

CHEMICAL HERITAGE FOUNDATION

EUGENE G. ROCHOW

Transcript of an Interview
Conducted by

James J. Bohning

in

Fort Myers, Florida

on

24 January 1995
(With Subsequent Corrections and Additions)

ROCHOW, EUGENE G.

CHEMICAL HERITAGE FOUNDATION
Oral History Program
RELEASE FORM

This document contains my understanding and agreement with Chemical Heritage Foundation with respect to my participation in a tape-recorded interview conducted by Dr. James J. Bohning on 24 January 1995.

I have read the transcript supplied by Chemical Heritage Foundation and returned it with my corrections and emendations.

1. The tapes, corrected transcript, photographs, and memorabilia (collectively called the "Work") will be maintained by Chemical Heritage Foundation and made available in accordance with general policies for research and other scholarly purposes.
2. I hereby grant, assign, and transfer to Chemical Heritage Foundation all right, title, and interest in the Work, including the literary rights and the copyright, except that I shall retain the right to copy, use, and publish the Work in part or in full until my death.
3. The manuscript may be read and the tape(s) heard by scholars approved by Chemical Heritage Foundation subject to the restrictions listed below. The scholar pledges not to quote from, cite, or reproduce by any means this material except with the written permission of Chemical Heritage Foundation.
4. I wish to place the conditions that I have checked below upon the use of this interview. I understand that Chemical Heritage Foundation will enforce my wishes until the time of my death, when any restrictions will be removed.

a. _____

No restrictions for access.

NOTE: Users citing this interview for purposes of publication are obliged under the terms of the Chemical Heritage Foundation Oral History Program to obtain permission from Chemical Heritage Foundation, Philadelphia, PA.

b. X

My permission required to quote, cite, or reproduce.

c. _____

My permission required for access to the entire document and all tapes.

This constitutes our entire and complete understanding.

(Signature)

Eugene G. Rochow
Eugene G. Rochow

(Date)

November 4, 1997

Upon Eugene G. Rochow's death in 2002, this oral history was designated **Free Access**.

One may view, quote from, cite, or reproduce the oral history with the permission of CHF.

Please note: Users citing this interview for purposes of publication are obliged under the terms of the Chemical Heritage Foundation (CHF) Oral History Program to notify CHF of publication and credit CHF using the format below:

Eugene G. Rochow, interview by James J. Bohning at Fort Myers, Florida, 24 January 1995 (Philadelphia: Chemical Heritage Foundation, Oral History Transcript # 0129).



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



The Chemical Heritage Foundation (CHF) serves the community of the chemical and molecular sciences, and the wider public, by treasuring the past, educating the present, and inspiring the future. CHF maintains a world-class collection of materials that document the history and heritage of the chemical and molecular sciences, technologies, and industries; encourages research in CHF collections; and carries out a program of outreach and interpretation in order to advance an understanding of the role of the chemical and molecular sciences, technologies, and industries in shaping society.

EUGENE G. ROCHOW

1909 Born in Newark, New Jersey, on 4 October

Education

1931 B. Chem., Cornell University
1935 Ph.D., chemistry, Cornell University

Professional Experience

1931-1932 Research Chemist, Halowax Corporation
1932-1935 Assistant Chemist, Cornell University
1935-1948 Research Chemist, General Electric Company Research Laboratory

Harvard University
1948-1951 Associate Professor
1951-1970 Professor
1970-Present Professor Emeritus

Honors

1948 Honorary M.A., Harvard University
1949 Baekeland Medal, American Chemical Society
1951 Myer Award, American Ceramic Society
1958 Mattiello Award, Federal Paint & Varnish Society
1962 Perkin Medal, Society of Chemical Industry
1964 Honor Scroll, American Institute of Chemists
1965 Frederick Stanley Kipping Award, American Chemical Society
1966 Honorary D.Sc., Carolo-Wilhelmina Universität Braunschweig
1968 Chemical Pioneers Award, American Institute of Chemistry
1970 Award for Excellence in Teaching, Manufacturing Chemists Association
1971 Inventor's Award, General Electric Company
1973 Norris Award for Teaching of Chemistry, American Chemical Society
1983 Alfred Stock Medal, German Chemical Society
1992 Honorary Doctorate of Natural Science, Technische Universität, Dresden

