

CHEMICAL HERITAGE FOUNDATION

ROGER E. KARESS

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Andrea R. Maestrejuan
at

Centre de Génétique Moléculaire
Gif-sur-Yvette, France

on

23, 24, 25, and 26 April 1996

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Kim Phan, Program Intern, Oral History, Chemical Heritage Foundation. B.A. expected 2011, Anthropology, Cornell University.

David J. Caruso, Director, Center for Oral History, Chemical Heritage Foundation. B.A., History of Science, Medicine, and Technology, Johns Hopkins University; PhD, Science and Technology Studies, Cornell University.

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CNRS-Centre de Genetique Moleculaire
Ave de la Terrasse ~~91198~~
91198 Gif-sur-Yvette FRANCE

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INTERVIEWEE

THE REGENTS OF THE UNIVERSITY
OF CALIFORNIA

Roger E. Karess
(Signature)

Carli V. Rogers
(Signature)

Roger E. Karess
(Typed Name)

Carli V. Rogers
(Typed Name)

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(Address)

Copyright Officer
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ROGER E. KARESS

1955 Born in New York City, New York, on 28 March

Education

1976 BS, Biochemistry, Yale University
1980 PhD, Biochemistry, Rockefeller University

Professional Experience

1980-1983 Carnegie Institution of Washington, Department of Embryology
Postdoctoral Fellow

1983-1986 Imperial College of Science and Technology, University of London
Research Fellow, Department of Biochemistry

1986-1992 New York University School of Medicine, Department of Biochemistry,
Assistant Professor

1992-present Centre de Génétique Moléculaire, Centre National de la Recherche
Scientifique, Directeur de recherche

Selected Publications

- Karess, R. et al., 1979. Cellular information in the genome of recovered avian sarcoma virus directs the synthesis of transforming protein. *Proceedings of the National Academy of Sciences USA* 76:3154-58.
- Rettenmier, C. et al., 1979. Tryptic peptide analysis of avian oncovirus *gag* and *pol* gene products. *Journal of Virology* 32:102-13.
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- Karess, R. and G. Rubin, 1982. A small tandem duplication is responsible for the unstable *white-ivory* mutation in *Drosophila*. *Cell* 30:63-69.
- Karess, R.E. and D.M. Glover, 1984. Analysis of P transposable element functions in *Drosophila*. *Cell* 38:135-46.
- Karess, R. and D.M. Glover, 1989. *Rough-deal*: A gene required for proper mitotic segregation of chromosomes in *Drosophila*. *Journal of Cell Biology* 109:2951-61.

- Medina-Acosta, E. et al., 1989. The promastigote surface protease (gp63) of *Leishmania* is expressed but differentially processed and localized in the amastigote stage. *Molecular and Biochemical Parasitology* 37:263-74.
- Karess, R. et al., 1991. The regulatory light chain of nonmuscle myosin is encoded by *spaghetti-squash*, a gene required for cytokinesis in *Drosophila*. *Cell* 65:1177-89.
- Llamazares, S. et al., 1991. *Polo* encodes a protein kinase homolog required for mitosis in *Drosophila*. *Genes and Development* 5:2153-65.
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- Gomes, R. et al., 1993. Abnormal anaphase resolution (*aar*): A locus required for progression through mitosis. *Journal of Cell Science* 104:583-93.
- Wheatley, S. et al., 1995. *Drosophila* nonmuscle myosin II is required for rapid cytoplasmic transport during oogenesis and for axial nuclear migration in early embryos. *Development* 121:1937-46.
- Jordan, P. and R. Karess. Site-directed mutagenesis of *Drosophila* nonmuscle myosin light chain suggests a requirement for myosin phosphorylation during oogenesis. (Submitted)

ABSTRACT

Roger E. Karess and his two older sisters grew up in Great Neck, New York. Their grandparents were Jews from Eastern Europe, and their neighborhood consisted of other family members and people with similar backgrounds. Karess's father had a law degree but did not practice; he worked in a family business for many years and then was in insurance. His mother was a homemaker. Both parents were adamant that all three children would go to college. The older sister is a chemist in industry; the younger, after a dancing career, became a social worker. Karess discusses his upbringing as a Reform Jew; Europeans' attitudes toward Americans; racism and anti-Semitism in Europe; Karess' Jewish identity; and Roman Catholic influences on contemporary France.

