CHEMICAL HERITAGE FOUNDATION

DIANE M. PAPAZIAN

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Marcia L. Meldrum

at

University of California, Los Angeles
Los Angeles, California

on

16 and 25 January and 7 February 1996

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

ACKNOWLEDGEMENT

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REFORMATTING:

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UNIVERSITY OF CALIFORNIA, LOS ANGELES

Oral History Interview Agreement No. R960122

This Interview Agreement is made and entered into this 16th day of January, 1996 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 DIANE M. PAPAZIAN having an address at UCLA Department of Physiology, Room 53-159 Center for the Health Sciences, Los Angeles, CA 90095-1751, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about January 16, 1996, and tentatively entitled "Interview with Diane M. Papazian". 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:

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If to Interviewee: Diane M. Papazian
UCLA Department of Physiology
Room 53-159 Center for the Health Sciences
Los Angeles, California 90095-1751

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

INTERVIEWEE

x Diane M Papazian
(Signature)

Diane M. Papazian
(Typed Name)

UCLA Department of Physiology
(Address)

Los Angeles, CA 90095-1751

x Date 1/16/96

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

Carli V. Rogers
(Signature)

Carli V. Rogers
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Copyright Officer
(Title)

Date February 9, 1996

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DIANE M. PAPAZIAN

1954 Born in Detroit, Michigan, on 29 December

Education

1977 B.S., Chemistry, University of Michigan
1983 Ph.D., Biological Chemistry, Harvard University

Professional Experience

University of California, San Francisco
1983-1989 Postdoctoral Fellow, Departments of Physiology and Biochemistry

University of California, Los Angeles, School of Medicine
1989-1994 Assistant Professor, Department of Physiology
1994-present Associate Professor, Department of Physiology

Honors

1973-1976 National Merit Scholar
1974 William J. Branstrom Freshman Prize, University of Michigan
1976 Moses Gomberg Fellow, Department of Chemistry, University of Michigan
1976 James B. Angell Scholar, University of Michigan
1976 Phi Lambda Upsilon
1977 Phi Beta Kappa
1989-1992 Klingenstein Fellow in the Neurosciences
1991-1995 Pew Scholar in the Biomedical Sciences

Selected Publications

Papazian, D.M. et al., 1979. Reconstitution and purification by "transport-specific fractionation" of an ATP-dependent calcium transport component from synaptosome-derived vesicles. *Proceedings of the National Academy of Sciences USA* 76:3708-12.

Papazian, D.M. et al., 1984. Partial purification and functional identification of a calmodulin-activated, ATP-dependent calcium pump from synaptic plasma membranes. *Journal of Neuroscience* 4:1933-43.

Papazian, D.M. et al., 1987. Cloning of genomic and complementary DNA from *Shaker*, a

putative potassium channel gene from *Drosophila. Science* 237:749-53.
Papazian, D .M. et al., 1988. Ion channels in *Drosophila. Annual Review of Physiology* 50:379-93.
Papazian, D.M. et al., 1991. Alteration of voltage-dependence of Shaker potassium channel by mutations in the S4 sequence. *Nature* 349:305-10.
Shao, X.M. and D.M. Papazian, 1993. S4 mutations alter the single channel gating kinetics of Shaker K^+ channels. *Neuron* 11:343-52.
Papazian, D.M. et al., 1995. Electrostatic interactions of S4 voltage sensor in Shaker K^+ channel. *Neuron* 14:1293-1301.

ABSTRACT

Diane M. Papazian spent her early years in Detroit, Michigan, the youngest of three children. Her father was an insurance salesman and administrator, her mother a housewife. She exhibited an early interest in science, thinking she would become an astronaut. When she was about eight or nine the family moved to Upper St.Clair, Pennsylvania, where Papazian attended a school that tracked students, so she was able to be in advanced classes of all subjects; she found the science instruction particularly excellent.

She decided to attend the University of Michigan, though had been unable to choose between biology and chemistry and had thought that biochemistry would combine the two, but Michigan required her to major in chemistry. Her organic chemistry class had students identify a dozen compounds without using modern methods; figuring out how to go about that all on her own Papazian found enthralling. Her first experience in the lab was less successful than hoped, but she loved lab work. She noticed that there were no women on the faculty at Michigan, but she was undeterred.