ABSTRACT

Eugene G. Rochow begins this interview by talking about his early years in New Jersey and his family background in the Brandenburg region of Germany. Rochow's interest in electricity and silicon stems from his first radio set, which he put together using silicon crystals. Sparked by his brother Theodore's interest in chemistry, Rochow joined his brother as a chemistry assistant both in high school and at Cornell University. He worked as both lecture and laboratory assistant to Louis M. Dennis, then chair of Cornell's chemistry department, who referred Rochow to Alfred Stock as a lecture assistant while Stock was guest professor at Cornell. Here Rochow relates some anecdotes about Alfred Stock. Although the Depression caused severe cuts in job opportunities, Rochow found employment with the Hotpoint Company, a General Electric Company subsidiary, where he conducted research on periclase. During this time, Rochow produced ethyl phenyl silicone, which Corning Glass Works had also just produced, for use as an insulator. He then produced methyl silicone. This led to patent and publication difficulties between GE and Corning Glass Works, now the Dow-Corning Corporation. During this time, Rochow discovered how to produce methyl silicone, first using magnesium, then using silicochloroform and copper. Further, he and Charles E. Reed developed a way to manufacture methyl silicone using fluid-bed catalysis. Rochow continued his research on silicone production and zinc promotor development until his transfer to Richmond, Washington, where he conducted research on nuclear fission as a source of domestic energy. When the U.S. Government requested GE to work on nuclear propulsion for naval vessels, Rochow, a Quaker, left to teach chemistry at Harvard University. Rochow closes with comments on how his Perkin Medal award brought him international recognition and expanded professional opportunities.

INTERVIEWER

James J. Bohning is Professor of Chemistry Emeritus at Wilkes University, where he was a faculty member from 1959 to 1990. He served there as chemistry department chair from 1970 to 1986 and environmental science department chair from 1987 to 1990. He was chair of the American Chemical Society's Division of the History of Chemistry in 1986, received the Division's outstanding paper award in 1989, and presented more than twenty-five papers before the Division at national meetings of the Society. He has been on the advisory committee of the Society's National Historic Chemical Landmarks committee since its inception in 1992. He developed the oral history program of the Chemical Heritage Foundation beginning in 1985, and was the Foundation's Director of Oral History from 1990 to 1995. He currently writes for the American Chemical Society News Service.

TABLE OF CONTENTS

- 1 Family Background and Early Education
Childhood in Maplewood, New Jersey; family background in Brandenburg, Germany. *Der Kinderfreund*, text authored by ancestor. Childhood interest in electricity. Early use of silicon as a crystal detector in radio sets. Influential high school teachers in chemistry and mathematics.
- 6 Education
Decision to attend Cornell University along with older brother, Theodore. Hechscher Research Foundation fellowship and related research requirements. Ezra X. Cornell, Cornell University founder. Chemistry department and Rochow's assistantships under Louis M. Dennis. Influential professors at Cornell. Lecture assistantship with Alfred Stock. Stock's work with boron hydrides and mercury. Stock anecdotes. Theodore Rochow's career in microscopy and text, *An Introduction to Microscopy*.
- 15 Early Career
Summer job with Halowax Corporation. Effects of Depression on career prospects. Summer job with Hotpoint Company, a General Electric Company subsidiary, analyzing magnesite for use in making periclase. Periclase as insulation in electric ranges. Austauschdienst exchange fellowship. Honeymoon trip to Europe.
- 21 Early Research at GE
Early work with Louis M. Navias. Otto Hahn's and Liza Meitner's work on uranium atom fission. Rochow's research on uranium hexafluoride.
- 23 Methyl Silicone; GE/Corning Glass Works Controversy
Research on ethyl phenyl silicone. First production, and discovery, of methyl silicone as insulator. GE-Corning controversy over methyl silicone. Production of methyl silicone using silicochloroform instead of magnesium. Dow-Corning/GE patent exchange agreement. Manufacture of methyl silicone using fluid-bed catalysis. Symposium at Toshiba with Charles E. Reed.
- 41 Later Career
Later development of the production of methyl and other silicones. Struggle with Marshall over *An Introduction to the Chemistry of the Silicones*. Zinc promoter development. Move to Richland, Washington, to conduct research on nuclear fission as source of domestic energy. GE's government research on nuclear propulsion for naval vessels, and decision to leave GE. Chemistry professorship at Harvard University. International recognition as result of winning Perkin Medal. Guest professorship at University of Innsbruck.
- 48 Notes
- 52 Index

