

CHEMICAL HERITAGE FOUNDATION

DONNA J. NELSON

Transcript of Interview
Conducted by

Hilary Domush and Leah Webb-Halpern

at

University of Oklahoma
Norman, Oklahoma

on

21 and 22 July 2008

(With Subsequent Corrections and Additions)



Donna J. Nelson

CHEMICAL HERITAGE FOUNDATION
Oral History Program
FINAL RELEASE FORM

This document contains my understanding and agreement with the Chemical Heritage Foundation with respect to my participation in the audio-recorded interview conducted by Hilary Domush and Leah Webb-Halpern on 21 and 22 July 2008. I have read the transcript supplied by Chemical Heritage Foundation.

1. The audio recording, corrected transcript, photographs, and memorabilia (collectively called the "Work") will be maintained by the Chemical Heritage Foundation and made available in accordance with general policies for research and other scholarly purposes.
2. I hereby grant, assign, and transfer to the Chemical Heritage Foundation all right, title, and interest in the Work, including the literary rights and the copyright, except that I shall retain the right to copy, use, and publish the Work in part or in full until my death.
3. The manuscript may be read and the audio recording(s) heard by scholars approved by the Chemical Heritage Foundation subject to the restrictions listed below. The scholar pledges not to quote from, cite, or reproduce by any means this material except with the written permission of the Chemical Heritage Foundation.
4. I wish to place the conditions that I have checked below upon the use of this interview. I understand that the Chemical Heritage Foundation will enforce my wishes until the time of my death, when any restrictions will be removed.

Please check one:

a. _____

No restrictions for access.

NOTE: Users citing this interview for purposes of publication are obliged under the terms of the Chemical Heritage Foundation Oral History Program to obtain permission from Chemical Heritage Foundation, Philadelphia, Pennsylvania.

b. _____

Semi-restricted access. (May view the Work. My permission required to quote, cite, or reproduce.)

c. _____

Restricted access. (My permission required to view the Work, quote, cite, or reproduce.)

This constitutes my entire and complete understanding.

(Signature) _____

Donna Nelson
Donna J. Nelson

(Date) _____

27 Oct 08

This interview has been designated as **Free Access**.

One may view, quote from, cite, or reproduce the oral history with the permission of CHF.

Please note: Users citing this interview for purposes of publication are obliged under the terms of the Chemical Heritage Foundation Oral History Program to credit CHF using the format below:

Donna J. Nelson, interview by Hilary Domush and Leah Webb-Halpern at the University of Oklahoma, Norman, Oklahoma, 21 and 22 July 2008 (Philadelphia: Chemical Heritage Foundation, Oral History Transcript # 0482).



Chemical Heritage Foundation
Oral History Program
315 Chestnut Street
Philadelphia, Pennsylvania 19106



The Chemical Heritage Foundation (CHF) serves the community of the chemical and molecular sciences, and the wider public, by treasuring the past, educating the present, and inspiring the future. CHF maintains a world-class collection of materials that document the history and heritage of the chemical and molecular sciences, technologies, and industries; encourages research in CHF collections; and carries out a program of outreach and interpretation in order to advance an understanding of the role of the chemical and molecular sciences, technologies, and industries in shaping society.

DONNA J. NELSON

Education

1974 B.S., University of Oklahoma, Chemistry
1980 Ph.D., University of Texas, Austin, Chemistry, with Michael J. S. Dewar

Professional Experience

Purdue University
1980-1983 Post-Doctorate, Chemistry, with Herbert C. Brown

University of Oklahoma
1983-1990 Assistant Professor, Chemistry
1989-1990 Provost's Faculty Administrative Fellow
1990-present Associate Professor, Chemistry
2005-2007 Assistant to ACS President Ann Nalley
2008 Organic Division Chair, Chemistry
2008 Development Officer, Chemistry

Massachusetts Institute of Technology
2003-2004 Visiting Professor

Honors

1977-1979 Robert A. Welch Predoctoral Fellow
1980 Robert A. Welch Postdoctoral Fellow
1984 University of Oklahoma Junior Faculty Research Fellow
1985 ACS Petroleum Research Foundation Type G Award
1985 Research Corporation Cottrell Scholar Award
1985-1986 Oklahoma University Associates' Distinguished Lecturer
1994 The Iotan Member Spotlight
1995 Oklahoma University Sooners Football Team Honorary Faculty Coach
1999 Alpha Phi Omega Leader of the 20th Century
2001 Capitol Hill Briefing
2003 Woman of Achievement, *US Black Engineer and Information Technology Magazine*