Still wanting to be a biochemist Papazian entered graduate school at Harvard University, where she discovered neurobiology. She worked in Stanley M. Goldin's lab; there she reconstituted and purified two types of calcium transporting ATPases as a thesis project. She found the learning environment at Harvard very stimulating.

Papazian accepted a postdoc at the Lily Y. and Yuh Nung Jan lab at the University of California, San Francisco; there she worked on cloning the *Shaker* gene. Walking along the chromosome presented technical problems, exacerbating the tension caused by competition with other labs to clone the *Shaker* gene first. She describes the Jans's adventurous approach to science, which leads into her belief that one should follow his or her intellectual interests rather than being confined to one area of study. She continues with a description of the differences between the Jan and Goldin labs. Soon after, she accepted a position at University of California, Los Angeles because she would find there people whose work could both complement and supplement hers. She particularly had in mind a collaboration with Francisco Bezanilla, one in which she could demonstrate her innovative biochemical approach to the potassium channel field. She organized her lab and began research on the biogenesis of the channel, attacking the question of why the *Shaker* superfamily contains some channels that are not voltage-dependent, and identified the charged residues of the S4 and S2 sequences as contributors to the voltage sensor.

She discusses postdocs and students in her lab and her management style; Bezanilla's inspiring enthusiasm for science; the challenges of teaching new material; the impact of early retirement policies on faculty teaching loads; and the pressure to secure grant money. When asked about other possible careers she mentions law, owning a bakery, teaching, and writing; she does not mention dancing, though she and her husband met dancing and continue to enjoy it. She concludes the interview discussing her belief that neurobiology must become more interdisciplinary; her view of funding disparities; her strategies for keeping abreast of the field; her impression of the atmosphere in the UCLA Department of Physiology; her philosophy of nature; and her recognition of the benefits of the Pew scholarship and her regard for the goals of the Pew Charitable Trusts.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Marcia L. Meldrum, postdoctoral fellow, UCLA Department of History. B.A., History, University of Minnesota; M.B.A., Boston University; M.A. and Ph.D., History of Science and Medicine, State University of New York at Stony Brook.

TIME AND SETTING OF INTERVIEW:

Place: Tapes 1 and 2, Rare Book Room, Biomedical Library, UCLA; Tape 3, Science, Technology, and Medicine Conference Room, History Department, UCLA.

Dates, length of sessions: January 16, 1996 (72 minutes); January 25, 1996 (60) ; February 7, 1996 (20).

Total number of recorded hours: 2.5

Persons present during interview: Papazian and Meldrum.

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 faculty consultants developed a topic outline. In preparing for this interview, Meldrum met with Papazian for a preinterview conversation to obtain written background information (curriculum vitae, copies of published articles, etc.) and agree on an interviewing schedule.

Meldrum further reviewed the documentation in Papazian's file at the Pew Scholars Program office in San Francisco, including her proposal application, progress reports, letters of recommendation, and reviews by Pew Scholars Program national advisory committee members. For technical background, Meldrum consulted: A. Baruzzi, ed., *From Luigi Galvani to Contemporary Neurobiology.* Berlin and New York: Springer Verlag, 1989; Gary Lynch, James L. McGaugh, and Norman M. Weinberger, eds., *Neurobiology of Learning and Memory.* New York: Liss Publishing Company, 1988; Paul Patterson and Dale Purves, eds., *Readings in Developmental Neurobiology.* New York: Guilford Press, 1982; and recent articles from *Journal of Neurobiology, Neurobiology,* and *Neurobiology of Learning and Memory.*

The interview is organized chronologically, beginning with Papazian's childhood in Michigan and continuing through her undergraduate education at the University of Michigan, graduate work with Stanley M. Goldin at Harvard, postdoctoral research at the LilyY. and Yuh Nung Jan lab at UCSF, and the establishment of her own laboratory at UCLA. Major topics

discussed include genetic sequencing and cloning processes, molecular structure and chemistry of the nervous system, laboratory organization and management, and the current funding situation in biomedical research.

ORIGINAL EDITING:

Gregory M.D. Beyrer, editorial assistant, edited the interview. He 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. Beyrer assembled the biographical summary.

Papazian did not review the transcript and therefore some names have not been verified.

Jane Collings, editor, prepared the table of contents.

The interviewer composed the interview history.

Steven J. Novak, senior editor, compiled the index.

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