NOTES

1. F. E. von Rochow, *Der Kinderfreund* (1776; reprint, Berlin-DDR: Der Kinderbuchverlag, 1985).
2. L. M. Dennis, R. W. Work, and E. G. Rochow, "Indium Trimethyl," *Journal of the American Chemical Society*, 56 (1934): 1047.

E. G. Rochow and L. M. Dennis, "The Properties of Thallium Triethyl," *Journal of the American Chemical Society*, 57 (1935): 486.
3. E. G. Rochow, "Contributions to the Chemistry of Fluorine" (Ph.D. thesis, Cornell University, 1935).
4. L. C. Pauling, *The Nature of the Chemical Bond and the Structure of Molecules and Crystals; An Introduction to Modern Structural Chemistry by Linus Pauling*. George Fisher Baker Non-Resident Lectureship in Chemistry at Cornell University, Vol. 18 (Ithaca: Cornell University Press, 1939).
5. L. M. Dennis, R. W. Work, and E. G. Rochow, "Indium Trimethyl," *Journal of the American Chemical Society*, 56 (1934): 1047.
6. A. Stock, *Hydrides of Boron and Silicon*, English ed. George Fisher Baker Non-Resident Lectureship in Chemistry at Cornell University, Vol. 12. (Ithaca: Cornell University Press, 1933).
7. E. G. Rochow, *Publication List—Books*. See Chemical Heritage Foundation Oral History Research File #0129.
8. E. G. Rochow, "Choices," *Journal of Chemical Education*, 63 (1986): 400.
9. E. G. Rochow, *List of U.S. Patents*. See Chemical Heritage Foundation Oral History Research File #0129.
10. L. M. Dennis, J. M. Veeder, and E. G. Rochow, "The Preparation of Fluorine by Electrolysis," *Journal of the American Chemical Society*, 53 (1931): 3263.
11. E. G. Rochow, "Oxyacids of Fluorine," *Journal of the American Chemical Society*, 54 (1932): 832.
12. E. G. Rochow, "Oxyacids of Fluorine. II," *Journal of the American Chemical Society*, 55 (1933): 2431.