2003-2004 Ford Foundation Fellowship
2003 Guggenheim Award
2004 Capitol Hill Briefing
2004 Capitol Hill Press Conference Speaker

2004 Woman of Courage Award, National Organization for Women
2004 SACNAS National Conference Keynote Speaker
2004-2005 Outstanding Professor, Oklahoma Educator's Leadership Academy
2005 Minority Health Professions Foundation Hall of Fame Inductee
2005 Twentieth Anniversary MIT Women's Studies Program Opening Speaker
2005 Fellow, American Association for the Advancement of Sciences
2004-2006 50 Making a Difference, Oklahoma City's *Journal Record*
2006 21 Leaders for the 21st Century, Women's eNews
2006 Research Featured on ACS Organic Division Calendar
2006 SACNAS Distinguished Scientist of the Year
2006-2009 NSF ADVANCE Leadership Award
2007 Fulbright Scholar
2008 Dow Chemical Company Advisory Board

ABSTRACT

Donna J. Nelson's oral history begins with a discussion of her childhood in Eufaula, Oklahoma—a small town with Native American influences that grew into a much larger town throughout her youth. Heavily influenced by her parents, Nelson was a motivated student who wanted to work with and help people as her step-father, the town's only physician, had done. Nelson entered the University of Oklahoma with the intentions of pursuing medicine and possibly majoring in math. After joining the chemistry department, Nelson was immediately confronted with the contrasts between female and male students; she excelled in the coursework but needed to work harder in the laboratory to maintain parity with the male students (the male students, Nelson believed, were used to the manual dexterity of lab work from experience working on cars). After graduating, Nelson spent a brief time working on MINDO/3 calculations at Auburn University for Philip B. Shevlin and S. David Worley. There Nelson decided that, for graduate school, she only wanted to work with Michael J. S. Dewar at the University of Texas, Austin who developed the methodology. Near the end of her time in Austin, Dewar helped Nelson secure a post-doctoral position with Herbert C. Brown at Purdue University, where she became Brown's first female post-doctorate. Nelson described her work and other experiences under Brown, which included giving birth to her son Christopher and returning to lab the following week. After detailing her early experiences as the first tenure-track female faculty member of the University of Oklahoma chemistry department, Nelson moved on to explaining the importance of listening to women's experiences in order to help develop true parity in the scientific community. Throughout the interview Nelson referenced what she learned as a member of a Women in Science group at Purdue, and also what she learned by seeking advice from colleagues, that is, that "the best path to follow is a well-educated decision; no one can tell you what to do or what is best for you, but their experiences can help you to shape your own decisions." Nelson continued the interview by explaining how a 2000 *C&E News* article, prompted her to conduct a survey of women and minorities in the top chemistry departments. She described the initial survey work that led to further surveys of other disciplines whose departments were ranked by the National Science Foundation. Her survey work and research have been quoted in such varied places as *Ms. Magazine* and Harvard University's chemistry department website. Since the survey work, much of Nelson's time has been spent researching issues surrounding women and minorities in chemistry and the sciences and working with Marye Anne Fox at University of California, San Diego, as well as with SACNAS.

INTERVIEWERS

Hilary Domush earned a B.S. in chemistry from Bates College in Lewiston, Maine in 2003. Since then she has completed a M.S. in chemistry and a M.A. in history of science both from the University of Wisconsin. 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. Hilary is currently Program Associate for Oral History at CHF, where she combines these two divergent academic paths. Her current work focuses on the Pew Biomedical Scholars and Women in Chemistry oral history projects. She also contributes to the podcast *Distillations* and the magazine *Chemical Heritage*.

Leah Webb-Halpern graduated from Smith College with a major in history and a minor in Latin American studies. Prior to joining Chemical Heritage Foundation as the oral history program assistant, she was a research assistant at the McNeil Center for Early American Studies. Leah has moved on from the CHF and is currently a Ph.D. student in the Department of History at the University of Wisconsin, Madison.

