

CHEMICAL HERITAGE FOUNDATION

NANCY M. HOLLINGSWORTH

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

William Van Benschoten

at

SUNY Stony Brook
Stony Brook, New York

on

11, 12, and 13 November 2002

From the Original Collection of the University of California, Los Angeles



Nancy M. Hollingsworth

ACKNOWLEDGEMENT

This oral history is part of a series supported by a grant from the Pew Charitable Trusts based on the Pew Scholars Program in the Biomedical Sciences. This collection is an important resource for the history of biomedicine, recording the life and careers of young, distinguished biomedical scientists and of Pew Biomedical Scholar Advisory Committee members.

This oral history was completed under the auspices of the Oral History Project, University of California, Los Angeles (Copyright © 2006, The Regents of the University of California) and is made possible through the generosity of



**From the original collection at the Center for
Oral History Research, UCLA Library, UCLA.**

The following oral history, originally processed at the UCLA Center for Oral History Research, has been reformatted by the Chemical Heritage Foundation. The process involved reformatting the front matter, adding a new abstract, replacing the table of contents, and replacing the index. The paragraph spacing and font of the body of the transcript were altered to conform to the standards of the Oral History Program at the Chemical Heritage Foundation. The text of the oral history remains unaltered; any inadvertent spelling or factual errors in the original manuscript have not been modified. The reformatted version and digital copies of the interview recordings are housed at the Othmer Library, Chemical Heritage Foundation. The original version and research materials remain at the Darling Library, University of California, Los Angeles and at the Bancroft Library, University of California, Berkeley.

REFORMATTING:

Kim Phan, Program Intern, Oral History, Chemical Heritage Foundation. B.A. expected 2011, Anthropology, Cornell University.

David J. Caruso, Program Manager, Oral History, Chemical Heritage Foundation. B.A., History of Science, Medicine, and Technology, Johns Hopkins University; PhD., Science and Technology Studies, Cornell University.

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Oral History Interview Agreement No. R120902A

This Interview Agreement is made and entered into this 9 day of December, 2002 by and between THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a California corporation, on behalf of the Oral History Program at the UCLA campus, hereinafter called "University," and NANCY M. HOLLINGSWORTH, having an address at Department of Biochemistry and Cell Biology,, State University of New York at Stony Brook, 314 Life Sciences, Stony Brook, New York, 11794-5215, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about November 14, 2002, and tentatively entitled "Interview with Nancy M. Hollingsworth. This Agreement relates to any and all materials originating from the interviews, namely the tape recordings of the interviews and a written manuscript prepared from the tapes, hereinafter collectively called "the Work."

In consideration of the mutual covenants, conditions, and terms set forth below, the parties hereto hereby agree as follows:

1. Interviewee irrevocably assigns to University all her copyright, title and interest in and to the Work. This assignment applies to University, its successors, and assigns, for and during the existence of the copyright and all renewals and extensions thereof.
2. By virtue of this assignment, University will have the right to use the Work for any research, educational, or other purpose, including electronic reproduction, that University may deem appropriate.
3. Interviewee acknowledges that she will receive no remuneration or compensation for her participation in the interviews or for the rights assigned hereunder.
4. Interviewee will receive from University, free of charge, one bound copy of the typewritten manuscript of the interviews.
5. To insure against substantive error or misquotation, Interviewee will have the right to review the manuscript before it is put into final form. University therefore will send Interviewee a copy of the edited transcript for review and comment. Interviewee will return transcript and comments to University within 30 days of receipt of the transcript. In the event that Interviewee does not respond within 30 days, University will assume that Interviewee has given full approval of the transcript.
6. All notices and other official correspondence concerning this Agreement will be sent to the following:

If to University:

Oral History Program
University of California, Los Angeles
Box 951575
Los Angeles, California 90095-1575

Attention: Janice L. Reiff

If to Interviewee:

Nancy M. Hollingsworth
Department of Biochemistry
and Cell Biology
State University of New York
314 Life Sciences
Stony Brook, NY 11794-5215

University and Interviewee have executed this Agreement on the date first written above.

