

CHEMICAL HERITAGE FOUNDATION

MARGARET C. KIELIAN

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Neil D. Hathaway and Andrea R. Maestrejuan

at

Albert Einstein College of Medicine of Yeshiva University
Bronx, New York

on

20, 23, and 30 June 1994 and 14 November 1996

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



Margaret C. Kielian

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

INTERVIEWEE

Margaret Kielian
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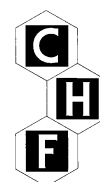
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MARGARET C. KIELIAN

1952 Born in Omaha, Nebraska, on 16 December

Education

1975 B.A., Microbiology, University of Nebraska at Lincoln
1981 Ph.D., Cell Biology, Rockefeller University

Professional Experience

1981 University of Helsinki, Helsinki, Finland
Visiting Scientist, Department of Virology

1982-1984 Yale University School of Medicine, New Haven, Connecticut
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1986-1992 Albert Einstein College of Medicine of Yeshiva University, Bronx,
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1992-present Associate Professor, Department of Cell Biology

Honors

1975-1978 National Science Foundation Predoctoral Fellow
1979-1981 Haggerty Predoctoral Fellow
1981 Sigrid Juselius Foundation Fellowship
1982-1984 Anna Fuller Postdoctoral Fellowship
1984-1986 Swebelius Cancer Research Award
1988-1991 American Cancer Society Junior Faculty Research Award
1988-1992 Pew Scholars Program in the Biomedical Sciences
1992-1997 Hirschl/Weill-Caulier Career Scientist Award

Selected Publications

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ABSTRACT

Margaret C. Kielian grew up in Omaha, Nebraska, the third of four children. Her father was an accountant with the Army Corps of Engineers; her mother was a homemaker. She became interested in science at an early age. She had a chemistry set that at one time caused an explosion, leaving a blob mark on the ceiling, and she had a fish tank that was a great source of protozoa that she liked to study under a microscope. Her parents were interested in and exposed her to many cultural things as well. Kielian attended Roman Catholic schools, where she found that she had some good teachers. Her physics and chemistry teacher and her biology teacher were very good, encouraging her curiosity and interest. Her family had hiking trips and picnics in national parks and forests, and these trips also stimulated her love of nature. A summer National Science Foundation program at the University of Kansas inspired her decision to become a microbiologist. She won a Betty Crocker scholarship which helped pay for college.

Kielian attended the University of Nebraska, where she majored in microbiology. She considered Stanford and Rockefeller Universities for graduate school and was encouraged to attend Rockefeller. She worked in William Bowers' lab, then took a summer lab course at the Woods Hole Marine Biological Laboratory. Kielian discusses having and raising children while pursuing a science career and the challenges facing two-career couples. She talks about Zanvil A. Cohn, her thesis adviser. As she studied fusion of phagocytic vacuoles with lysosomes in the Cohn lab she became increasingly interested in molecular biology; she learned fluorescence polarization technique.

Next Kielian went to the European Molecular Biology Laboratory and then the University of Helsinki as a visiting scientist to learn techniques for working with Semliki Forest virus (SFV). From Finland she went to Yale University for postdoc with Ari Helenius; there she worked with viruses with an altered pH threshold for fusion. Then Kielian's research focus shifted to conformational changes in the spike protein. She isolated the mutant virus *fus-1*, which turned out to be a useful pH probe for work on endocytosis.

At that point Albert Einstein College of Medicine vigorously recruited Kielian. She set up her lab with funding from National Institutes of Health, American Cancer Society, and Pew Foundation. Kielian's interview continues with more discussion of her lab's work on fusion in the SFV spike protein; the role of cholesterol in SFV infection; her collaboration with Carolyn Machamer; keeping up with literature in the field; experiments that did not produce usable lab results; Marianne T. Marquardt's work on cholesterol-depleted cells in the exit pathway; and an unexpected finding in Kielian's work on virus assembly and fusion. Kielian points to her scientific role models and discusses the representation of women on the Einstein faculty. She concludes the interview by telling of her academic responsibilities.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Neil D. Hathaway, Interviewer, UCLA Oral History Program. B.A., English and History, Georgetown University; M.A. and C. Phil., History, UCLA.