TABLE OF CONTENTS

Childhood	1
Growing up in Eufaula, Oklahoma. Native American influences. Step-father was the town's only physician. Importance of education and becoming someone with that education. Interests in math and science.	
Undergraduate Education	5
University of Oklahoma. Contrasting laboratory skills of men who worked on cars and herself. Influences of Norman Fogel and Ron Kantowski.	
Graduate Education	10
Working at Auburn University with S. David Worley and Philip B. Shevlin. University of Texas, Austin. Physical chemistry research with Michael J. S. Dewar. MINDO/3. Dewar's assistance looking for post-doctoral positions.	
Post-Doctoral Work	16
Purdue University and Herbert C. Brown. Husband finding a job. Transition from mostly computational work to experimental. First female post-doctorate in the group. Giving birth and coming back to work the next week. Balancing day-care and working half-days, then full-time. Interactions with other females in the department. Women in Science and Engineering group. Women Chemists Committee lunches at American Chemical Society meetings. Listening to other women's experiences.	
Principal Investigator	27
University of Oklahoma. First tenure-track female in chemistry department. Balancing work and raising a one-year-old son. Christopher spending time in the laboratory. Working with students who are mothers. Same department chair for twenty-five years. Dealing with discrimination. Role models, mentors, and resource distribution.	
National Level Surveys	37
2000 <i>C&E News</i> article about women in chemistry. Thinking about the distribution of women and minorities through chemistry departments in academia. Mailed surveys to department chairs regarding the numbers of women and minority faculty and their professorial rank. Recognition of discrimination over time. Creation of a community around the minority chemistry faculty. Published in <i>AWIS Magazine</i> —not a peer reviewed journal. ACS checks and verifies the data. Survey similar data for the top fifty departments ranked by NSF in other disciplines. Intense feedback. Capitol Hill briefings and Congressman Vernon J. Ehlers.	

Diversity Research and Experiences	49
Ford Fellowship. Chancellor Diversity Scholar at UCSD. Marye Anne Fox. SACNAS. Surveys, discussion, awareness, and change. Historical mentors. Marie Curie. Ann Nalley.	
Principal Investigator	56
Single wall carbon nanotubes. Ann Nalley's ACS Presidential Event. Richard E. Smalley memorial symposium.	
Diversity Research and Experiences	58
Title IX and science. Public perception of scientists. Image of Marie Curie. Television show <i>Breaking Bad</i> .	
Index	65

INDEX

A

ACS [American Chemical Society], 15, 25,
30, 38, 39, 40, 41, 42, 43, 44, 45, 56
Women Chemists Committee, 25, 40
Astronomy, 46
Austin, Texas, 10, 11, 12, 14, 24, 25
AWIS Magazine, 43, 44, 49

B

Bina, Minou, 22
Biochemistry, 22
Black Issues in Higher Education, 44
Brammer, Christopher, 16, 17, 19, 20, 22,
24, 26, 29, 30, 31, 47, 54, 55, 62
Breaking Bad, 61
Brown, Herbert C., 9, 14, 15, 16, 17, 18, 20,
24, 25, 26, 34, 35, 64
Burbank, California, 62
Butadiene, 13

C

California Proposition 209, 50
Cameron University, 56
Capitol Hill Briefings, 47, 49
Checotah, Oklahoma, 1
Chemical & Engineering News, 37, 43, 44,
49, 61
Chemical Engineering, 45, 54, 55
Chemistry
analytical chemistry, 33
computational chemistry, 13
gas-phase reactants, 8, 9, 10, 13, 14, 15
inorganic chemistry, 7, 33
organic chemistry, 4, 6, 8, 9, 10, 22, 33,
35, 40, 61, 62
physical chemistry, 7
radical chemistry, 13
Cherokee Nation, 2
Chickasaw Nation, 2
Chirality, 63

Choctaw Nation, 2
Chronicle for Higher Education, 44
cis-dideuteroethylene, 13
Creek Nation, 2
Crystal Meth, 61
Curie, Marie, 55, 60

D

Dewar, Michael J. S., 10, 11, 12, 14, 15, 16,
23, 24, 25, 30, 34, 35, 64
Discrimination, 33, 34, 35, 39, 40, 59, 60
Diversity Officer, 51
Dryhurst, Glenn, 32

E

EEOC [United States Equal Employment
Opportunity Commission], 59, 60
Ehlers, Vernon J., 47, 48, 49, 58
England, 11, 13
Eufaula, Oklahoma, 1, 2, 3, 4
Evans, Billy Joe, 47

F

Fogel, Norman, 7, 9
Ford Fellowship, 49
Fox, Marye Anne, 25, 49, 50, 55
Funding, 36, 37, 47, 48, 58, 59

