CHEMICAL HERITAGE FOUNDATION

ERIN SCHUMAN

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

William Van Benschoten

at

California Institute of Technology
Pasadena, California

on

12, 19, and 26 April and 17 May 2000

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

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.

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. T0421000

This Interview Agreement is made and entered into this 20th day of April, 2000 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 ERIN MARGARET SCHUMAN, having an address at Howard Hughes Medical Institute, California Institute of Technology, Division of Biology, 216-76, Pasadena, California 91125, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about April 12, 2000, and tentatively entitled "Interview with Erin Margaret Schuman". 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: Director

If to Interviewee: Erin Margaret Schuman
Howard Hughes Medical Institute
California Institute of Technology
Division of Biology 216-76
Pasadena, California 91125

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

INTERVIEWEE

X _____
(Signature)

Erin Margaret Schuman
(Typed Name)

Howard Hughes Medical Institute
(Address)

California Institute of Technology

Pasadena, California 91125

Date 4.12.00

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

_____
(Signature)

Dale E. Treleven
(Typed Name)

Director, Oral History Program
(Title)

Date 4/20/00

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

ERIN SCHUMAN

1963 Born in San Gabriel, California, on 15 May

Education

1985 B.A., Psychology, University of Southern California
1990 Ph.D., Neuroscience, Princeton University

Professional Experience

1990 Princeton University
Postdoctoral Fellow

Stanford University
1990-1993 Postdoctoral Fellow

California Institute of Technology
1993-1999 Assistant Professor
1999-present Associate Professor

University of California, Los Angeles, California
1997-1999 Adjunct Assistant Professor

Honors

1994-1996 Alfred P. Sloan Research Fellow
1994-1998 John Merck Scholar
1995-1999 Pew Scholar in the Biomedical Sciences
1995 American Association of University Women Emerging Scholar
1997 Howard Hughes Medical Institute Assistant Investigator

Selected Publications

Madison, D. and E. Schuman, 1991. LTP: post or pre? A look at the evidence for the locus of long-term potentiation. *The New Biologist* 3:549-57.

Schuman, E. and D. Madison, 1991. A requirement for the intercellular messenger nitric oxide in long-term potentiation. *Science* 254:1503-6.

Schuman, E. and D. Madison, 1991. Nitric oxide, intercellular signalling and ADP-

ribosyltransferase activity in long term potentiation. *Seminars in the Neurosciences 5:304-13.*

Schuman, E., 1994. Consequences of diffusible signalling: locally distributed synaptic enhancement in hippocampal neurons. *Seminars in Cell Biology 5:251-61.*

Schuman, E. and D. Madison, 1994. Locally distributed synaptic potentiation in the hippocampus. *Science* 263:532-36.

Kang, H. and E. Schuman, 1995. Long-lasting neurotrophin-induced enhancement of synaptic transmission in the adult hippocampus. *Science* 267:1658-62.

Kang, H. and E. Schuman, 1996. A requirement for local protein synthesis in neutrotrophin-induced synaptic plasticity. *Science* 273:1402-6.

Kantor, D. et al., 1996. Adenovirus-mediated inhibition and rescue reveals a role for endothelial nitric oxide synthase in hippocampal long-term potentiation. *Science* 274:1744-48.

Schuman, E., 1997. Growth factors sculpt the synapse. *Science* 275:1277-78.

Schuman, E., 1999. Neurotrophin regulation of synaptic transmission. *Current Opinion in Cell Biology* 9:105-9.

Murase, S. and E. Schuman, 1999. The role of cell adhesion molecules in synaptic plasticity and memory. *Current Opinion in Cell Biology* 11:549-53.

ABSTRACT

Erin M. Schuman was born in San Gabriel, California, though spent most of her childhood in Huntington Beach, the oldest of three siblings; her mother was a teacher at a Catholic school. She was a "serial hobbyist" with interests in painting, softball, dancing, and reading and she attended Catholic schools from the time she was a teenager.

Schuman matriculated at the University of Southern California (USC), initially interested in pursuing law and deciding to major in political science, but ultimately switching her major to psychology. She worked regularly as an undergraduate, including stints as a waitress, though found the time to complete an honors thesis with Laura Baker studying memory in twins. She decided to go to graduate school for her doctoral studies, having to choose between the University of California, Irvine and Princeton University, ultimately selecting the latter because of Joseph Farley's work on learning in memory using invertebrate systems. She followed Farley to Indiana University when he left, though returned to Princeton to complete her thesis in Gregory A. Clark's lab. She then accepted a postdoctoral position at the Daniel V. Madison laboratory at Stanford University studying long-term neuronal potentiation, culminating in a series of papers on synaptic transmission (two of which appeared in *Science*). From there Schuman accepted a position at California Institute of Technology (Caltech), studying decentralized production of proteins at the dendrites and, more recently, synaptic feedback mechanisms and cadherins, and having the opportunity to collaborate with Masatoshi Takeichi and Norman A. Davidson.

The interview concludes with Schuman discussing the advantages and disadvantages of competition in science; the issue of accountability to those who fund scientific research; sexism; the article-writing process; co-teaching courses with her husband, Gilles Jean Laurent; and balancing family and career.

UCLA INTERVIEW HISTORY

INTERVIEWER:

William Van Benschoten, Interviewer, UCLA Oral History Program; BA, History, University of California, Riverside, 1990; M.A., History, University of California, Riverside, 1992; C.Phil., History, University of California, Los Angeles, 1995.

TIME AND SETTING OF INTERVIEW:

Place: Schuman's office, California Institute of Technology.

Dates, length of sessions: April 12, 2000 (65 minutes); April 19, 2000 (89); April 26, 2000 (90); May 17, 2000 (77).

Total number of recorded hours: 5.35

Persons present during interview: Schuman and Van Benschoten.

CONDUCT OF INTERVIEW:

This interview is one in a series with Pew Scholars Program in the Biomedical Sciences conducted by the UCLA Oral History Program in conjunction with the Pew Charitable Trusts's Pew Scholars Program 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 Schuman 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 Schuman's file at the Pew Scholars Program office in San Francisco, including her proposal application, letters of recommendation, and reviews by Pew Scholars Program national advisory committee members.

The interview is organized chronologically, beginning with Schuman's childhood in Newport Beach, California, and continuing through her undergraduate work at University of Southern California, her graduate work at Princeton University, her postdoc at Stanford University, and the establishment of her own lab at California Institute of Technology. Major topics discussed include her difficult relationship with her graduate adviser, her research on synaptic transmissionand protein production at the dendrites, and politics and sexism in the scientific community.

ORIGINAL EDITING:

Ji Young Kwon, editorial assistant, edited the interview. She checked the verbatim

transcript of the interview against the original tape recordings, edited for punctuation, paragraphing, and spelling, and verified proper names. Words and phrases inserted by the editor have been bracketed.

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

William Van Benschoten, editor, prepared the table of contents. Kwon assembled the biographical summary and interview history. Deborah Truitt, editorial assistant, compiled the index.

TABLE OF CONTENTS

INDEX