Karess cannot remember not being interested in science. He enjoyed the experiments in elementary school and reading the life stories of great scientists in Paul de Kruif's *Microbe Hunters*. His fourth-grade teacher noted his "passion" for science. In high school he took advanced science courses, and he attended a summer program for high school students at Jackson Laboratory; there he studied the effects of heavy metals on mouse embryo development and was introduced to reading scientific articles. He also attended a high-school science program at Columbia University.

He was accepted at Yale University where he worked in David Ward's lab studying paroviruses. He talks about the difference between liking science and doing science; about his regret at not having taken more lab classes at Yale and about having taken courses in medieval Latin and art history. He developed an interest in tumor viruses and wrote a class paper on host virus restriction. He talks more about working in the Ward lab; about having worked on reverse transcriptase in the Ted Reid lab; and about letters of recommendation he received from Yale professors.

He entered graduate school at Rockefeller University; he began early in Vincent Allfrey's lab so as to gain more lab experience. He then transferred to the Hidesaburo Hanafusa lab to study retroviruses. Here he discusses changes in his confidence as a scientist over time; his evaluation of himself as an undergraduate researcher; undergraduates in his own lab; his performance on his senior exam; his reasons for selecting Rockefeller for graduate school; Rockefeller's unstructured program; and playing softball at Rockefeller with Mark Rieman and jogging with Michael Greenberg. He goes on to describe Hanafusa as a teacher and a mentor and Hanafusa's research on tumor viruses. Karess himself sought to identify the RNA binding site for retroviruses but was thwarted by technical difficulties. Karess then talks about how William Hayward distinguishes between transformation-competent and transformation-defective virus cells; how Peter Duesberg's radiolabeling of viral RNA helps demonstrate the existence of an oncogene; Hanafusa's research on proto-oncogenes; how Karess seeks to isolate the *src* protein; and Raymond Erikson's discovery that *src* is a kinase. Karess was challenged in his attempt to identify the first known kinase and unable at the time to discover the *fps* oncogene. This leads to an explanation of the factors involved in scientific breakthroughs and the need to interpret data with fresh, objective eyes. He evaluates his self-confidence at the end of his doctorate.

Here Karess gives his opinion on the constructive and destructive effects of competition in science and the need to take risks in research. He goes on to compare the structures of scientific research in France and the United States; the advantages and disadvantages of doing

research in France; and the relative prestige of publishing in American and European journals.

Karess accepted a position as a principal investigator at the Centre de Génétique Moléculaire (CGM) near Paris. When he published an article in *Cell* he encountered the politics of scientific publishing. He goes on to describe funding in France; the Centre National de la Recherche Scientifique (CNRS) and setting up a lab at CNRS; and his own funding. More discussion of the funding of scientific research in France leads to a discussion of Karess's funding in the United States and his opinion about the need for reforms in the way science is done in both France and the United States.

Karess's research interests shifted from oncogenes to *Drosophila* genetics, and he developed an interest in transposable elements. He accepted a postdoc position in the Gerald Rubin lab at the Carnegie Institution of Washington, where he studied unstable alleles in *Drosophila*. Rubin's discovery of P elements revolutionized *Drosophila* genetics. Karess analyzed P transposable element function. He then accepted a second postdoc position in David Glover's lab at Imperial College of Science and Technology, University of London. He talks about trends in assigning names to *Drosophila* genes and the names Karess and others created.

Karess applied for his first academic position and accepted an offer from New York University. Here he discusses the people in his own lab. He took up studying *Leishmania*. Karess moved his lab to the CGM in Paris, where he has been studying the *rough-deal* gene. Karess concludes with an assessment of his scientific research.

UCLA INTERVIEW HISTORY

INTERVIEWER:

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: Karess's office, Centre de Génétique Moléculaire, Gif-sur-Yvette, France.

Dates, length of sessions: April 23, 1996 (150 minutes); April 24, 1996 (157) ; April 25, 1996 (170) ; April 26, 1996 (118).

Total number of recorded hours: 9.9

Persons present during interview: Karess and Maestrejuan.

