CHEMICAL HERITAGE FOUNDATION

SUSAN M. PARKHURST

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Steven J. Novak

at

Fred Hutchinson Cancer Research Center
SeattleWashington

on

14, 15, and 16 December 1996

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.

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REFORMATTING:

Holly Polish, Program Intern, Oral History, Chemical Heritage Foundation. B.A. History, American 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. B980811

This Interview Agreement is made and entered into this 6th day of August, 1998 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 SUSAN M. PARKHURST having an address at Division of Basic Sciences, Fred Hutchinson Cancer Research Center, 1124 Columbia Street, Seattle, Washington 98104, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about December 14, 1996, and tentatively entitled "Interview with Susan M. Parkhurst". 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 that University may deem appropriate, except for commercial applications.

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: Office of Research Administration
University of California, Los Angeles
P.O. Box 951406
Los Angeles, California 90095-1406

Attention: Ms. Carli V. Rogers
Copyright Officer

If to Interviewee: Susan M. Parkhurst
Division of BAsic Sciences
Fred Hutchinson Cancer Research Center
1124 Columbia Street
Seattle, Washington 98104

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

INTERVIEWEE

SM Parkhurst
(Signature)

Susan M. Parkhurst
(Typed Name)

Division of Basic Sciences
(Address)

Fred Hutchinson Cancer
Research Center

1124 Columbia Street

Seattle, Washington 98104

Date 12/14/96

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

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SUSAN M. PARKHURST

1960 Born in Tacoma, Washington, on 25August

Education

1982 B.A., Biology, Johns Hopkins University
1985 Ph.D., Developmental Biology, Johns Hopkins University

Professional Experience

Johns Hopkins University, Baltimore, Maryland
1985-1986 Postdoctoral Fellow

Imperial Cancer Research Fund, Oxford, England
1986-1989 Postdoctoral Fellow

California Institute of Technology, Pasadena, California
1990-1991 Research Fellow

Fred Hutchinson Cancer Research Center, Seattle, Washington
1992-1994 Assistant Member
1995-present Associate Member

Honors

1986-1989 Helen Hay Whitney Foundation Postdoctoral Fellowship
1989 Imperial Cancer Research Fund Postdoctoral Fellowship
1992-1994 Basil O'Connor Starter Research Award
1992-1994 James A. Shannon Director's Award
1992-1995 American Cancer Society Junior Faculty Research Award
1992-1996 Pew Scholar in the Biomedical Sciences
1995-2000 Leukemia Society of America Scholar

Selected Publications

Parkhurst, S.M. and V.G. Corces, 1985. *Forked*, gypsys, and suppressors in *Drosophila. Cell* 41:429-37.

Parkhurst, S.M. and V.G. Corces, 1986. Interactions among the *gypsy* transposable element and the *yellow* and *suppressor* of *Hairy-wing* loci in *Drosophila melanogaster. Molecular and*

Cellular Biology 6:47-53.
Parkhurst, S.M. and V.G. Corces, 1986. Mutations at the *suppressor of forked* locus increase the accumulation of *gypsy*-encoded transcripts in *Drosophila melanogaster*. *Molecular and Cellular Biology* 6:2271-74.
Parkhurst, S.M. et al., 1988. The *Drosophila su(Hw)* gene, which controls the phenotypic effect of the *gypsy* transposable element, encodes a putative DNA-binding protein. *Genes and Development* 2:1205-15.
Parkhurst, S.M. et al., 1990. X:A ratio, the primary sex-determining signal in *Drosophila,* is transduced by helix-loop-helix proteins. *Cell* 63:1179-91.
Parkhurst, S.M. and D. Ish-Horowicz, 1991. Mis-regulating segmentation gene expression in *DrosophilaDevelopment* 111:1121-35.
Parkhurst, S.M. and D. Ish-Horowicz, 1991. *wimp,* a dominant maternal-effect mutation, reduces transcription of a specific subset of segmentation genes in *Drosophila. Genes and Development* 5:341-57.
Parkhurst, S.M. et al., 1993. *achaete-scute* feminizing activities and *Drosophila* sex-determination. *Development* 117:737-49.
Parkhurst, S.M. and P.M. Meneely, 1994. Sex determination and dosage compensation: Lessons from flies and worms. (review) *Science* 264:924-32.
Lepage, T. et al., 1995. Signal transduction by cAMP-dependent Protein Kinase A in *Drosophila* limb patterning. *Nature* 373:711-15.
Dawson, S.R. et al., 1995. Specificity for the Hairy/Enhancer of split basic-helix-loop-helix (bHLH) proteins maps outside the bHLH domain and suggests two separable modes of transcriptional repression. *Molecular and Cellular Biology* 15:6923-31.
Gallant, P. et al., 1996. A *Drosophila* Myc homolog is encoded by *diminutive* and heterodimerizes with *Drosophila* Max to form a sequence-specific DNA-binding transactivator. *Science* (in press).
Alifragis, P. et al., 1996. A network of interacting transcriptional regulators involved in *Drosophila* neural fate specification revealed by the yeast two-hybrid system. *Proceedings of the National Academy of Sciences U.S.A.* (submitted).