INTERVIEWEE

THE REGENTS OF THE UNIVERSITY
OF CALIFORNIA

X Nancy Hollingsworth
(Signature)

Janice L. Reiff
(Signature)

Nancy M. Hollingsworth
(Typed Name)

Janice L. Reiff
(Typed Name)

State University of New York
(Address)

Interim Director, Oral History Program
(Title)

314 Life Sciences

Stony Brook, NY 11794-5215

X Date 11/11/02

Date 9 Dec 2002

Pew Scholars in the Biomedical Sciences
Chemical Heritage Foundation Internet Posting Release Form

I, Nancy M. Hollingsworth, Ph.D., hereby request that my wishes be followed as per the checked selection below with regards to posting portions of the digital copy of the audio-taped interview of me and the related written transcript on the internet for non-commercial, educational use only.

Please check one:

- a. _____ **No restrictions for Internet Posting.**
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 Internet Postings** (My review of the material intended to post is required.)
- c. _____ **Restricted access.** (Do not post.)

This constitutes my entire and complete understanding.

Nancy Hollingsworth
Nancy M. Hollingsworth, Ph.D.

2/8/08
Date

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:

Nancy M. Hollingsworth, interview by William Von Benschoten at the State University of New York, Stony Brook, Stony Brook, New York, 11-13 November 2002
(Philadelphia: Chemical Heritage Foundation, Oral History Transcript # 0465).



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.

NANCY M. HOLLINGSWORTH

1958 Born in San Francisco, California, on 2 July

Education

1980 B.S., Zoology, Oregon State University
1988 Ph.D., Genetics, University of Washington

Professional Experience

1988-1989 Fred Hutchinson Cancer Research Center, Seattle, Washington
Postdoctoral Fellow

1989-1994 University of California, San Francisco, California
Postdoctoral Fellow

1994-2000 State University of New York at Stony Brook, New York
Assistant Professor, Department of Biochemistry & Cell Biology
2000-present Associate Professor, Department of Biochemistry & Cell Biology

Honors

1978-1980 Oregon State Scholarship-Leadership Honoree
1979 C. Robert Herrick Jr. Memorial Scholarship
1980 B. S. with highest honors
1981 Jim Mountain Memorial Scholarship
1988-1991 Damon Runyon-Walter Winchell Cancer Fund Postdoctoral Fellowship
1991-1993 American Cancer Society Senior Postdoctoral Fellowship
1995-1997 March of Dimes Basil O'Connor Starter Scholar Research Award
1995 Ad hoc member of the NSF Microbial Genetics Study Section
1996-2000 Pew Scholars Program in the Biomedical Sciences
2000-2004 Member of the NIH Microbial Genetics and Physiology II Study Section
2002-present Member of the Pew Charitable Trust Sponsored Science and Society
Institute

Selected Publications

Hollingsworth, N. M. and S. J. Brill. (2004) The Mus81 solution to resolution: Generating