13. T. G. Rochow and E. G. Rochow, *An Introduction to Microscopy* (New York: Plenum Press, 1978).
 14. T. G. Rochow and P. A. Tucker, *An Introduction to Microscopy*, 2nd ed. (New York: Plenum Press, 1994).
 15. E. G. Rochow, "Electrical Conductivity of Quartz, Periclase, and Corundum at Low Field Strength," *Journal of Applied Physics*, 9 (1938): 664.
 16. O. Hahn and L. Meitner, "The Trans-Uraniums, Radioactive Transformation Products Obtained Artificially from Uranium," *Scientia*, 63 (1938): 12.
 17. W. H. Perkin and F. S. Kipping, *Organic Chemistry* (London, 1894. 2nd ed., 1929).
 18. E. L. Warrick, *Forty Years of Firsts: The Recollections of a Dow Corning Pioneer*, ed. Jeannine Marschner (New York: McGraw-Hill, 1990).
 19. E. G. Rochow, "Methyl Silicones and Related Products," U. S. Patent 2,258,218, issued 7 October, 1941 (application filed 1 August, 1929).
 20. E. G. Rochow and W. F. Gilliam, "Polymeric Methyl Silicon Oxides," *Journal of the American Chemical Society*, 63 (1941): 798.
 21. J. F. Hyde and R. C. DeLong, "Condensation Products of the Organosilanediods," *Journal of the American Chemical Society*, 63 (1941): 1194.
 22. E. G. Rochow, *Silicon and Silicones* (Heidelberg: Springer-Verlag, 1987).
 23. E. G. Rochow, *An Introduction to the Chemistry of the Silicones* (New York: John Wiley & Sons, 1946; London: Chapman & Hall, 1946).
 24. E. G. Rochow, *Silicon and Silicones*. German ed. (Heidelberg: Springer-Verlag, 1991).
 25. E. G. Rochow, *Silicon and Silicones*. Japanese ed. (Heidelberg: Springer-Verlag, 1992).
 26. E. G. Rochow, *Silicon and Silicones*. Russian ed. (Heidelberg: Springer-Verlag, 1989).
 27. E. G. Rochow, "Methyl Silicones and Related Products," U. S. Patent 2,258,218, issued 7 October, 1941.
- E. G. Rochow, "Halogenated Aryl Silicones," U. S. Patent 2,258,219, issued 7 October, 1941.
- E. G. Rochow, "Resinous Materials & Insulated Conductors & Other Products Utilizing the Same," U. S. Patent 2,258,220, issued 7 October, 1941.

- E. G. Rochow, "Aroxy Silicones & Insulated Conductors & Other Products Utilizing the Same," U. S. Patent 2,258,221, issued 7 October, 1941.
- E. G. Rochow, "Methyl Aryl Silicones & Insulated Conductors & Other Products Utilizing the Same," U. S. Patent 2,258,222, issued 7 October, 1941.
28. E. G. Rochow and Winton I. Patnode, "Organosilicon Compound," U. S. Patent 2,352,974, issued 4 July, 1944.
29. E. G. Rochow, "Methyl Silicon Halides," U. S. Patent 2,286,763, issued 16 June, 1942.
30. E. G. Rochow and W. F. Gilliam, "Polymeric Methyl Silicon Oxides," *Journal of the American Chemical Society*, 63 (1941): 798.
31. W. I. Patnode and R. W. Schiessler, "Cyclic Organosilicon Compounds," U.S. Patent 2,381,002, issued 7 August, 1945.
- W. I. Patnode and R. W. Schiessler, "Method of Preparing Tetrachloroethylene and Chlorosilanes," U.S. Patent 2,381,001, issued 7 August, 1945.
- W. I. Patnode and E. G. Rochow, "Organosilicon Halides," U.S. Patent 2,380,996, issued 7 August, 1945.
- W. I. Patnode and R. W. Schiessler, "Halogenated Organosilicon Compounds," U.S. Patent 2,381,000, issued 7 August, 1945.
- W. I. Patnode, "Organic Dihalosiloxanes," U.S. Patent 2,381,366, issued 7 August, 1945.
- W. I. Patnode and R. O. Sauer, "2-Haloethoxysilicon Compounds," U.S. Patent 2,381,138, issued 7 August, 1945.
32. E. G. Rochow, "Direct Synthesis of Organosilicon Compounds," *Journal of the American Chemical Society*, 67 (1945): 963.
33. E. G. Rochow, "Methyl Aryl Silicones & Insulated Conductors & Other Products Utilizing the Same," U. S. Patent 2,258,222, issued 7 October, 1941.
34. E. G. Rochow, "Preparation of Organosilicon Halides," U. S. Patent No. 2,380,995, issued 7 August, 1945 (application filed 26 September, 1941).
35. E. G. Rochow, "Resinous Materials & Insulated Conductors & Other Products Utilizing the Same," U. S. Patent 2,258,220, issued 7 October, 1941.
36. E. G. Rochow, *Silicon and Silicones* (Heidelberg: Springer-Verlag, 1987): Footnote 10, p.

70.

