CHEMICAL HERITAGE FOUNDATION

STEPHEN BURATOWSKI

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Helene L. Cohen

at

Harvard Medical School
Boston, Massachusetts

on

11, 12 and 13 June 2001

Stephen Buratowski

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 © 2002, The Regents of the University of California) and is made possible through the generosity of

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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. _____

This Interview Agreement is made and entered into this _____ day of _____, 2001 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 STEPHEN BURATOWSKI having an address a Department of Biological Chemistry and Molecular Pharmacology, Harvard University, 240 Longwood Avenue, Boston, Massachusetts 02115, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about June 11, 2001, and tentatively entitled "Interview with Stephen Buratowski". 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 his 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 he will receive no remuneration or compensation for his 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: Department of Special Collections
University of California, Los Angeles
Box 951575
Los Angeles, California 90095-1575

Attention: Victoria Steele, Ph.D.

If to Interviewee: Stephen Buratowski
Biological Chemistry/Molecular Pharmacology
Harvard University
240 Longwood Avenue
Boston, MA 02115

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

INTERVIEWEE

X Stephen Buratowski
(Signature)

Stephen Buratowski
(Typed Name)

Harvard University
(Address)

Building C1, Room 210

240 Longwood Avenue

Boston, MA 02115

X Date June 11, 2001

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

Victoria Steele
(Signature)

Victoria Steele
(Typed Name)

Head, Department of Special Collections
(Title)

Date 4/20/01

Pew Scholars in the Biomedical Sciences

Chemical Heritage Foundation Internet Posting Release Form

I, Stephen Buratowski, 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.**
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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.

SBuratowski

Stephen Buratowski, Ph.D.

2/7/08

Date

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

STEPHEN BURATOWSKI

1962 Born in Glen Ridge, New Jersey on 2 November

Education

1984 A.B., summa cum laude, Princeton University
1990 Ph.D., Massachusetts Institute of Technology

Professional Experience

National Cancer Institute, National Institutes of Health
1984 Summer Internship, Laboratory of Molecular Virology

Harvard Medical School
1990 Visiting Senior Research Fellow, Department of Genetics
1994-1997 Assistant Professor, Department of Biological Chemistry and Molecular Pharmacology
1997-2001 Associate Professor
2002-present Professor

Whitehead Institute for Biomedical Research
1990-1994 Fellow

Harvard College Board of Tutors in Biochemical Sciences
1994-present Adjunct Professor, Department of Biology

Honors

1984 Phi Beta Kappa
1984-1987 National Science Foundation Predoctoral Fellowship
1990-1994 Whitehead Institute Fellowship
1995-1999 Pew Scholar in the Biomedical Sciences
1996-1999 American Cancer Society Junior Faculty Research Award
1998 Harvard Medical School Biological and Biomedical Sciences (Ph.D. program) Teaching Award
1999-2004 Leukemia and Lymphoma Society Scholar Award

Selected Publications

S. Buratowski et al., 1988. Function of a yeast TATA element binding-protein in a

mammalian transcription system. *Nature* 334:37-42.
S. Buratowski et al., 1989. Five intermediate complexes in transcription initiation by RNA polymerase II. *Cell* 56:549-61.
S. Buratowski and H. Zhou, 1992. TFIID mutants defective for interactions with TFIIA. *Science* 255:1130-32.
S. Buratowski and H. Zhou., 1992. A suppressor of TBP mutations encodes an RNA polymerase III transcription factor homologous to TFIIB. *Cell* 71:221-30.
T. Takagi et al., 1997. An RNA 5'-triphosphatase related to the protein tyrosine phosphatases. *Cell* 89:867-73.
E.J. Cho et al. , 1997. The mRNA capping enzyme is recruited to the transcription complex by phosphorylation of the RNA polymerase II carboxy-terminal domain. *Genes Dev.* 11:3319-26.
E.J. Cho et al., 1998. Allosteric interactions between capping enzyme subunits and the RNA polymerase II carboxy-terminal domain. *Genes Dev.* 12:33 19-26.
B. Michel et al., 1998. Histone-like TAFs are essential for transcription in vivo. *Molecular Cell* 2:663-73.
P. Komarnitsky et al., 1999. TFIID-specific Taf40 is essential for RNA polymerase II mediated transcription in vivo. *Genes Dev.* 13:2484-89.
O. Matangkasombut et al., 2000. Bromodomain factor 1 corresponds to a missing piece of yeast TFIID. Genes Dev. 14:951-62.
P. Komarnitsky et al., 2000. Different phosphorylated forms of RNA polymerase II and associated mRNA processing factors during transcription. *Genes Dev.* 14:2452-60.
E.J. Cho et al., 2001. Opposing effects of Ctk1 kinase and Fcp1 phosphatase at serine 2 of the RNA polymerase II C-terminal domain. *Genes Dev.* 15:33 19-29.