- meiotic crossovers without Holliday junctions. *Genes Dev.* 18: 117-125.
- Wan, L., T. de los Santos, C. Zhang, K. Shokat, N. M. Hollingsworth (2004) Mek1 kinase activity functions downstream of *RED1* in the regulation of meiotic DSB repair in budding yeast. *Mol. Biol. Cell* 15: 11-23.
- Hollingsworth, N. M. (2004). Homologous Recombination in Meiosis. In "Encyclopedia of Biological Chemistry" (William J. Lennarz and M. Daniel Lane, eds.) Elsevier, San Diego (in press).
- de los Santos, T., N. Hunter, C. Lee, B. Larkin, J. Loidl, and N. M. Hollingsworth (2003). The Mus81/Mms4 endonuclease acts independently of double Holliday junction resolution to promote a distinct subset of crossovers during meiosis in budding yeast. *Genetics* 164: 81-94.
- de los Santos, T., J. Loidl and N. M. Hollingsworth (2001) *MMS4* is required for a late step of meiotic recombination in *Saccharomyces cerevisiae*. *Genetics* 159: 1511- 1525.
- Woltering, D., B. Baumgartner, S. Bagchi, B. Larkin, J. Loidl, T. de los Santos and N. M. Hollingsworth (2000) Meiotic segregation, synapsis and recombination checkpoint functions require physical interaction between the chromosomal proteins Red1p and Hop1p. *Mol. Cell. Biol.* 20: 6646-6658.
- Suzuki, T., H. Park, N. M. Hollingsworth, R. Sternglanz, and W. J. Lennarz (2000). *PNG1*, a yeast gene encoding a highly conserved peptide:N-glycanase. *J. Cell Biol.* 149: 1039-1051.
- de los Santos, T. and N. M. Hollingsworth (1999) Red1p: A *MEK1*-dependent phosphoprotein that physically interacts with Hop1p during meiosis in yeast. *J. Biol. Chem.* 274: 1783-1790.
- Kironmai, K. Mary, K. Muniyappa, D. B. Friedman, N. M. Hollingsworth and B. Byers (1998) DNA-binding properties of Hop1 protein, a synaptonemal complex component from *Saccharomyces cerevisiae*. *Mol. Cell. Biol.* 18: 1424-1435.
- Pochart, P., D. Woltering and N. M. Hollingsworth (1997) Conserved properties between functionally distinct MutS homologs in yeast. *J. Biol. Chem.* 272: 30345- 30349.
- Hollingsworth, N. M. and L. Ponte (1997) Genetic interactions between *HOP1*, *RED1* and *MEK1* suggest that *MEK1* regulates assembly of axial element components during meiosis in the yeast, *Saccharomyces cerevisiae*. *Genetics* 147: 33-42.
- Hollingsworth, N. M., L. Ponte and C. Halsey (1995) *MSH5*, a novel MutS homolog, facilitates meiotic reciprocal recombination between homologs in *Saccharomyces cerevisiae*, but not mismatch repair. *Genes Dev.* 9: 1728-1739.
- Byers, B. and N. M. Hollingsworth (1994) DNA branching during meiotic recombination. *Current Biology* 4: 448-451.
- Friedman, D. B., N. M. Hollingsworth and B. Byers (1994) Insertional mutations in the yeast *HOP1* gene: Evidence for multimeric assembly in meiosis. *Genetics* 136: 449-464.
- Hollingsworth, N. M. and A. D. Johnson (1993) A conditional allele of the yeast *HOP1* gene is suppressed by overexpression of two other meiosis-specific genes: *RED1* and *REC104*. *Genetics* 133: 785-797.
- Vershon, A. K., N. M. Hollingsworth and A. D. Johnson (1992) Meiotic induction of the yeast *HOP1* gene is controlled by positive and negative regulatory elements. *Mol. Cell. Biol.* 12: 3706-3714.
- Hollingsworth, N. M., and L. Goetsch and B. Byers (1990) The *HOP1* gene encodes a meiosis-

- specific component of yeast chromosomes. *Cell* 61: 73-84.
- Hollingsworth, N. M. and B. Byers (1989) *HOP1*: a yeast meiotic pairing gene. *Genetics* 121: 445-462.
- Dawson, P. S. and N. M. Hollingsworth (1982) Sex linkage of the glucose-6- phosphate dehydrogenase locus in the flour beetle *Tribolium castaneum*. *Can. J. Genet. Cytol.* 24: 267-271.

ABSTRACT

Nancy M. Hollingsworth was born in San Francisco, California, but spent most of her youth moving around—to Oregon, Panama, New Mexico, California, and, finally, Arizona—with her parents and older brother. Her father was a psychiatrist (and the reason for the travel); her mother was a trained dietitian who chose not to work while her children were growing up. Hollingsworth enjoyed school from a young age, a precocious child who loved reading, schoolwork (she would also play “school” when at home), playing cards with her family, nature, and music. In high school she had a great interest in literature, mathematics, and history, though did think about pursuing zoology as a major in college.