37. E. G. Rochow, *An Introduction to the Chemistry of the Silicones*. 2nd ed. (London: Chapman & Hall, 1951).

INDEX

A

Alkali reagents, 8
Alkalies, 20, 24
Allen, Mary, 6
Allis-Chalmers Corporation, 27
Alternating current [AC], 4
Alumina, 20
Aluminum, fused, 20
Aluminum oxide, 17
American Chemical Society [ACS], 28, 41, 42, 45
 New Jersey section, 45
American Cyanamid Company, 14
Arc furnace, 17, 18, 20
Austauschdienst [graduate exchange fellowship in Germany], 18

B

Baekeland Medal, 45
Baker Nonresident Lectureships [see George Fisher Baker Nonresident Lectureships in
 Chemistry at Cornell University]
Bancroft, Wilder D., 7
Barry, Arthur, 28, 29, 34, 40
Berlin, Germany, 2, 18, 46
Beryllium oxide, fused, 20
Biphenyls, chlorinated [PCBs], 16
Boron, 8
 isotopes of, 16
Boron alkyls, 16
Boron esters, 16
Boron hydride chemistry, 9, 10
Boron hydrides, 9
Boston, Massachusetts, 30
Brandenburg, Germany, 2
Brass, 4
Braunschweig, Technical University of, 46
Bromine, 22

C

- Calcium oxide, 20
- Calrod heating units, 17, 20
- Cambridge, Massachusetts, 44
- Capacitors, 15
- Carbon, 24, 32
- Carbon arc, 11
- Carbon tetrafluoride, 23
- Carbon-carbon bonds, 24, 25, 32
- Carbon-silicon bonds, 24
- Carboys, 6
- Cayuga Lake, New York, 7
- Chamot, Emile M., 7, 8, 14
- Charlemagne, 2
- Chemical Abstracts*, 12
- Chicago, Illinois, 17
- Children's Hospital of Boston, 44
- Cleveland, Ohio, 27, 35
- Columbia High School, 3, 5, 6
- Combustion analysis, 32
- Coolidge, William D., 18, 22, 24, 27, 28, 30, 35, 41-43
- Copper, 4, 9, 21, 25, 31, 33, 36, 42
- Copper windings, 4
- Copper-silicon alloy, 31-34, 36
- Cornell, Ezra X., 7
- Cornell University, 5-19, 21, 44, 47
 - chemistry museum, 8
 - Cornell Hotel School, 10
 - course in chemical microscopy, 7, 8, 21
 - course in gas and fuel analysis, 8
 - course in industrial chemistry, 8
 - course in inorganic chemistry, 8, 9
 - course in physical chemistry, 7
 - course in spectroscopy, 8
 - department of chemistry, 7-9, 47
 - George Fisher Baker Laboratory, 7, 8
 - Sage Chapel, 19
 - Sage College, 7
 - Willard Straight Hall, 10
- Corning Glass Works [see also Dow-Corning Corporation], 21, 23, 24, 26-28, 30, 31, 34
 - attitude toward publication, 27, 28, 35
 - joint venture proposition with General Electric, 23, 24
 - research laboratory, 40

Corundum, 17, 20
Cotton, 3, 21, 27
Crehan, Frederick J., 6
Crystal detectors, 4
Crystal sets, 3-5
Cubic cleavage, 17

D

Democratic Party, 13
Dennis, Louis M., 8-11, 16, 18, 19, 24, 29, 44, 47
 course in inorganic chemistry, 8
 chairmanship of chemistry department at Cornell University, 8, 9
 research in fourth-group chemistry, 9
Depression, the, 13-16, 18, 19, 28, 45
Dibasic acids, 21
Dichlorides, 23
Dielectric constant, 15
Dielectric material, 15, 23, 25
Dielectric strength, 23
Dow Chemical Company, 30, 31
Dow-Corning Corporation [see also Corning Glass Works], 29-31, 34, 35, 37, 40, 45
Dresden University of Technology, 46
E. I. duPont de Nemours and Co., Inc., 15, 31, 43