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, Maestrejuan held a telephone preinterview conversation with Karess to obtain written background information (curriculum vitae, copies of published articles, etc.) and to agree on an interviewing schedule. She also reviewed prior Pew scholars' interviews and the documentation in Karess'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 general background on the recent history of the biological sciences, 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 Karess's childhood in New York and continuing through his education at Yale University and Rockefeller University, his postdocs at Carnegie Institution of Washington and the Imperial College of Science and Technology, and his positions at New York University and the Centre de Génétique Moléculaire. Major topics discussed include the molecular biology of oncogenes, *Drosophila* genetics, and the infrastructures of scientific research in France and the United States.

ORIGINAL EDITING:

Gregory M. 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.

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

Steven J. Novak, senior editor, prepared the table of contents and interview history.

Beyrer assembled the biographical summary and index.

TABLE OF CONTENTS

Childhood and Comparisons of American and European Science and Culture	1
Family background. East European ancestry. Parental expectations. Queens and Great Neck, New York. Reform Judaism. Racism and anti-Semitism in Europe. Catholic influences on contemporary France. Differences between the practice of science in the United States and in France. International reputations of French physics and French biology. Childhood interest in science. Experiments in elementary school. Paul de Kruif's <i>Microbe Hunters</i> .	
High School and College Years and More Reflections on Childhood	38
Takes advanced courses in high school. Applies to and is accepted at Yale University. Attends a summer program for high school students at Jackson Laboratory and studies the effects of heavy metals on mouse embryo Development. Opportunities for advanced science classes in high school. Impact of the sixties and the Vietnam War. Passion for science. Empirical scientific method. High school science program at Columbia University. While at Yale, works in the David C. Ward lab studying paroviruses. Difference between liking science and doing science. Takes undergraduate courses in medieval Latin and art history. Develops an interest in tumor viruses.	
Graduate School and Undergraduate Research	75
Applying to graduate schools. Rockefeller University. Work in the Vincent G. Allfrey lab. Hidesaburo Hanafusa lab to study retroviruses. Reverse transcriptase in the Ted W. Reid lab. Studies organic chemistry with J. Michael McBride. Reasons for selecting Rockefeller for graduate school. Rockefeller's unstructured program. Hanafusa's research on tumor viruses. Seeks to identify the RNAbinding site for retroviruses. William Hayward distinguishes between transformation-competent and transformation-defective virus cells. Peter H. Duesberg's radiolabeling of viral RNA. Isolating the src protein.	
Faculty Years in the United States and Abroad	116
Constructive and destructive affects of competition in science. Structures of scientific research in France and the United States. Advantages and disadvantages of doing research in France. Publishing. Françoise Poirier. Principal investigator at the Centre de Génétique Moléculaire (CGM) near Paris. Reasons for leaving New York University to go to CGM. Centre National de la Recherche Scientifique (CNRS).	
Current Work and Thoughts about Postdoctoral Positions	141
<i>Drosophila</i> genetics. Develops an interest in transposable elements. Postdoc position in the Gerald M. Rubin lab at the Carnegie Institution of Washington. Studying unstable alleles in <i>Drosophila</i> . Rubin's discovery of P elements revolutionizes <i>Drosophila</i> genetics. P transposable element functions. Second postdoc position in the David M. Glover lab at Imperial College of Science and Technology, University of London. Mitosis in <i>Drosophila</i> .	

Final Thoughts	161
Pros and cons of having a large laboratory. New York University. Studying Leishmania. María Vasquez. Studying the rough-deal gene. Scientific research.	
Index	187