Hollingsworth matriculated at Oregon State University and felt fortunate to have Peter Dawson as her advisor and mentor—Dawson was a population geneticist who worked on the flour beetle, *Tribolium castaneum* and *Tribolium confusum*, and who also taught the undergraduate genetics class. Though maintaining an interest in history and literature, Hollingsworth began working in Dawson’s lab very early on in her undergraduate career, doing crosses and measuring map distances between some genes in *Tribolium*. She completed her degree in zoology, moving on to a master’s degree at Oregon State. She participated in a summer course at the Marine Biological Laboratory in Woods Hole, Massachusetts, working under the tutelage of Lynna Hereford and Mary Anne Osley and solidifying her decision to attend the University of Washington for doctoral studies (instead of one of the three Ivy league schools that accepted her). At the University of Washington, Hollingsworth chose to work in the lab of Breck E. Byers, studying meiosis in yeast, ultimately developing a mutant screen for yeast recombination proteins and subsequently identifying the *HOP1* mutant; she also had the opportunity to meet Leland H. Hartwell, with whom she also worked. From there she moved on to postdoctoral research in Gerald R. Smith’s laboratory at the Fred Hutchinson Cancer Research Center, studying *Schizosaccharomyces pombe* recombination, at which point she also met her future husband, Aaron Neiman. She transferred to the University of California, San Francisco to work with Alexander D. Johnson on *Hop1* biochemistry and *HOP1* alleles. She then accepted a position at the State University of New York, Stony Brook, and began her research on the recombinant promoter gene *MSH5* in yeast and on the roles of the *Mms4/Mus81* complex and of *Mek1* in recombination.

The remainder of the interview focuses on the topics of Hollingsworth’s lab, her mentoring style, and her thoughts on contemporary issues in science and its practice. She talks about the impact of the Pew Scholars Program in the Biomedical Sciences on her work; her teaching duties; how she chooses her research projects; and how she balances family (she has three children) and career. The interview ends with her thoughts on collaboration and competition in research; the national scientific agenda the role of scientists in informing the public and determining public policy; gender issues; and more on the influence of Lynna Hereford and Mary Ann Osley on her career.

UCLA INTERVIEW HISTORY

INTERVIEWER:

William Van Benschoten, Interviewer, UCLA Oral History Program. B.A., History, University of California, Riverside; M.A., History, University of California, Riverside; C. Phil., History, UCLA

TIME AND SETTING OF INTERVIEW:

Place: Hollingsworth's office, State University of New York at Stony Brook.

Dates, length of sessions: November 11, 2002; November 12, 2002; and November 13, 2002

Total number of recorded hours: 5.5

Persons present during interview: Hollingsworth and Van Benschoten.

CONDUCT OF INTERVIEW:

This interview is one in a series with Pew Scholars in the Biomedical Sciences conducted by the UCLA Oral History Program in conjunction with the Pew Charitable Trusts' Pew Scholars in the Biomedical Sciences Oral History and Archives Project. The project has been designed to document the backgrounds, education, and research of biomedical scientists awarded four-year Pew scholarships since 1988.

To provide an overall framework for project interviews, the director of the UCLA Oral History Program and three UCLA faculty project consultants developed a topic outline. In preparing for this interview, Van Benschoten held a telephone preinterview conversation with Nancy Hollingsworth to obtain written background information (curriculum vitae, copies of published articles, etc.) and agree on an interviewing schedule. He also reviewed prior Pew scholars interviews and the documentation in Hollingsworth's file at the Pew Scholars Program office in San Francisco, including the proposal application, letters of recommendation, and reviews by Pew Scholars Program national advisory committee members.

ORIGINAL EDITING:

Carol L. Squires edited the interview. She checked the verbatim transcript of the interview against the original tape recordings, edited the punctuation, paragraphing, and spelling, and verified proper names. Words and phrases inserted by the editor have been bracketed.