E

Easy washing machines, 16
Edison, Thomas A., 27, 43
Edison Community College, 32
Electrical conductivity, 17, 20
Electrochemistry, 33
Electrolytic capacitors, 15
Ester linkage, 24
Esters, 24
Ether, 32
Ethyl compounds, 39
Ethyl groups, 23, 24
Ethyl phenyl silicone, 23, 24, 26
Ethyl silicate, 24
Ethylene glycol, 24
Extinction angles, 21

F

Federal budget, U.S., 13
Federal deficit, U.S., 13
Ferguson, Priscilla G. [see Rochow, Priscilla G.]
Ferrosilicon, 4, 31
Fiberglas, 27
Fish, Richardson, & Heave, 30
Flotation chemicals, 14
Fluid-bed catalysis, 36
Fluid-bed catalysts, 36
Fluorine, 12, 22, 23
 oxides of, 12
 oxyacids of, 12
Fluorine cells, 23
Fluorine chemistry, 15
Fort Lauderdale, Florida, 29
Forty Years of Firsts: The Recollections of a Dow Corning Pioneer, 23, 34, 39
Fourth-group chemistry, 9
Freon-12, 16
Freons, 16
Frisch, Karl, 22

G

Galena, 4
Gallium, 9
General Electric Company, 12, 17-27, 30, 31, 34, 35, 40, 41, 43-45
 attitude toward publication, 27
 central station generating equipment, 22, 24, 43
 central stations, 22
 ceramics division, 17, 31
 chemical division, 18, 26, 34, 35
 chemical stockroom, 31, 33
 electrical engineering textbooks, 41
 fluorine chemistry department, 17
 joint venture with Toshiba Corporation, 35
 Lamp Works, Cleveland, Ohio, 24, 35
 lamp manufacture, 24
 nuclear power venture, 43
 patent department, 28
 patent exchange agreement with Dow-Corning Corporation, 35
 patent litigation with Corning, 30, 39, 40
 physical chemistry department, 21
 relations with Corning, 27, 28

research laboratory, Richland, Washington, 43, 44
research laboratory, Schenectady, New York, 17, 20, 25, 38, 40, 43, 44
silicone project, 41, 43, 44
weekly colloquium, 25
Geochemistry, 9
George Fisher Baker Nonresident Lectureships in Chemistry at Cornell University, 8, 9, 22
Germanite, 9
Germanium, 9
Germanium disulfide, 9
Gibson Island conferences, 34
Gilliam, William F., 33, 42, 43
Glass fibers, 23, 25, 37
Glycerine, 24
Glyptal, 21
Goldschmidt, --, 18
Graphite, 20
Grignard method, 37, 39
Grignard reaction, 35

H

Hahn, Otto, 22
Halogenated aromatic compounds, 15, 16
Halogens, 39
Halowax, 15, 16
Halowax Corporation, 15, 16
Harvard University, 7, 11, 12, 16, 23, 44, 45, 47
 administration, 45
 chemistry department, 45
 Chemistry One course, 29, 32, 44, 45
Harvard Yard, 7
Heat conductivity, 17
Heavy isotopes, 22
Heavy metals, 22
Heckscher Chemical Company, 47
Heckscher Research Foundation, 7, 47
 fellowships, 7, 47
Heidelberg, Germany, 29, 46
Hexafluoride vapor, 23
Hichrome, 17, 33
Hitler, Adolf, 17, 18
Hotpoint Company [subsidiary of General Electric], 17, 20, 21, 25
Hotpoint—ceramics division [see General Electric, ceramics division]
Hunter, --, 28

Hyde, James F., 23, 27-29, 40
Hydrides of Boron and Silicon, 28, 29, 31, 41
Hydrocarbon halides, 39
Hydrocarbon production, 38
Hydrocarbons, chlorinated, 16
Hydrogen chloride, 31, 32
Hydrolysis, 24
Hyperfluorous acid, 12

I

Inconel sheath, 20
Index of refraction, 14
Index of refraction angles, 21
Indiana, University of, at Bloomington, 44
Indium, 9
Indium trimethyl, 9
Innsbruck, Austria, 46
Intermetallic compounds, 34
International Organosilicon Symposia, 40
Interstices, 23
Intragranular oxidation, 33
Introduction to the Chemistry of the Silicones, An, 29, 42
 German edition, 29
 Japanese edition, 29
 Russian edition, 29
 2nd edition [English], 42
Iron, 4
Irvington, New Jersey, 3
Ithaca, New York, 7