INDEX

- ³²P, 86, 87
- 3**
- A**
- Abbé Pierre, 26
acquired immune deficiency syndrome, 153
acrylamide, 84, 91, 102
ACS. *See* American Cancer Society
AIDS. *See* acquired immune deficiency syndrome
Air France Group, 18
Algeria, 17, 33
Allfrey, Vincent G., 86, 87, 102, 105, 114
American Cancer Society, 143, 144, 149, 154, 155
Anderson, Steven M., 87, 88
antigen, 50, 77, 78, 80, 81, 82, 84, 91, 99
 histocompatibility-2 antigen, 50
 human leukocyte antigen, 50
Arrowsmith, 39
aryl hydrocarbon hydroxylase [AHH], 52
Atlantic Ocean, 72
Atomic Experiments for Boys, 37
Atomic Physics for Young Boys, 60
Attali, Jacques, 18
Avery, Oswald T., 114
- B**
- Babcock Dairy Research Center, 83
Bacon, Francis, 43
Bacon, Roger, 43
Baker, Bruce S., 167
Baltimore, David, 49, 76, 79, 80, 82, 112, 139, 141, 161, 166
Bank, Arthur, 18, 67
Bar Harbor, Maine, 41, 50, 51, 67, 76
Barreto, Vasco, 171
Beemon, Karen, 112
Beisson, Janine, 33, 144
Bellis, Florence (maternal aunt), 57
Benzer, Seymour, 168
Berg, Paul, 82
Bernstein Raymond, 61
biotin, 69
Bishop, J. Michael, 109, 110, 111, 112, 113, 114, 115, 116, 120, 158
Bogotá, Colombia, 179
Bombay, India, 50
Boston Brahmin, 57
Boston, Massachusetts, 6, 101
bovine spongiform encephalopathy, 152
Boyer, Herbert, 77
Bradford, England, 17
Brahman, 57
Brazaõ, Raquel, 92, 94
Brenner, Mr., 62, 63, 170
Brooklyn, New York, 3, 4, 7, 12, 14, 100
Bryn Mawr College, 8, 9
Burns, Robert, 39
- C**
- C. elegans*, 170
California, 27, 42, 48, 57, 77, 78, 113, 139, 140, 158, 160, 181
Calothy, Georges, 135
Cambridge, England, 163
Cambridge, Massachusetts, 31
Canada, 7
capsid, 69, 77, 81, 91
Carnegie Institution of Washington, 121, 159, 161, 164, 167
Carpentras, France, 26
Castor, 109
Cech, Thomas R., 121
Central Park, 100, 101
Centre de Génétique Moléculaire, 137, 144
Centre National de la Recherche Scientifique, 29, 127, 128, 130, 131, 133, 136, 143, 144, 146, 147, 148, 149, 151, 152, 155, 156, 157, 177, 182
Chambon, Pierre, 31, 142, 143, 156, 176
Chartres cathedral, 73
Chernoff, David, 90
Cheshire, Alan, 45, 167
chick helper factor, 88, 102, 106
Children's Hospital, 101
Chinatown, 19
chromatin, 75
Claude, Albert, 113, 117
CNRS. *See* Centre National de la Recherche Scientifique
Cohen, Stanley, 77, 164
Cold Spring Harbor Laboratory, 119, 158
Colgate-Palmolive Company, 10
collaboration, 177
Colombia, 179, 180, 181
Columbia University, 49, 67, 75, 182
competition, 37, 89, 90, 109, 111, 112, 116, 119, 125, 126, 127, 130, 131, 132, 158, 166
Conviser, Matthew (paternal uncle-in-law), 3
copia, 159, 162, 163
Cornell University, 48, 49

CoT- curves, 108
Counis, Raymond, 158
Crick, Francis H.C., 123, 185
Crochet, Janine, 145
Cronin, John, 68
croton oil, 77
Curie Institute, 34
Curie, Marie, 34
Curie, Pierre, 34
cytochrome P-450, 52

D

Darnell, James E., 82, 87, 114
Davis, Ronald W., 160
de Duve, Christian René, 113
de Kruif, Paul, 38, 39, 41, 84
Delft, Holland, 40
Denver, Colorado, 112
Dintzis, Howard M., 83, 102
Disneyland, 16
 Euro-Disney, 16
Diwan, Bhalchandra A., 50, 51
DNA, 51, 64, 69, 75, 77, 78, 79, 80, 83, 87, 92, 106,
 108, 110, 112, 114, 115, 119, 122, 149, 154, 158,
 159, 162, 163, 164, 173, 174, 175, 180, 184
 cDNA, 132, 133, 165
Dolph, Patrick, 181
Dowling, Thomas J., 73
Drosophila, 53, 71, 116, 122, 128, 129, 132, 137,
 138, 145, 153, 155, 158, 159, 160, 161, 162, 163,
 164, 167, 168, 170, 171, 173, 179, 180, 181, 186
Duesberg, Peter H., 109
Duke, David, 27
dunce, 168