G

Gainesville, Texas, 27
Georgia, 10
Gilligan, Vince, 61, 62
Guinness World Records, 2

H

Hall, Stan, 40
Hammond Plots, 10
Hanna, Michelle, 39
Harvard University, 51
Hawaii, 15
Heeg, Mary Jane, 29, 39

High School, 2, 4, 5, 12, 39, 54, 61, 62, 63
Hippocratic Oath, 3
Hopkins, Nancy H., 48, 49, 50

I

India, 21
Inspiration, 9, 10
Isotope Effects, 10

J

Japan, 13
Joliot-Curie, Irene, 55
Journal of Blacks in Higher Education, 44
Journal of Organic Chemistry, 1
Journal of Physical Chemistry, 57

K

Kantowski, Ron, 7, 9, 10

L

Lawton, Oklahoma, 56
Lopez, Laura, 46

M

Math, 4, 5, 6, 54, 60
McGregor, Texas, 14
Mechanical Engineering, 53
Mentors, 7, 33, 34, 39, 47, 55
Methamphetamines, 61, 62, 63
Methylamine, 63
Mexico, 13
Michigan, 47
MINDO/3 [Modified Intermediate Neglect
of Differential Orbital Overlap] Program,
10, 13
MIT [Massachusetts Institute of
Technology], 46, 48, 49, 50
Mother (Dortha Baker), 2, 3, 4, 5, 10, 19,
26, 27, 48
Ms. Magazine, 47

N

Nalley, Elizabeth Ann, 40, 56, 57

National Level Surveys, 37, 39, 41, 42, 44,
46, 48, 49, 51, 52, 54, 58
New York, New York, 50
New York Times, 58
NIH [National Institutes of Health], 53
NMR [nuclear magnetic resonance], 16, 17
Nobel Prize, 14, 15, 55, 56
Norman, Oklahoma, 1
North Canadian River, 1
Northwestern University, 41
NSF [National Science Foundation], 46, 53,
58

O

Oakland, California, 50
OFCCP [Office of Federal Contract
Compliance Programs], 59, 60
Osage Nation, 2

P

Phenyl-2-Propanone, 63
Physics, 4, 5, 7, 9, 12, 45, 46, 47, 54
PI [Principal Investigator], 29
Post-Doctorate, 7, 14, 15, 17, 21, 22, 23, 29,
35, 40, 51
Public and Science, 32, 41, 45, 47, 48, 60
Publications, 36, 49
Purdue University, 16, 18, 22, 23, 25
Laboratory for Applications of Remote
Sensing, 16

R

Resources, 35, 36
Rice University, 57
Role Models, 16, 25, 33, 34, 55, 61

S

Sabbatical, 49
SACNAS [Society for the Advancement of
Chicanos and Native Americans in
Science], 32, 34, 51
San Diego, California, 49, 50
Science, 26, 32, 44
Shevlin, Philip B., 10

Single Wall Carbon Nanotubes, 10, 21, 56, 57
Smalley, Richard E., 56, 57
South Canadian River, 1
Stepfather (Dr. John Howard Baker), 2, 3, 4, 26, 32, 48
Stevens-Miller, Amy E., 39
Strano, Michael S., 56
Summers, Lawrence H., 35, 50

T

Teaching, 7, 9, 36, 37
Tenure, 20, 29, 30, 32, 33, 39, 42
Texas Test Facility, 14
Tierney, John, 58, 59
Title IX, 58, 59, 60
trans-dideuterocyclohexene, 13

U

U. S. House of Representatives, 47, 48, 49
 Rayburn House Office Building, 48
U.S. Citizens, 60, 61
University of Michigan, 47
University of California San Diego, 49

University of California System, 50, 51
University of California Berkeley, 50
University of Florida, 41, 45
University of Oklahoma, 1, 5, 27, 29, 50, 51
University of Texas at Austin, 10, 11, 12, 14, 24, 25, 27

V

Vietnam War, 60

W

Washington, DC, 44
West Lafayette, Indiana, 16
West, Ann H., 16, 40
WISE [Women in Science and Engineering], 22, 23, 24, 25
Women Chemists Committee. *See* ACS [American Chemical Society]
Woodward-Hoffman rules, 13
Worley, S. David, 10, 11, 23

Y

Young, Vaneica Y., 41