Nancy Hollingsworth reviewed the transcript. She verified proper names and made a number of corrections and additions.

Carol L. Squires prepared the table of contents. Victoria Simmons compiled the

interview history. TechniType Transcriptions compiled the index.

TABLE OF CONTENTS

Childhood	1
<p>Family background. Paul A. Hollingsworth. Childhood experiences. Interest in reading, music, games, and puzzles. Family interactions. Early schooling in Berkeley, California, and Albuquerque, New Mexico. Influential grammar school Teachers. Extracurricular activities.</p>	
High School and College	17
<p>Attends Martin Luther King, Jr. Middle School in Berkeley soon after Integration. Becomes interested in science during high school in Tempe, Arizona. Majors in zoology at Oregon State University. Peter Dawson is her undergraduate advisor and mentor. Develops love of genetics while working on <i>Tribolium</i> in Dawson's lab. Interests in history and literature. Travels to Ireland for a summer to study James Joyce. Master's degree at Oregon State. Formative summer at the Marine Biological Laboratory at Woods Hole Oceanographic Institute. Takes a yeast genetics class there with Lynna Hereford and Mary Ann Osley.</p>	
Graduate School and Postdoctoral Years	32
<p>Graduate school at the University of Washington in Seattle. Meets Leland H. Hartwell. Doctoral research on meiosis in yeast in Breck E. Byers's laboratory. Postdoctoral research in Gerald R. Smith's laboratory at the Fred Hutchinson Cancer Research Center. Develops a mutant screen for yeast recombination proteins. Identifies the <i>Hop1</i> mutant while working in Breck E. Byers's lab. Work on <i>Schizosaccharomyces pombe</i> recombination during postdoc. Meets her future husband, Aaron Neiman, in Smith's laboratory. Transfers to the University of California, San Francisco to work with Alexander D. Johnson. Postdoctoral research in Johnson's lab on <i>Hop1</i> biochemistry and <i>Hop1</i> alleles.</p>	
Faculty Years	56
<p>Accepts a position at State University of New York, Stony Brook. Work on the recombinant promoter gene <i>MSH5</i> in yeast. Current research projects on the roles of the <i>Mms4/Mus81</i> complex and of <i>Mek1</i> in recombination. Human infertility.</p>	
Final Thoughts	70
<p>The impact of the Pew Scholars Program in the Biomedical Sciences. Writing journal articles. Balancing family and career. The tenure process at State University of New York, Stony Brook. Collaboration in research. Her views on how to improve the quality of science in the United States. More on the influence of Lynna Hereford and Mary Ann Osley. Her interest in meiosis as the subject of her research. The peer review system.</p>	
Index	119

INDEX

A

AAAS. *See* American Association for the Advancement of Science
ACS. *See* American Cancer Society
adenosine triphosphate, 64, 65, 92
ADR1, 29
Africa, 6, 70
African American, 113
AIDS. *See* autoimmune deficiency syndrome
Albany, New York, 98
Alberts, Bruce M., 44, 50, 105
Albuquerque, New Mexico, 1, 9, 18
All-of-a-Kind Family, 12
American Association for the Advancement of Science, 3
American Cancer Society, 43
Anne of Green Gables, 12
Arizona, 2, 19, 20
Arnold, Mrs., 16
ATP. *See* adenosine triphosphate
autoimmune deficiency syndrome, 103

B

Baltimore, David, 110
Banbury Conference, 74
Bartók, Béla, 11
Battle of Rork's Drift, 6
Baumgartner, Bridget, 59, 114
Baylor University, 59, 88, 114
Berkeley High School, 6
Berkeley, California, 1, 2, 6, 9, 16, 18, 22
Bertozzi, Caroline R., 72
Boston, Massachusetts, 35
Boswell, Robert, 113
Boulder, Colorado, 113
Brill, Steven, 62
Brown, Megan, 12, 38
Byers, Breck E., 29, 30, 31, 32, 34, 35, 36, 37, 38, 43, 49, 51, 66, 93, 101, 115