E

Eco RI, 83, 180
Edelman, Gerald M., 101
Edict of Nantes, 26
Ehrlich, Paul R., 38
Einstein, Albert, 2, 37
EMBO, 133, 146
England, 33, 45, 145, 146, 148, 163, 167, 172
enkephalin, 101
Ephrussi, Boris, 137
Erikson, Raymond L., 112, 113, 114, 115, 121
Eriksson, Leif, 72
Europe, 5, 14, 15, 17, 18, 19, 21, 24, 25, 27, 28, 33,
 57, 73, 76, 133, 146, 153, 166, 172, 177, 178, 183
European Bank for Reconstruction and
 Development, 18
European Community Action Scheme for the
 Mobility of University Students, 94

European Developmental Biology Organization, 134
European Molecular Biology Laboratory, 128

F

Fedoroff, Nina, 159
Florida, 12, 14
Fourth of July, 23, 30
fps, 117
France, 15, 17, 18, 19, 20, 22, 23, 24, 25, 26, 28, 29,
 31, 32, 33, 34, 35, 57, 72, 94, 126, 127, 128, 129,
 130, 131, 134, 135, 136, 137, 139, 141, 142, 143,
 145, 146, 148, 149, 150, 151, 152, 153, 155, 156,
 157, 164, 165, 166, 172, 174, 176, 177, 181, 182,
 185
 Vichy France, 25, 57
Freud, Anna, 14
Freud, Sigmund, 14, 15
Friedman, Iris Blum (paternal aunt), 5, 36, 55
Front National, 27
Fرتون, Joseph S., 93
Fujinami sarcoma virus, 117, 118, 119
Fulbright, J. William, 30
fushi tarazu, 170

G

GAF Corporation, 11
Gaines, Daniel, 42
Galicia, 5, 6
Gatti, Maurizio, 167
Genentech, 82
Genetic Variations of Drosophila Melanogaster, 167
Genius
 The Life and Science of Richard Feynman, 123
germ line, 163, 165
Germany, 17, 18, 21, 22, 23, 25, 30, 33
Gershman, Karen, 41
Gerver, Kenneth, 63
Gif-sur-Yvette, France, 31, 35, 137, 145
Gleick, James, 123
Glover, David M., 153, 167, 173, 174, 175, 179
glycoproteins, 88, 102, 106
Goldberg, David, 70, 157, 160
Goldberg, Michael L., 71, 183
Goldman, Emma, 14
grants/funding, 32, 127, 130, 131, 132, 133, 137,
 138, 143, 144, 149, 150, 151, 152, 153, 154, 155,
 156, 157, 158, 162, 175, 182
Grass, Günther, 168
Great Britain, 19, 33, 128, 142, 151, 173
Great Neck, New York, 3, 6, 12, 75
Green, Melvin M. (my uncle), 162
Greenberg, Michael E., 101, 178
gypsy, 168, 169

H

Hanafusa, Hidesaburo, 82, 85, 86, 87, 88, 91, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111, 112, 114, 115, 117, 118, 119, 120, 122, 123, 125, 135, 139, 177
Handleman, Walter, 36
Harvard University, 48, 49, 56, 71, 74, 161, 182
Hawley, R. Scott, 155
Hayward, William, 108, 109, 110, 111, 114, 125
Heidelberg, Germany, 128, 173
Herington, John, 72
Hind III, 83
Hirsch, James G., 84
hobo, 169
Hogness, David S., 82, 113, 160, 167
Holland, 40
Holocaust, 18, 25, 26
Horvitz, Robert, 170
Howard Hughes Medical Institute, 143, 156, 157
hu-li-tai-shao, 170, 171
Hunter, Tony, 112, 115, 116
hybridization kinetics, 108, 110

I

IgG, 84
Imperial College of Science and Technology, 17
India, 17, 57
Industrial Revolution, 33
Italy, 13, 26

J

Jackson Laboratory, 41, 50, 51, 67, 75, 76
Jami, Jacques, 18, 26
Jelinek, Warren, 159
Johns Hopkins University, 78, 83, 84, 86, 99, 102, 104
Johnson, Edward M., 86
Jonah, 72
Jordan, Pascale, 20, 132, 145