Andrea R. Maestrejuan, Interviewer, UCLA Oral History Program; B.A., History, University of California, Irvine, 1988; B.S., Biological Sciences, University of California, Irvine, 1988; C.Phil., History, University of California, Riverside.

TIME AND SETTING OF INTERVIEW:

Place: Kielian's office, Albert Einstein College of Medicine of Yeshiva University.

Dates, length of sessions: June 20, 1994 (149 minutes); June 23, 1994 (77) ; June 30, 1994 (111) , November 14, 1996 (60). Due to a technical malfunction, the first tape of the June 20 session required retaping in 1996.

Total number of recorded hours: 6.6

Persons present during interview: Tape I, Kielian and Maestrejuan; Tapes II-VI, Kielian and Hathaway.

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, Hathaway and Maestrejuan held telephone preinterview conversations with Kielian to obtain written background information (curriculum vitae, copies of published articles, etc.) and to agree on an interviewing schedule. They also reviewed prior Pew scholars' interviews and the documentation in Kielian'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 general background on the recent history of the biological sciences, Hathaway and Maestrejuan 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*. 3rd ed. New York: Garland, 1994.

The interview is organized chronologically, beginning with Kielian's childhood in Nebraska and continuing through her education at the University of Nebraska and Rockefeller

University and the establishment of her own lab at Albert Einstein College of Medicine of Yeshiva University. Major topics discussed include the structure and mechanism of Semliki Forest virus, the growing importance of molecular biology techniques, and women in the sciences.

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.

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

Jane Collings, editor, prepared the table of contents and index.

Beyrer compiled the biographical summary and interview history.

TABLE OF CONTENTS

Childhood, High School, and College	1
<p>Family background. Childhood interest in microscopy and chemistry. Early desire to be a scientist. High school courses and science training. Family trips to national parks and forests. Attends a summer National Science Foundation program at the University of Kansas. College courses at University of Nebraska at Lincoln. Deciding which college to attend. Wins a Betty Crocker college scholarship. Background in mathematics. Majors in microbiology. Considers Stanford and Rockefeller Universities for graduate training.</p>	
Applying to and Attending Graduate School	43
<p>Competitive atmosphere at Rockefeller. Involvement in the anti-Vietnam War effort in high school. Microbiology department at the University of Nebraska. Encouragement to attend Rockefeller. Graduate school application process. Social life in college. Meets future husband, Edwin Charles Bullock. Raising children while pursuing a science career. Challenges facing two-career couples. Working in labs as an undergraduate. Works in the William E. Bowers lab. Summer lab course at the Woods Hole Marine Biological Laboratory. Zanvil A. Cohn becomes Kielian's adviser. Membrane traffic and endocytosis work.</p>	
Moving from Graduate School to Postdoctoral Work	82
<p>Progression from graduate to postdoctoral work. Cohn's mentoring style. Studies Fusion of phagocytic vacuoles with lysosomes in the Cohn lab. Becomes increasingly interested in molecular biology. Learns fluorescence polarization technique. Defends thesis at Rockefeller University. Semliki Forest virus (SFV) at the University of Helsinki. Finnish life. Postdoc in the Helenius lab at Yale University. Working with viruses with an altered pH threshold for fusion. Don C. Wiley's work on membrane protein structure. Complexity of HIV fusion Reaction. Selecting for liposomes that could fuse at low pH's. Conformational changes in the spike protein. Henrik Garoff's work on SFV. Isolates the mutant virus fus-1. Fus-1 as a useful pH probe for work on endocytosis. How the exit pathway of SFV utilizes cholesterol. Studying fusion protein at low pH in SFV. Collaboration with Carolyn E. Machamer.</p>	
Faculty Years	133
<p>Albert Einstein College of Medicine. Cross-fertilization between departments at Einstein. Supportive faculty and administration. Pressures of living in New York. Interactions with colleagues at other institutions. Graduate students. National Institutes of Health, American Cancer Society, and Pew scholar grant money. Pew meetings. SFV spike protein. Role of cholesterol in SFV infection. Marianne T. Marquardt's work on cholesterol-depleted cells in the exit pathway. Unexpected finding in work on virus assembly and fusion. Uses an insect cell system to approach the study of cholesterol depletion.</p>	

