

THE BECKMAN CENTER FOR THE HISTORY OF CHEMISTRY

HERMAN MARK

Transcript of Interviews
Conducted by

James J. Bohning and Jeffrey L. Sturchio

at

Polytechnic University, Brooklyn, New York

on

3 February, 17 March, and 20 June 1986

(With Subsequent Corrections and Additions)

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Herman Mark

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HERMAN MARK

1895 Born in Vienna, Austria on 3 May

Education

1921 Ph.D., chemistry, University of Vienna

Professional Experience

1921-1922 Instructor in Organic Chemistry, University of Berlin
1922-1926 Research Fellow, Kaiser Wilhelm Institute of Fiber Chemistry, Berlin-Dahlem
1927-1928 Research Chemist, I.G.Farben Industrie
1928-1930 Group Leader, I.G.Farben Industrie
1930-1932 Assistant Research Director, I.G.Farben Industrie
1927-1932 Associate Professor, Karlsruhe Technical University
1932-1938 Professor of Chemistry and Director, First Chemical Institute, University of Vienna
1938-1940 Canadian International Paper Company, Hawkesbury, Ontario
1940-1942 Adjunct Professor, Polytechnic Institute of Brooklyn
1942-1964 Professor, Polytechnic Institute of Brooklyn
1946-1964 Director, Polymer Research Institute
1961-1964 Dean of Faculty, Polytechnic Institute of Brooklyn
1965- Dean and Professor Emeritus, Polytechnic University

Honors

Honorary Degrees

1950 University of Liège, Belgium
1953 University of Uppsala, Sweden
1954 Free University of Berlin, West Germany
1955 Technical University of Berlin, West Germany
1956 Lowell Technological Institute
1960 Technical University of Munich, West Germany
1962 Gutenberg University, Mainz, West Germany
1964 Karl Franzens University, Graz, Austria
1965 Technische Hochschule, Vienna, Austria
1965 Polytechnic Institute of Brooklyn
1965 Charles University, Prague, Czechoslovakia
1971 Jassy University, Rumania
1973 Universidad Autonoma Madrid, Spain
1975 Israel Institute of Technology, Israel
1976 Long Island University, New York
1976 Montan University, Leoben, Austria
1979 University of Nottingham, Great Britain
1980 University of Vienna, Austria
1982 University of Massachusetts
1987 Universite Claude Bernard, Lyon, France

Elected and Honorary Membership

1933	Austrian Academy
1934	Bucharest Academy
1936	Chemical Society of Madrid
1937	Chemical Society of Bucharest
1937	Austrian Society of Textile Chemists and Colorists
1937	Austrian Society for X-Ray Research
1938	Budapest Academy
1943	New York Academy of Science
1944	American Institute of Physics
1947	Royal Institution of Great Britain
1947	Max Planck Society
1949	American Leather Society
1949	Amsterdam Academy
1950	Vienna Physical Chemistry Society
1950	Textile Institute of Great Britain
1950	Indian Academy of Sciences
1951	Austrian Association of Paper Chemists
1952	Austrian Society for Wood Research
1952	National Institute of Science of India
1953	Weizmann Institute of Science
1954	Italian Chemical Society
1956	American Academy of Arts and Sciences
1961	National Academy of Science
1962	Phi Lambda Upsilon Honorary Chemical Society
1965	Plastics Institute of America
1965	Austrian Society for Plastics Technology
1965	The Fiber Society
1966	Soviet Academy of Sciences
1968	International Academy of Wood Science
1971	The Franklin Institute
1972	Society of Polymer Science of Japan
1973	Indian Chemical Society
1974	Croatian Society of Plastics Engineers
1976	Plastics Hall of Fame
1977	The Chemists Club
1977	The New York Academy of Sciences
1978	Chemical Society of Japan
1978	American Institute of Chemists
1979	Yugoslav Society of Plastics and Rubber Engineers
1979	Indian Society for Polymer Science
1979	The Royal Institute of Chemistry
1980	Gesellschaft für Chemiewirtschaft, Vienna
1981	American Society for Testing Materials
1985	The Textile Institute of Great Britain, Honorary Fellowship