K

Kahlo, Frida, 14
Karess, Eli (paternal grandfather), 3, 55
Karess, Irving (father), 1, 5, 37, 55, 99
Karess, Martha (sister), 8, 11, 56, 58
Karess, Natalie Lebovitz (mother), 1, 5, 38, 55, 99
Kawai, Sadaki, 107
Keller, Walter D., 67
Kiehart, Daniel P., 176
Klein, Hannah, 138
Konigsberg, William H., 80
Korean Conflict, 59

Kornberg, Arthur, 82
Kotzen, Sara-Ida (grandmother), 5
Kouffman, Molly Conviser (paternal aunt), 5, 55
Krebs cycle, 62
Kuhn, Thomas S., 182

L

la boîte de Pandore, 171
Laski, Frank A., 166
Latin (language), 33, 47, 48, 49, 71, 72, 96
Le Monde, 157
Le Pen, Jen-Marie, 27
Lebovitz, Israel (maternal grandfather), 5, 28, 55
Lebow, Joan, 5, 83
Leishmania, 179, 180
Leopold, Pierre, 147
Levine, Arnold J., 82
Levis, Robert, 161, 162
Lewin, Benjamin, 135, 139, 140, 141
Lewis, Sinclair, 39
Lilly, Frank, 79, 81
Lindquist, Susan, 179
linotte, 168
Lithuania, 5, 6
London, England, 17, 28, 40, 45, 129, 136, 140, 167, 172, 173, 177, 178, 179, 182
Long Island, New York, 4, 13
Lowell, Massachusetts, 3, 7

M

Madison, Wisconsin, 82, 83, 99, 182
Maniatis, Tom, 71
mariner, 169
Massachusetts, 3, 6, 7, 55, 82, 135, 168
Massachusetts Institute of Technology, 57, 82, 85, 86, 91, 99, 135, 168
Maxam and Gilbert sequencing, 114
McArdle Laboratory, 82, 86
McBride, J. Michael, 96, 98
McCandish, Elizabeth Karess (sister), 7, 8, 11, 41, 56, 58
McClintock, Barbara, 159, 162, 167
McGurk Institute, 39
Medical Research Council, 167
Medina-Acosta, Enrique, 179, 180, 181
Mendel, Gregor, 45, 167
Merck, Sharp, and Dohme, 101
mercury, 69
Merrifield, R. Bruce, 100
Michigan, 87
Microbe Hunters, 38, 41, 84, 120
MIT. *See* Massachusetts Institute of Technology
mitosis, 65, 86, 153, 155, 167, 173, 181

Mitter, Pronob, 35, 57
Mitter, Sara, 28, 56, 57
Mitterand, François, 27, 152
Model, Peter, 159
Moglia, Elsa, 13
Moglia, Luigi, 13
Molecular Biology of Tumor Viruses, 78, 102
Molecules and Life, 66, 93
Morocco, 17
murine sarcoma virus, 117
Muscular Dystrophy Association, 143, 144, 150
myosin, 132, 136, 171

N

Nathans, Daniel, 78, 83, 84
National Academy of Sciences, 83
National Cancer Institute, 116, 150
National Institutes of Health, 31, 79, 144, 149, 152, 153, 154, 155, 156, 157
National Science Foundation, 152, 154, 155
New Haven, Connecticut, 86
New Jersey, 4, 7, 10, 11
New York City Marathon, 101
New York City, New York, 1, 3, 6, 9, 10, 14, 19, 24, 26, 29, 35, 39, 49, 58, 63, 82, 99, 100, 136, 153, 155, 173, 178, 179, 181, 182
New York State Regents Examination, 47
New York State Regents Scholarship, 48
New York University, 85, 136, 137, 138, 141, 147, 148, 153, 155, 178, 179, 181
Newton, Sir Isaac, 72
Nice, France, 100, 138
NIH. *See* National Institutes of Health
Nixon, President Richard M., 60
Nobel Prize, 34, 50, 76, 82, 83, 100, 110, 130
Normandy, France, 16
North Africa, 17, 24, 33
Northern blots, 109, 110
NSF. *See* National Science Foundation
Nüsslein-Volhard, Christiane, 129, 130, 167, 170, 173
NYU. *See* New York University

O

O'Farrell, Patrick, 147
O'Hare, Kevin, 163
Ohio, 13
Oppenheim, Seth, 54
Organisation Européenne pour la Recherche Nucléaire, 35
oskar, 168
Ostroff, Jeffrey, 92
Oxford, England, 172