Reflections on Science and Its Practice	164
Need for structural information about virus fusion protein. Representation of women on the Einstein faculty. Tenure system. Logistics of family life. Principal investigator's responsibility to motivate lab personnel. Parenting philosophy. Scientific role models. Women in science. Academic responsibilities.	
Index	203

INDEX

A

acquired immunodeficiency syndrome, 112
Aderem, Allen, 93
aflatoxins, 66
African American, 6
AIDS. *See* acquired immunodeficiency syndrome
Albert Einstein College of Medicine, 28, 101, 102, 132, 140, 141, 142, 144, 147, 148, 149, 151, 155, 172, 176, 177, 178, 180, 181, 183, 192, 195, 199
American Cancer Society, 153
American Orff-Schulwerk Association, 4
Anderson, David, 57, 97
Arvan, Peter R., 86
auxotrophs, 162, 169, 170

B

Baltimore, David, 87, 100
Baltimore, Maryland, 150, 180
Barnard College, 177
Beers, William H., 72
Betty Crocker, 34, 36
Betty Crocker Homemaker of Tomorrow, 34
Birmingham, Alabama, 70
Bishop, J. Michael, 139
Bjorkman, Pamela J., 111
Blobel, Günther, 78, 79, 87, 95, 96
Bowers, William E., 75, 76, 82, 85
Brecht, Bertolt, 17, 19, 26, 27
Bretsher, Mark S., 132
Bronx, New York, 1, 145
Brown, Dennis, 150
Brown, Michael S., 139
Bullock, Darcy Kielian (daughter), 4, 28, 179
Bullock, Edwin Charles (husband), 45, 60, 61, 62, 64, 65, 106, 180, 183
Bullock, Julia Kielian (daughter), 28, 179

C

California, 151
California Institute of Technology, 57, 138
Caltech. *See* California Institute of Technology
Canada, 61
Carnegie Institute, 104, 150
Carnegie Institution of Washington, 199
cell biology, 8, 23, 30, 31, 39, 70, 75, 78, 79, 80, 81, 83, 84, 86, 87, 88, 90, 98, 102, 134, 135, 136, 137, 141, 142, 147, 150, 154, 193, 196
cholesterol, 118, 119, 124, 125, 126, 132, 133, 134, 135, 159, 161, 162, 163, 164, 165, 166, 167, 169, 170, 171, 172, 173, 174, 175, 176, 196
Cohn, Zanvil A., 75, 76, 77, 78, 79, 80, 81, 84, 85, 86, 87, 88, 89, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 106, 107, 137, 138, 143, 147, 170, 171, 184
Cold Spring Harbor Laboratory, 119
collaboration, 104, 120, 126, 133, 137, 139, 141, 164, 171
Colorado State University, 23
competitive/competition, 12, 57, 63, 64, 91, 138, 139, 143, 145
Cornell University, 46
COS cell, 109, 159, 168
Cozumel, Mexico, 156
Creighton Preparatory [School], 13

D

Darien, Connecticut, 65
Darnell, James E., 86
de Duve, Christian, 75, 83
Devreates, Peter, 104
DNA
 cDNA, 118
Doms, Robert, 108
Duffus, Wayne A., 152, 159, 160, 167
Duke University, 44