J

Jeffries, Zay, 35
Jena glass, 8
Journal of Chemical Education, 11
Journal of the American Chemistry Society, 11, 28, 38

K

Kaiser Industries [Kaiser Aluminum Corporation], 30
Karlbaum and Schering reagents, 8
Karlsruhe, Germany, 9
Kinderfreund, Der, 2
Kingsley, Kenneth, 23, 43
Kipping, Frederick S., 23-25, 27, 29
Kyoto, Japan, 36

L

Lamb, Arthur B., 11, 44
Laubengayer, Albert W., 44
Lead sulfide, 4
Lime, 20, 21
Lingane, James, 19
Lithophone, 15

M

Madison, Wisconsin, 40
Magnesite, 17, 20, 21
 calcined, 20
Magnesium, 20, 25, 30, 32, 33
Magnesium oxide, 17, 20, 33, 42
 fused, 17, 20
Magnesium silicide, 31
Magnetic core, 4
Maplewood, New Jersey, 1-4
Marshall, Abraham L., 18, 21, 23, 24, 27, 28, 30, 31, 33-35, 41-43
Mason, Clyde, 14
Massachusetts Institute of Technology [MIT], 5, 36
Meitner, Lise, 22
Mercuric chloride, 10
Mercury, 10
 poisoning, 10
Metalloids, 9
Methyl aryl silicones, 38
Methyl chloride, 25, 31-34, 38
 vapor, 36
Methyl chlorosilanes, 33, 36
Methyl groups, 31, 32, 35
Methyl magnesium chloride, 25
Methyl phenyl silicone, 30
Methyl silicon bromines, 39

Methyl silicon trichloride, 35
Methyl silicone, 25, 26, 30-35, 37, 39, 42
Methyl trichlorosilane, 35
Microscopy, 14, 15
Midland, Michigan, 40
Minimum wage, U.S., 19
Morrow, Dwight, 23, 27
Myerlee Manor, 13

N

Naphthalenes, chlorinated, 15
Navias, Louis, 17, 20-27, 30, 31, 34, 35
 insulation studies, 20
Neutrons, 22
New York, New York, 41, 45
Newark, New Jersey, 1, 4, 14, 15
Niagara Falls, New York, 38
Nitric acid, 9
Nordfjord, Norway, 46
North Carolina State University, 14, 15
Nuclear fission, 22, 43

O

Ohta, Japan, 36
Ore separation chemicals, 14
Organic silicon compounds, 24
Organic synthesis, 33
Organogermanium compounds, 9, 24
Organometallic chemistry, 41
Organometallic compounds, 9
Organosilicon compounds, 9, 24, 25, 32, 35, 38, 41
Organosilicon halides, 38, 39
Oxford University, 19
Oxide scale, 4
Oxygen, 24, 33

P

Papish, Jacob, 8
Paraffin, 15
Paris, France, 46
Parsons, Olin D., 6
Patent office, U.S., 30
Patnode, Evelyn B., 43

Patnode, Winton I., 17-21, 23, 24, 26-28, 30, 33, 34, 42, 43
 research on water repellancy, 34, 42
Periclase, 17, 18, 20
Periodic table, 9, 22
Perkin Medal, 45, 46
Perkin, William H., 23
Petroleum refining, 36
Phenolic resin, 25
Phenolic varnish, 25, 27
Phenyl compounds, 39
Phenyl groups, 23, 35
Phenyl silicone, 23
Phosphor bronze spring, 4
Plastics, 14
Platinum, 32
Plutonium, 43
Polio, 44
Polybasic acids, 21
Polyester wire enamel, 24
Polyhydric alcohol, 21
Polymers, 14, 21, 29, 45
 organic, 29, 32
Polynuclear aromatic compounds, 16
Potassium hydroxide, 6
Propanol compounds, 39
Pullman cars, 42
Pyrex, 8, 29
Pyrolization, 24