ABSTRACT

Stephen Buratowski, the oldest of four boys, grew up in Iselin, New Jersey. Stephen's father was working as a programmer for a subsidiary of International Business Machines when he met Stephen's mother, who was doing data entry there. His father is an only child, but his mother is one of nine children, and the whole family is still close. In addition, his parents were devout Roman Catholics and brought their boys up in the church. Buratowski and his brothers played a lot of informal sports, went exploring in the "woods", etc. Stephen always liked to read a lot, especially science stories and mysteries (Jules Verne and Encyclopedia Brown), and knew from at least third grade that he wanted to be a scientist. When he visited relatives he loved to play their organ, so his parents bought him one, and he began his musical career. He and friends had a band throughout high school, and in college Buratowski continued with another group of friends.

Although he thought his public schools were fairly good, Buratowski did well without having to work much. His parents had not gone to college, and his school's guidance counselors were weak, so Stephen had little help with the idea of college. He followed his friends' lead in trying to score well on Scholastic Aptitude Tests and in applying to colleges. When he met a Princeton University recruiter, Buratowski decided Princeton University was his first choice. He was accepted there, and the financial aid enabled him to enter what he calls paradise. In his junior year he met guest lecturer George Khoury, who read Buratowski's thesis on enhancers. Encouraged, Stephen asked to go into Khoury's lab at the National Cancer Institute during the summer after his graduation. There he did recombinant DNA for the first time.

For graduate school Buratowski applied to many schools; everywhere he visited he was told that Massachusetts Institute of Technology (MIT) was the best, so he decided to go there. Also, Phillip Sharp was there and was doing gene expression, the kind of work in which Buratowski was interested. He spent the first year in classes, and in April he entered Sharp's lab. There he worked with Steven Hahn on TFIID, from which research they published their first paper in *Nature* and a second in *Cell*. He got a "spectacular" PhD thesis from his work; this allowed him to skip the usual postdoc and go across the street to the Fellows Program at the Whitehead Institute for Biomedical Research.

At about this time Buratowski married Robin Marlor, another MIT scientist, who found a postdoc at the Whitehead Institute. At the end of his fellowship he accepted an assistant professorship at Harvard University and continues to progress toward professorship and tenure. Buratowski teaches in the medical school; he serves on many committees, of which his favorite is the research computing department committee; he manages his lab of about ten people; he writes grant proposals; and he attempts to balance his work life with his life with wife and daughter, with whom he has resumed church attendance.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Helene L. Cohen, Interviewer, UCLA Oral History Program. B.S., Nursing, UCLA; P.N.P., University of California, San Diego/UCLA; M.A., Theater, San Diego State University.

TIME AND SETTING OF INTERVIEW:

Place: Buratowski's office, Harvard Medical School.

Dates, length of sessions: June 11, 2001 (107 minutes); June 12, 2001 (119); June 13, 2001 (96).

Total number of recorded hours: 5.37

Persons present during interview: Buratowski and Cohen.

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's 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, Cohen held a telephone preinterview conversation with Buratowski to obtain written background information (curriculum vitae, copies of published articles, etc.) and agree on an interviewing schedule. She also reviewed prior Pew scholars' interviews and the documentation in Buratowski's file at the Pew Scholars Program office in San Francisco, including his proposal application, letters of recommendation, and reviews by Pew Scholars Program national advisory committee members. For technical background, Cohen consulted J.D. Watson et al., *Molecular Biology of the Gene.* 4th ed. Menlo Park, California: Benjamin/Cummings, 1987; Bruce Alberts et al., *Molecular Biology of the Cell.* 3rd ed. New York: Garland, 1994; and Horace F. Judson, *The Eighth Day of Creation.* New York: Simon and Schuster, 1979; and recent issues of *Science* and *Nature.*

The interview is organized chronologically, beginning with Buratowski's childhood and continuing on through his early education and later schooling at Princeton University and Massachusetts Institute of Technology and the establishment of his lab at Harvard University.

Major topics discussed include Buratowski's research and career, family life, and the current climate for conducting research in the biomedical sciences.

ORIGINAL EDITING:

Victoria Simmons, 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.

Buratowski reviewed the transcript. He verified proper names and made minor corrections and additions.

Carol Squires, independent contractor, prepared the table of contents. Victoria Simmons assembled the biographical summary and interview history. Romi Keerbs, editorial assistant, compiled the index.

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