C

California, 2, 4, 22
Case Western Reserve University, 69
Cellular Genomics, Inc., 92
Central Intelligence Agency, 6
China, 58
chromatids, 33, 62
CIA. *See* Central Intelligence Agency
Clue, 15
Cold Spring Harbor Laboratory, 51
Cooper, Mrs., 17
Cornell University, 115
Cousteau, Jacques, 16
CuraGen Corporation, 79

D

Damon Runyon-Walter Winchell Cancer Research Foundation, 42
DAPI, 47
Dawson, Peter, 25
de los Santos, Teresa, 57, 58, 61, 76
Dean, Neta, 80, 91
Denver, Colorado, 9, 10
DNA, 46, 47, 60, 61, 65, 67, 68, 73, 89, 90, 93, 100, 103, 106
Down Syndrome, 21, 77
Drubin, David G., 47

E

E. coli, 59
Edinburgh, Scotland, 32
Engbrecht, JoAnne, 51, 58, 74
England, 87
Esposito, Rochelle E., 32, 33, 35, 92

F

Fangman, Walton, 38
FASEB. *See* Federation of American Societies for Experimental Biology
Federation of American Societies for

Experimental Biology, 35
FHA. *See* forked-head domain
Fields, Stanley, 57, 77, 92
forked-head associated domain, 65, 66
Formosa, Timothy, 38
France, 20
Fred Hutchinson Cancer Research Center,
31, 42, 70
French [language], 19, 20
French Revolution, 19

G

Gad 4, 93
Gallant, Jon, 29
Ganem, Donald E., 43
Garfield Middle School, 18
George, Trisha, 18
Georgetown University, 6, 22
Goetsch, Loretta, 37
Goldman, Michael, 28
Goutte, Caroline, 44, 53, 57
Greece, 87

H

Hall, Benjamin D., 49
Hardy Boys, 12
Hartwell, Leland H., 27, 29, 30, 34, 36, 37,
41, 69, 84, 93, 111, 115
Harvard University, 24, 88, 97
Hassold, Terry, 69
Hearts, 11, 13, 14, 15
Hebrew [language], 23
Hereford, Lynna, 27, 28, 114
Herskowitz, Ira, 36, 42, 113
histone H2B, 27
Holliday junction, 62, 63, 67
Hollingsworth, Gloria Seghieri (mother), 1,
4, 18, 45
Hollingsworth, Paul Alan (brother), 4, 6, 7,
22, 68
Hollingsworth, Stuart (father), 1, 3, 21
Hop1, 33, 35, 38, 42, 46, 47, 48, 49, 50, 59,
60, 63, 64, 65, 66, 83, 89, 93, 94, 95, 96
Howard Hughes Medical Institute, 113
Hunt, Patricia A., 69, 90

Hunt, R. Timothy, 27, 28
Hunter, F. Neil, 63, 102

I

Intel, Inc., 24
Iraq, 103
Ireland, 26, 95
Italy, 3

J

Jewish/Jews/Judaism, 12, 23
Reform, 23
Johnson, Alexander D., 42, 43, 44, 46, 49,
50, 51, 52, 54, 55, 57, 66, 70, 79, 101
Johnson, Ladd, 25
Johnston, Mark, 42, 57, 59
Jones, Maxwell, 3
Joyce, James, 26, 27
Julian, Mrs., 17

K

Kadyk, Lisa, 38
Keleher, Cindy, 44, 57
Kellogg, Douglas R., 44
Kernan, Maurice T., 49, 72
Kesey, Kenneth, 3
Kisker, Caroline, 44, 53, 57, 59, 72, 89
Kleckner, Nancy E., 63, 100, 111, 112
Komachi, Kelly, 44
Konopka, James B., 57, 58
Koshland, Douglas E., 38, 93

L

Latin [language], 19
Lee, Cindy, 44, 57, 58, 75
Lennarz, William J., 53, 108
Leshner, Alan I., 3
Leukemia and Lymphoma Society, 77
Lewis, C.S., 11
LexA, 93
Liberia, 16
Lion, the Witch, and the Wardrobe, The, 11,
16
Lloyd, Robert, 62

