, Maine in 2003. She then completed an MS in chemistry and an MA in history of science both from the University of Wisconsin-Madison. Her graduate work in the history of science focused on early nineteenth-century chemistry in the city of Edinburgh, while her work in the chemistry was in a total synthesis laboratory. At CHF, she worked on projects such as the Pew Biomedical Scholars, Women in Chemistry, Atmospheric Science, and Catalysis.

Sarah L. Hunter-Lascoskie earned a BA in history at the University of Pennsylvania and an MA in public history at Temple University. Her research has focused on the ways in which historical narratives are created, shaped, and presented to diverse groups. Before Sarah joined CHF, she was the Peregrine Arts Samuel S. Fels research intern and Hidden City project coordinator. Sarah worked both in the Center for Oral History and the Institute for Research at CHF and led projects that connected oral history and public history, producing a number of online exhibits that used oral histories, archival collections, and other materials. She also contributed to CHF's *Periodic Tabloid* and *Distillations*.

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