P

P element, 162, 163, 164, 165, 173, 178, 185
Palade, George E., 67, 113
Pandora's box, 171
Paris, France, 15, 16, 17, 18, 19, 22, 23, 24, 28, 29, 31, 33, 35, 56, 57, 58, 71, 103, 135, 136, 137, 138, 139, 145, 166, 172, 173, 182
parvoviruses, 69, 81, 91
Pasteur Institute, 31, 34, 110
Pasteur, Louis, 38, 39, 156
Peace Corps, 60
Pennysaver, 42
Perutz, Max F., 62
Peterson, Jane L., 69, 81, 91
Pew Scholars Program in the Biomedical Sciences, 15, 70, 80, 124, 131, 143, 145, 147, 148, 152, 153, 154, 155, 174, 180, 181
Physarum, 86, 87
pieds noirs, 33
Pitot, Henry C., 83
pogo, 169
Poirier, Françoise, 15, 16, 20, 21, 23, 26, 28, 57, 58, 128, 134, 135, 136, 137, 139, 140, 141, 158, 166, 172, 178, 181, 182
Poland, 5, 6, 26
Poljak, Roberto J., 84
Pollux, 109
Pomerantz, Arthur, 100, 114
Popper, Karl, 63
Portugal, 94
Princeton University, 82, 85
Principia, 72
Proust, V.L.G.E. Marcel, 138
Provence (région), France, 26
publishing, 32, 107, 119, 127, 133, 135, 138, 139, 140, 142, 186
Pullman, Washington, 11, 61

Q

Queens, New York, 1, 3, 6, 12
Quinn, William G., 168

R

Radcliffe College, 48, 57
ras oncogene, 117
Reformation, 21
Reich, Edward, 85
Reid, Ted W., 92, 93, 94, 95
religion
 All Saints' Day, 22
 anti-Semitism, 17, 18, 27
 Christmas, 6, 21, 22
 Easter, 21, 22, 23

- Huguenots, 33
 Jewish/Judaism, 7, 12, 13, 14, 15, 17, 18, 19, 20, 23, 24, 25, 26, 27, 33, 57
 Nonconformist, 33
 Passover, 20, 21
 Quakers, 33, 49
 Roman Catholic, 15, 21, 22, 24, 25, 26, 33
 Sephardic Jews, 17
 retroviruses, 77, 78, 82, 87, 88, 92, 99, 107, 109, 112, 125, 126, 158, 163, 172
 reverse transcriptase, 76, 92, 102, 106, 107, 112
 Rhone-Poulenc, 143
 Richards, Frank, 77
 Riegel, Ilse, 82
 Rieman, Mark, 100, 101, 121
 Rifkin, Daniel B., 85
 Rigby, Peter W.J., 141, 172
 Rio, Donald C., 166
Riverside Press-Enterprise, 42
 Riverside, California, 42
 RNA, 51, 68, 71, 75, 76, 77, 78, 82, 86, 87, 92, 105, 106, 107, 108, 109, 110, 111, 117, 118, 119, 121, 122, 123, 130, 135, 159
 mRNA, 67, 75, 107, 111
 tRNA, 67
 Roberts, Richard, 119, 122
 Robertson, Elizabeth J., 182
 Rockefeller University, 39, 81, 82, 84, 85, 86, 87, 90, 96, 99, 100, 101, 102, 104, 105, 109, 113, 114, 119, 124, 152, 158, 159, 160, 174
 Rosenbaum, Joel, 75
 RoT- curves, 108
rough-deal, 168, 169, 173, 177, 179, 182, 183
 Rous sarcoma virus, 101, 108, 110, 158, 164
 Rous, Peyton, 101, 108, 110, 117, 158, 164
 Rous-associated virus, 108, 110
 Rowe, Wallace P., 79, 81
 Royal Society of London, 40
 Rubin, Gerald M., 136, 139, 140, 141, 159, 160, 161, 162, 166, 185
 Russell, David G., 179
 Russell, Elizabeth S., 50, 76
 Russia, 5, 7, 15
 Russo, Jay, 42
rutabaga, 168
- S**
- Saccharomyces*, 158, 161
 Saint Brendan, 72
 Saint John's University, 4
 Sajoff, Hazel (maternal aunt), 55
 Salem, Massachusetts, 6
 Sanger sequencing, 163
 Scaërou, Frederic, 145
- Schama, Simon H., 74
 Schrödinger equation, 62, 63
 Scotland, 148
 Scully, Vincent, 72
 Seattle, Washington, 11
 Sephadex, 92
 serine, 115, 116
 Shaeffer, Robert, 37
 Sharp, Phillip A., 101, 122
 Shotland, Jeff, 36
 simian virus 40, 77, 78, 80, 81, 82, 83, 85, 87, 91
 Simmonds, Sophia, 93
 Simon, David, 42
 Smith, Hamilton O., 83
 Smollar, Darien, 62
 Snell, George, 50
 Southern blots, 87, 109, 110
spaghetti squash, 154, 168, 169, 171, 176, 179, 181, 182
spätzle, 168
 sports, 43, 44, 74
 running, 44, 73, 101, 103, 173
 softball, 43, 100, 101
 squash, 74
 Spradling, Allan C., 163
src gene, 102, 107, 109, 111, 112, 113, 114, 115, 116, 117, 118, 119, 125, 158
 Stacey, Dennis, 87, 88
 Stanford University, 82, 86, 99, 102, 158
 Stehelin, Dominique, 110
 Steitz, Joan A., 70, 71, 95
 Strasbourg, France, 31, 143, 174
 Sucena, Jose Elio, 94
 sulfur, 69, 97
 SV40. *See* simian virus 40
 Swarthmore College, 49, 97
 Switzerland, 20
 syncytium, 86
- T**
- T7 phage, 70
 Tegtmeier, Peter, 82
 Temin, Howard M., 49, 76, 82, 83, 106
 tenure, 96, 128, 136, 137, 138, 182
thèse d'Etat, 128, 172
thèse d'université, 128
 threonine, 116
Tin Drum, The, 168
Titanic, 76
 Tooze, John, 78, 102
 transposon, 154, 159, 161, 163, 165, 169
 Tunisia, 17, 26, 33
turnip, 168
 tyrosine, 115, 116, 117, 122, 158