Long Island, New York, 45

M

MacArthur Fellowship, 72

Mak, Arkady, 44

Malvern, Gladys, 12

March of Dimes Foundation, 75, 76, 77

Marine Biological Laboratory, 27, 115

Martin Luther King, Jr. Junior High School,
18

Mary Poppins, 12

Massachusetts Institute of Technology, 113

Mayflower, 2

McClintock, Barbara, 95

Mec1, 64

Medical Explorers, 21

meiosis, 25, 30, 32, 33, 35, 38, 41, 45, 46,
50, 51, 60, 62, 63, 64, 65, 68, 73, 74, 77,
78, 90, 95, 97, 100, 104, 106, 115, 116

Mek1, 50, 60, 61, 64, 65, 66, 83, 89, 96, 100

Mello, Craig C., 72

Mendel, Gregor, 73, 89, 116

methylmethanesulfonate, 61

MMS4, 61, 62, 63, 67, 77, 78, 89, 100

MIT. *See* Massachusetts Institute of
Technology

MMS. *See* methylmethanesulfonate

Montgomery, Lucy Maud, 12

Mortar Board, 26

Moscow, Russia, 6

Mozart, Wolfgang A., 17

MSH2, 60

MSH3, 60

MSH4, 49, 60, 63, 66, 67, 68

MSH5, 49, 55, 56, 59, 60, 63, 66, 67, 68, 91

MSH6, 60, 67

Mt. Vesuvius, 17

Murray, Andrew, 28

MUS81, 62, 63, 74, 77, 78, 79, 89, 100

muscular dystrophy, 3

MutS, 59, 60, 66

N

Nancy Drew, 12

National Academy of Sciences, 72, 87

National Institutes of Health, 43, 50, 54, 56,
71, 74, 75, 76, 77, 91, 92, 99, 102, 103,
105, 109, 113, 117

National Science Foundation, 54, 102

Neiman, Aaron (husband), 15, 22, 36, 41,
44, 62, 83, 99, 112

Neiman, Benjamin Stuart (son), 5, 40, 45,
72, 83, 86, 117

Neiman, Emma Rachel (daughter), 5, 40,
45, 72, 83, 86, 117

Neiman, Leah Rebecca (daughter), 5, 40,
45, 72, 83, 86, 88, 117

New Mexico, 16

New York City, New York, 12

New York Giants, 85

New York Jets, 85

New York Times, The, 6

New York Yankees, 85

NIH. *See* National Institutes of Health

Niu, Hengyao, 59, 73, 79

Nobel Prize, 27, 95

Nomusa, 16

NSF. *See* National Science Foundation

O

O'Neil, Edward, 71

One Flew Over the Cuckoo's Nest, 3

Oregon, 22

Oregon State Hospital, 1, 3

Oregon State University, 1, 3, 22, 24, 26,
27, 28, 95

Orr-Weaver, Terry L., 32

Osley, Mary Ann, 27, 28, 114

P

Pacific Science Center, 70

Panama, 1

Parkhurst, Susan M., 70, 105

Parkinson's disease, 103

patents, 91, 92, 107

Pauling, Linus C., 91

PCR. *See* polymerase chain reaction

Peace Corps, 16

Peterson, Thoru, 28

Pew Scholars Program in the Biomedical

Sciences, 46, 59, 64, 65, 68, 70, 71, 72,
87, 88, 113, 117
phospholipase D, 78
phosphoprotein, 61
Pochart, Pascale, 57, 60, 79
polymerase chain reaction, 43, 96
Ponte, Lisa, 38, 57, 114
Ponticelli, Alfred S., 41
Potts, Willard, 26
Prakash, Louise, 61
Prakash, Satya, 61
Ptashne, Mark, 42