ABSTRACT

Susan M. Parkhurst was born in Tacoma, Washington, but raised in California, Alaska, North Carolina, and Colorado (where she attended high school), the second oldest of seven siblings. Both of her parents were in the U.S. Air Force (hence the travel)—her mother a radar officer, her father an airplane mechanic—though later in life, when Parkhurst was in high school, both of her parents went to college to obtain degrees. She was an avid reader and she played the flute, the bassoon, and the glockenspiel either in her school's marching band or in its orchestra. While she excelled in school, her education was also somewhat disrupted by the moves to various states, such that she never had a class in geometry but repeated some classes due to the different structures of state educational systems. While in high school she also participated in Explorers, which focused, in part, on seeing medical professionals at work.

Although not entirely certain of what career she wanted to pursue, Parkhurst matriculated at Johns Hopkins University in Baltimore, Maryland, starting on the pre-medical track. She recalled that her first two years at the institution were fraught with being in classes more advanced than the training she had in high school (like starting in Calculus III instead of Calculus II), most of which required rote learning, though once she began her junior year and started taking graduate-level classes in her field, which required thoughtful intellectual expression, that all changed. Also, she profited from an inspirational developmental biology class with Allen Shearn, who became a mentor, and from a friendship with a graduate student, Suki Parks, who provided guidance. While she worked a number of different jobs as an undergraduate, many during the summers, she felt fortunate to work for a Veterans Administration hospital studying nosocomial infections and to be an undergraduate teaching assistant. Having decided to pursue a graduate education in science rather than medicine, Parkhurst applied to various schools around the country but, with support from Shearn and Philip E. Hartman, she was allowed to continue at Hopkins. At Hopkins she rotated through Eric A. Fyrberg and Yuan Chuan Lee's labs and settled into the lab of Victor G. Corces for her doctoral research on suppression mechanisms, ultimately succeeding in the cloning of the *suppressor of hair-wing* locus.

Parkhurst wanted to broaden her scientific background and chose to undertake a postdoctoral position abroad in the David Ish-Horowicz lab at Oxford University in the United Kingdom. After spending some time on transregulators and transposable elements, her work on *hairy-wing* led to the discovery of how to count chromosomes for sex determination and the transduction of sex-determining signals by helix-loop-helix proteins, which, in turn, led to a study of mutations in pattern formation in *Drosophila* and screens for early development mechanism suggesting the presence of an unknown *bicoid*-like gene for anterior/posterior patterning. Parkhurst then returned to the United States, taking a second postdoctoral position with Howard D. Lipshitz at the California Institute of Technology before accepting a principal investigator position at the Fred Hutchinson Cancer Research Center in Seattle, Washington.

The interview concludes with Parkhurst's thoughts on the ways in which her lab brings heterogeneous methods to the study of developmental genetics; on her commitment to mentoring lab personnel; and on the status of women in the sciences. She ends the interview discussing her efforts to encourage women and minorities in the sciences; Harold M. Weintraub's contribution to intellectual life at Hutchinson; the Pew Scholars Program in the Biomedical Sciences and the benefits of attending the Pew annual meetings; relationships

between basic research institutions and pharmaceutical companies; gene patents; and her excitement about doing science.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Steven J. Novak, Senior Editor, UCLA Oral History Program. B.A., History, University of Colorado; Ph.D., History, University of California, Berkeley; M.B.A., UCLA Graduate School of Management.

TIME AND SETTING OF INTERVIEW:

Place: Parkhurst's office, Fred Hutchinson Cancer Research Center, Seattle.

Dates, length of sessions: December 14, 1996 (134 minutes); December 15, 1996 (147); December 16, 1996 (73).

Total number of recorded hours: 5.9

Persons present during interview: Parkhurst and Novak.

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 consultants developed a topic outline. In preparing for this interview, Novak held a preinterview conversation with Parkhurst to obtain written background information (curriculum vitae, copies of published articles, etc.) and to agree on an interviewing schedule. He also reviewed prior Pew scholars' interviews and the documentation in Parkhurst'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.

For technical background, Novak consulted J.D. Watson et al., *Molecular Biology of the Gene.* 4th ed. Menlo Park, CA: Benjamin/Cummings, 1987 and Bruce Alberts et al., *Molecular Biology of the Cell.* 3d ed. New York: Garland, 1994.

The interview is organized chronologically, beginning with Parkhurst's childhood and education and continuing through her years at Johns Hopkins University, her postdoctoral work at Oxford University and California Institute of Technology, and the creation of her lab at the Fred Hutchinson Cancer Research Center. Major topics discussed include the study of the *wimp* and *hairy* genes, suppression mechanisms, lab management, and science funding.

ORIGINAL EDITING:

Jacqueline Tran, 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.

Parkhurst reviewed the transcript. She verified proper names and made minor corrections.

Gregory M. Beyrer, editorial assistant, assembled the interview history and biographical summary.

Jane Collings, editor, prepared the table of contents

The interviewer compiled the index.

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