Dunkle, Larry, 67

E

E1, 110, 118, 121, 127, 159, 160

E2, 110, 118, 127, 160

East Lansing, Michigan, 30

EMBL. *See* European Molecular Biology Laboratory

endocytosis, 80, 123, 124, 130

endoplasmic reticulum, 130, 131

endosomes, 116, 117, 119, 123, 124, 128, 131, 163, 167

ER. *See* endoplasmic reticulum

Europe, 23, 45, 96, 109

European Molecular Biology Laboratory, 105, 106, 108, 121

Exeter, Nebraska, 2, 3

F

Fambrough, Douglas, 104

Finland, 104, 105, 106, 114, 115, 119, 169

fluorescence polarization, 92, 94, 95, 97

Fontenelle Forest, 16

Fort Detrick, 22

Frederick, Maryland, 22

fus-1, 118, 119, 122, 123, 124, 126

fusion, 7, 23, 80, 84, 85, 88, 91, 92, 94, 95, 97, 100, 105, 109, 110, 111, 112, 113, 115, 117, 119, 121, 122, 124, 125, 128, 129, 131, 136, 150, 159, 160, 161, 163, 164, 165, 167, 168, 173, 174, 175, 176

G

Galán, Jorge E., 155

Galilei, Galileo, 17, 26

Galileo, 17, 26

Garoff, Henrik, 120, 150, 159, 168

gender, 25, 192, 201

Germany, 106

Ghosk, Swati, 152, 167

gibberellic acid, 20

Gilmore, Reid, 95, 97

Glacier National Park, 23

Glomb, Sallie, 152, 166, 171

glycine, 160

glycosylation, 70, 135, 164

Goldstein, Joseph L., 139

Golgi, 130, 132, 133, 164

Gordon Conference, 104, 133

Granger, Bruce, 138

grants/funding, 9, 91, 105, 141, 148, 152

Green, Howard, 104

H

Harvard University, 10, 45, 50, 57, 64, 111, 178

Helenius, Ari H., 84, 87, 88, 89, 100, 104, 105, 106, 108, 110, 113, 117, 119, 124, 126, 130, 131, 134, 137, 138, 139, 142, 154, 174, 178

Helsinki, Finland, 96, 106, 107, 108, 110, 115

hemagglutinin, 110, 118

Herlychka, Connie, 22, 23

Hirsch, James G., 75

HIV. *See* human immunodeficiency virus

Hubbard, Ann L., 104, 193

human immunodeficiency virus, 112, 113, 128, 136

I

Iliad, 53

influenza, 110, 112, 113, 118, 119, 129, 174

insect, 135, 162, 164, 165, 166, 167, 169, 170, 173

mosquitoes, 131, 169, 171

Ithaca, New York, 46

J

Jain, Suresh K., 192

James, Agnes, 4, 26

Jamieson, James, 104

Jarzynka, Mary Anne (maternal grandmother), 1

John Birch Society, 59

Johns Hopkins University, 104, 193

K

Kansas, 35
Kansas City, Missouri, 6
Kent State University, 31, 34
Keränen, Sirkka, 106, 110, 116
Kielian, Clemens Joseph (father), 1, 29
Kielian, James Clemens (brother), 4
Kielian, John (paternal uncle), 1, 2
Kielian, John S. (paternal grandfather), 1
Kielian, Katherine (paternal aunt), 2
Kielian, Leslie (paternal uncle), 2, 3
Kielian, Sylvia Zocholl (mother), 1, 29
Kielian-Boyd, Nancy (sister), 4, 6, 9, 29
Kielian-Gilbert, Marianne (sister), 4, 6, 29
Klimjack, Matthew R., 159
Krzycki, Cecelia Zocholl (maternal great-aunt), 23