Q

Quatrano, Ralph, 28

R

Reagan, President Ronald W., 4
REC104, 48
red1, 48, 49, 50, 60, 61, 63, 64, 65, 66, 89,
93, 94
Redd, Michael, 44, 51
ReoPro, 92
RNA
RNAi, 72
Roeder, Shirleen G., 48, 49, 51, 60, 98, 99,
111
Rosbash, Michael, 28
Ross, Laurie, 17
Ross-MacDonald, Petra, 67
Russell, Paul, 62
Russia, 6, 7

S

Saccharomyces cerevisiae, 62, 95
Salem, Oregon, 1
San Francisco Chronicle, 53
San Francisco Forty-Niners, 85
San Francisco Giants, 85
San Francisco, California, 1, 2, 46, 52, 55,
68, 71, 103, 106, 116
San Jose, California, 1
Sanders, Sylvia, 113, 114
Sandler, Lawrence L., 29, 30, 116

Schindelin, Hermann, 59, 89
Schizosaccharomyces pombe, 41
Schokat, Kevan M., 64, 70, 72, 77, 102
Science and Society Institute, 8, 46, 68, 70,
72, 74, 88, 89, 104, 105, 113
Scrabble, 14, 15
Scripps Research Institute, 37
Searle Scholars Award, 71
Seattle Mariners, 42, 85
Seattle, Washington, 27, 31, 41, 57, 59, 87,
116
Seghieri, Severino (maternal grandfather), 3
Seillac, France, 74
SGS1, 62
Shapiro, Lucy, 110
Shin, Mrs., 16
Smith, Betty, 12
Smith, Dana, 44
Smith, Gerald R., 31, 41, 79, 116
Spo11, 35, 68, 90
Spo13, 32, 33, 95
sporulation, 62, 78
St. Boris, 6
St. Gleb, 6
Stanford University, 22, 29, 30, 42, 115
State University of New York, Stony Brook,
1, 24, 45, 50, 57, 74, 97, 102, 104, 106,
113
Honors College, 24, 26, 58, 75, 110
Sternglanz, Rolf, 51, 58, 74, 84
Stillman, Bruce, 51
Stonehenge, 17
Suffolk County Community College, 81
SUNY Stony Brook. *See* State University of
New York, Stony Brook
synaptonemal complex, 32, 33, 68
Szostak, Jack, 32

T

Taylor, Mrs., 10, 16
Teal, Mr., 19
Tempe, Arizona, 1
tenure, 84, 97, 98, 101, 109, 110
Theurkauf, William, 50
threonine, 66

Tilghman, Shirley M., 107
Tintin, 12
Tree Grows in Brooklyn, 12
Tribolium, 25
 castaneum, 25
 confusum, 25
tubulin, 28, 47
Turney, Dana, 44, 58, 59, 80
Tuxford, Joy, 11

U

UCLA Bruins, 22
UCSD. *See* University of California, San Diego
UCSF. *See* University of California, San Francisco
Ulysses, 26
United States Congress, 68
United States of America, 102, 117
University of Buenos Aires, 57
University of California, Berkeley, 3, 4, 6, 115
University of California, Davis, 63
University of California, San Diego, 25
University of California, San Francisco, 42, 43, 44, 45, 46, 50, 51, 53, 71, 106, 109, 116
University of Colorado, 74, 113
University of Colorado Health Sciences Center, 74
University of Oregon, 24
University of Southern California Trojan,

22

University of Washington, 27, 29, 115

V

Varmus, Harold E., 43, 110
Vershon, Drew, 44, 49

W

Wan, Lihong, 58, 61, 79
Washington University in St. Louis, 57
Washington, D.C., 27, 57, 68
Weinert, Ted, 38
Weldt, Amy Marie (paternal grandmother), 3
Wells, Mr., 19
West, Steven, 62
Whitehead Institute, 113
Wild Kingdom, 15
Willamette Valley, 22
Woltering, Dana W., 80
Woods Hole Oceanographic Institution, 27, 28, 115

Y

Yale University, 97, 115
Young, Theodore, 29

Z

zoology, 3, 21, 25
Zulu, 6