Q

Quartz, 17, 20

R

Raleigh, North Carolina, 14, 15
Reed, Charles E., 36, 37
Revolutionary War, 1
Rheostats, 25
Rhodes, Fred H. ["Dusty"], 8
Richland, Washington, 43
Rochow, Betty, 15

Rochow, Eugene G.
brother [see Rochow, Theodore G.]
children, 29, 44, 46
ethyl phenyl silicone research, 24
father, 1, 2, 5, 6, 13, 14
fluorine research, 12, 15, 23, 47
Harvard professorship, 11, 12, 44, 45
home laboratory, 3
lecture assistantship with L. M. Dennis, 8, 9, 15, 16
lecture assistantship with A. Stock, 11
methyl silicone research, 25, 26, 28, 30, 32, 33, 37, 39, 42
mother, 1, 3, 5
pacifist beliefs, 44
older son, 29, 44
wives [see Rochow, Helen L. or Rochow, Priscilla G.]
Rochow, Friedrich Eberhard von, 2
Rochow, Helen L., 15, 40, 43, 45, 46
son, 46
Rochow, Priscilla G. [Ferguson], 18, 19, 44, 45
Rochow, Theodore G., 1, 3, 5, 6, 14, 15
Rochow direct synthesis, 35, 36, 38
Rome, Italy, 46
Rule, Walter, 39

S

Schenectady, New York, 17, 20, 23, 27, 40, 43, 44
Sidgwick, Nevil V., 19
Silica, 20, 21, 25, 32
fused, 32
Silicochloroform [see trichlorosilane]
Silicon, 4, 8, 9, 23, 24, 28, 31, 32, 34, 36, 39, 46
Silicon copper, 38
Silicon-copper alloy [see copper-silicon alloy]
Silicon halides, hydrogen-substituted, 38
Silicon hydrides, 31
Silicon iodides, 39
Silicon oxide, 24
Silicon tetrachloride, 31, 32
Silicone chemistry, 39
Silicone industry, 40
Silicone rubber, 32
Silicone varnish, 23
Silicones, 25, 26, 29, 32, 35, 36, 40-42

Siloxane, 32
 chains, 23
Silver, 9
Sodium chloride structure, 17
South Orange, New Jersey, 3, 5
Southern California, University of, 44
Springer-Verlag, 29, 30, 46
Springfield, New Jersey, 1
Stamford, Connecticut, 14
Steinmetz, Charles P., 31
Stock, Alfred, 9-11, 18, 29, 31, 33
 boron hydride research, 9
 mercury level determination research, 10
Stopcock grease, 10
Stumpe, Reiner, 29
Suits, C. Guy, 35, 44
Sulfides, 9
Sulfur hexafluoride, 22
Sullivan, Eugene, 27, 28, 40
Swaging, 17

T

Tariff Commission, U.S., 21
Thermal decomposition, 24
Thorium, 22
Tokyo, Japan, 36
Toshiba Corporation, 35-37
Transatlantic telephone cable, 7
Transformers, 4, 16, 21, 33
Trichlorosilane, 31, 32, 35
Tucker, Paul A., 15

U

U-235, 43
Union Carbide Corporation, 16, 38
Union College, 44
Uranium, 22, 23
Uranium hexafluoride, 22, 23

V

Vacuum system distillation, 16
Variac, 25

W

Waldorf Astoria Hotel, 45
Warrick, Earl L., 23, 28, 34, 39
Water repellancy, 34, 42
Wendisch, the, 2
West, Robert, 40
Westinghouse Electric Corporation, 27
White, Andrew D., 7
John Wiley & Sons, Inc., 41
Wire enamels, 21, 22, 24, 27
WOR radio station, Newark, New Jersey, 4
World War I, 43, 44
World War II, 44

Z

Zeiss epidiascope, 11
Zinc, 9
Zinc-copper alloy, 33
Zinc diethyl, 33
Zinc promoter, development of, 43
Zinc sulfide, 9, 15