L

Lawrence, Kansas, 9, 30, 31, 33, 39
Lehninger, Albert L., 45, 70, 71, 72
Levy-Mintz, Pnina, 152, 157, 158, 159, 167, 192
Liljeström, Peter, 159, 168
Lincoln, Nebraska, 2, 6, 29, 78
lipid, 77, 92, 97, 98, 135, 150, 163, 170, 171, 196
Long Island, New York, 184
lysosomes, 80, 84, 92, 94, 95, 103, 104, 115, 130

M

Machamer, Carolyn E., 86, 88, 130, 132, 133, 134, 135, 150, 155, 164, 171, 180
Maesk, Mark, 108, 109, 117, 129, 137
Marquardt, Marianne T., 4, 6, 152, 161, 167, 171
Massachusetts Institute of Technology, 45, 46, 142, 147, 170
Mayo Clinic, 150
McVey, Meg, 63
Mellman, Ira S., 80, 104, 117, 124, 137, 139
membrane, 23, 78, 80, 84, 85, 86, 87, 88, 91, 94, 95, 97, 98, 104, 111, 112, 118,

119, 125, 127, 128, 129, 130, 135, 137, 162, 163, 171, 175, 196

Mercy High School, 10
Michigan, 4, 5, 51
Michigan State University, 30
microbiology, 20, 22, 31, 39, 41, 42, 54, 67, 69, 79
MIT. *See* Massachusetts Institute of Technology
Muller, William A., 78, 80, 81, 86, 98, 101
Munro, Sean, 132
music, 3, 4, 8, 9, 13, 16, 28, 41, 46, 49

N

Nathan, Carl, 81
National Institutes of Health, 51, 52, 153, 161, 172, 173
National Merit Scholarships, 29, 30
National Science Foundation, 9, 12, 20, 21, 30, 31
Nebraska, 1, 5, 6, 7, 9, 10, 22, 23, 29, 40, 44, 45, 46, 48, 50, 51, 59, 61
Neufeld, Elizabeth F., 199
New Haven, Connecticut, 65, 114, 146
New York City, New York, 1, 5, 10, 46, 65, 91, 144, 145, 146, 147, 180
New York University, 199
NIH. *See* National Institutes of Health
nitrosoguanadine, 116
Nixon, President Richard M., 49
Nowicki, Mary Ann (paternal grandmother), 1
NSF. *See* National Science Foundation
Nussenzweig, Ruth S., 199

O

Odyssey, 53
Omaha, Nebraska, 1, 2, 3, 5, 6, 10, 12, 13, 19, 24, 29, 48, 51, 69
Our Lady of Lourdes, 10

P

Pagano, Richard, 150
Paradise Lost, 22, 41, 52

Peace Corps, 98
Pelham, New York, 181
Peterson's Guide to Graduate Programs in the Biological and Agricultural Sciences, 42
Pew Latin American Fellows Program in the Biomedical Sciences, 156
Pew Scholars Program in the Biomedical Sciences, 20, 34, 108, 132, 133, 150, 153, 154, 155, 156, 161, 172, 178, 202
pH, 94, 105, 109, 110, 112, 115, 116, 117, 119, 122, 123, 124, 125, 127, 128, 129, 130, 160, 165, 174
phagocytic vacuoles, 80, 92, 94
Phalen, Thomas, 152, 157, 161, 162, 169, 173
Poland/Polish, 1, 2, 3, 5
Principles of Biochemistry, 45
Purpura, Dominick, 148

R

Rajan, Thiruchandurai V., 159
Ralls, Melissa, 133
religion
 Christians, 18
 Roman Catholic, 5, 10, 11, 13, 17, 18, 19, 25, 51
 Society of Jesus, 13, 26
RNA, 116, 125, 129, 168
Rockefeller University, 10, 22, 40, 42, 43, 44, 45, 46, 54, 55, 56, 63, 71, 73, 74, 75, 76, 79, 86, 90, 98, 99, 100, 101, 103, 140, 144, 184, 185, 193
Rose, John, 89
Rothman, James E., 79, 87
Rudnick, Gary, 126
Rutgers University, 61