U

U.S. Congress, 152
U.S. Navy, 3, 56
U.S. Social Security Administration, 3
United States of America, 4, 5, 6, 7, 17, 19, 25, 28,
32, 73, 105, 126, 127, 128, 129, 131, 132, 134,
141, 142, 145, 151, 152, 156, 157, 172, 176, 178,
182, 183
Université de Paris VI and VII, 137
University of California, San Francisco, 109
University of Chicago, 178, 179
University of Pennsylvania, 8
University of Washington, 11
University of Wisconsin, 82, 83

V

Vaccinia virus, 75
van der Waals interactions, 95
van Leeuwenhoek, Antonie, 39, 40
Varmus, Harold E., 109, 110, 111, 112, 113, 114,
115, 116, 121, 139
Vasquez, María, 180, 181
Veblen, Thorstein, 33
Veil, Simone, 19
la loi Veil, 19
Vietnam War, 3, 16, 58, 59, 60
Vilna, Lithuania, 5, 6, 7
virology, 74, 78, 80, 81, 92
vitesse et la précipitation, 90
Vogt, Peter K., 109, 112, 119
Voyage of Saint Brendan, The, 72

W

Wang, Lu-Hai A., 109, 111, 117, 118
Ward, David C., 69, 71, 74, 77, 80, 81, 85, 86, 91, 94
Watson, James D., 185
Weil, Simone, 19
Weissman, Sherman M., 80
Wellcome Foundation, 143
Wheatley, Sally, 145, 148
White Flight, 3, 46, 161, 162, 164
Wieschaus, Eric F., 129, 130, 167, 168, 170, 173
wings up, 168
winnebago, 169
Wolinsky, Eve J., 138
World War I, 24
World War II, 3, 16, 18, 26, 56, 59

Y

Yale University, 48, 49, 55, 65, 66, 67, 70, 71, 75,
77, 80, 81, 84, 87, 88, 89, 90, 91, 92, 96, 97, 98,
124

Z

Zamecnik, Paul C., 67
Zeus, 104
Zinder, Norton D., 82, 84
Zinnes, Alice, 49
Zuker, Charles S., 181
Zweig, Stefan, 19

Λ

λ phage, 158