S

Scharff, Matthew, 148, 154
Schmid, Sandra, 64, 84, 117, 167
Scott, Bill, 77, 81
Scripps Research Institute, 64, 72, 167, 178
Seattle, Washington, 143, 151
Semliki Forest virus, 105, 106, 109, 110,

112, 113, 118, 119, 120, 121, 122, 124, 125, 127, 128, 129, 130, 131, 136, 159, 162, 164, 168, 173, 175, 176
Sendai, 128
SFV. *See* Semliki Forest virus
Shapiro, Lucille, 199
Shelton, Connecticut, 65, 66
Shuman, Stewart H., 111, 136
Sigrid Juselius Foundation Fund, 106
Silverstein, Samuel C., 81
Simons, Kai, 105, 106
Sindbis, 127, 168
Singer, Maxine Frank, 199
Sister Anna Maria, 26, 38
Skehel, John, 174
Slayman, Carolyn W., 199
Smalljohn, Connie, 22
sphingomyelin, 159, 161, 163, 174, 176
Stanford University, 42, 43, 45, 54, 64
Stanley, Pamela, 141
State University of New York, 170
Steinman, Ralph M., 74, 76, 77, 80, 81, 92
Students for a Democratic Society, 48
Sweden, 120, 121
Swiss Microbiological Society, 120
Switzerland, 120, 150, 177

T

tenure, 51, 64, 74, 151, 178
Thailand, 23
Title IX of the Education Amendments of 1972, 11
Triton X-114, 118

U

UCSF. *See* University of California, San Francisco
United States Army Corps of Engineers, 2, 6
United States Army Medical Research Institute of Infectious Diseases, 22
United States of America, 2, 23, 55
University of Alabama, 70
University of California, Los Angeles, 59, 199

University of California, San Francisco, 45, 170
University of Chicago, 10, 29
University of Connecticut, 98, 159
University of Illinois, 97
University of Indiana, 4
University of Kansas, 9, 30, 31, 48
University of Nebraska, 2, 9, 39, 45, 49, 78
University of Washington, 143
University of Wisconsin, 51
Unkeless, Jay C., 76, 77, 81, 82, 92

V

Van Voorhis, Wesley C., 76, 80, 92
Vietnam War, 9, 48, 50
virology, 23, 70, 84, 115, 134, 165
viruses, 22, 23, 68, 84, 85, 88, 100, 105, 106, 109, 110, 111, 112, 114, 115, 116, 117, 118, 119, 122, 123, 124, 125, 126, 127, 128, 129, 131, 133, 134, 135, 136, 150, 159, 160, 162, 163, 165, 167, 168, 169, 173, 174, 175, 176
alphavirus, 22, 127, 150, 168
coronavirus, 133
Hantaviruses, 23
lentivirus, 112
picornaviruses, 168
polio, 168
rotavirus, 165, 166

W

Walter, Peter, 46

Warner, Jonathan R., 154, 194
Washington University in St. Louis, 44
Washington, D.C., 35, 61
Watson, John A., 170
Weber, Gregorio, 97
Wellsted, Jennifer, 126
Werb, Zena, 170
Wesleyan University, 31
Westinghouse Science Talent Search, 20
Westside High School, 13
White, Judith M., 105, 108, 109, 111, 119, 137, 150, 155, 175
Wiley, Don C., 111, 174
Wisconsin, 9, 29
Woods Hole Marine Biological Laboratory, 73, 75, 76
World War II, 4

Y

Yale University, 51, 61, 64, 84, 96, 104, 105, 106, 107, 108, 109, 110, 113, 114, 115, 133, 137, 139, 142, 147, 150, 199
Yellowstone National Park, 16, 23
Yeshiva University, 28, 101, 132, 140, 176
Young Americans for Freedom, 59
Yudlowski, Marilyn, 63

Z

Zinder, Norton, 86
Zocholl, August A. (maternal grandfather), 1
Zocholl, Frank (maternal great-uncle), 23