Orders, Medals and Prizes

1928	Hertz Medal, Germany
1934	Exner Medal, Austria
1937	Medal of the Austrian Society of Textile Chemists

and Colorists

1948 Harrison Howe Award, American Chemical Society

1948 Franqui Medaille, Belgium

1953 Honor Scroll of the American Institute of Chemists

1953 Legion d'Honneur

1954 Medal of Honor, Milan Polytechnic Institute

1955 Honorary Fellow, University of Vienna

1955 Golden Honor Medal, University of Vienna

1955 Trasenster Medal, Association of Belgian Engineers

1960 Nichols Medal, American Chemical Society

1961 Distinguished Service Medal, Syracuse University

1962 International Award, Society of Plastics Engineers

1962 Gold Medal, Indian Association for the Cultivation of Science

1965 Polymer Chemistry Award, American Chemical Society

1965 Olney Medal, American Chemical Society

1966 Austrian Honor Cross in Science and Arts

1966 Cresson Medal

1968 Swinburne Medal, Plastics Institute of Great Britain

1970 City of Vienna Prize for Natural Sciences

1970 Distinguished Service Award, Polytechnic Chapter Sigma Xi

1972 Scientific Achievement Medal Award, City College Alumni Association

1972 Chemical Pioneer Award, American Institute of Chemists

1975 Gibbs Medal, American Chemical Society

1975 Austrian Grand Silver Medal with Star

1975 150th Anniversary Prize, Aachen and Munich Insurance Association

1976 Plastics and Coatings Award, American Chemical Society

1976 Harvey Prize, Israeli Technion

1977 Distinguished Service Award, Polytechnic University of New York

1978 Humboldt Prize

1978 Plastics "Vision" Award, Society of Plastics Engineers

1979 Wolf Prize, Israel

1980 Perkin Medal, Society of Chemical Industry, Great Britain

1980 National Medal of Sciences

1980 Jabotinsky Centennial Medal, Israel

1980 Silver Medal, International Commission for Fiber Science Research, France

1980 Colwyn Medal, Plastics and Rubber Institute, Great Britain

1982 Gold Award, Society for Plastics Technology, Vienna

1982 Polymer Education Award, American Chemical Society

1984 30th Anniversary Lecture Medal, Milan Polytechnic Institute

1985 Gold Merit Medal, International Center for Research on Synthetic Fibers

1986 Mayor's Award of Honor for Science and Technology, City of New York

1987 Bronze Medal, Universite Claude Bernard, Lyon
1987 Medal of the City of Lyon, France
1987 Bronze Medal, Conseil General du Rhone, France
1987 Mayor's award of Honor for Science and Technology,
City of Vienna, Austria
1988 Heyrovsky Medal, Czechoslovak Academy of Science
1988 Goodyear Medal, American Chemical Society

ABSTRACT

In this first of three interviews Herman Mark starts with his study of relatively stable free radicals under the direction of Wilhelm Schlenk, first in Vienna and then in Berlin. After a post-doctoral period at the University of Berlin, Mark was invited by Haber to join the Kaiser Wilhelm Institute at Dahlem. There Mark collaborated with Polanyi and other colleagues in using x-ray diffraction to establish the crystal structures of small organic molecules and metals. This work was extended to naturally-occurring organic materials such as cellulose and silk; as a consequence Mark was able to play an important role at the critical 1926 meeting in Düsseldorf which brought together Staudinger and the opponents of the macromolecular hypothesis.

Mark's next move was to I.G. Farben where he established a polymer laboratory and first collaborated with Kurt Meyer, with whom he published the pioneering x-ray crystallographic structure of cellulose. Mark describes the laboratories, research directions and colleagues during his stay at Ludwigshafen. The worsening political climate in Germany prompted Mark to accept a chair at his alma mater; back in Vienna he set up the first comprehensive polymer research and teaching institute. Mark concludes this interview by describing the circumstances of an approach from the Canadian International Paper Company and his decision to leave Austria.

The second interview details his experiences in the Canadian paper industry and his early ventures into publishing with the first of the Polymer Monograph series. Mark explains how he was able to resume an academic career by starting the polymer program at Brooklyn Polytechnic Institute, which soon became world-renowned. The war-time years brought new projects and young faculty to Brooklyn. Mark briefly describes this period before going on to the immediate post-war era and the later expansion of the Polymer Research Institute, which forms the introductory section of the final interview. In this interview Mark tells of his part in the formation of the literature of polymer science and technology; journals, monographs, reference books and encyclopedias. Mark's many international collaborations are outlined, spanning a pre-war expedition to a Caucasian glacier to a demonstration of the nylon rope trick to Emperor Hirohito. Finally, Mark refers to his more recent research interests and describes the changes in research funding that have taken place during the past four decades.

INTERVIEWERS

Jeffrey L. Sturchio received an A.B. in history from Princeton University and a Ph.D. in the history and sociology of science from the University of Pennsylvania. He was Associate

Director of the Beckman Center for the History of Chemistry from 1984 to 1988, and has held teaching appointments at the New Jersey Institute of Technology, Rutgers University, and the University of Pennsylvania as well as a fellowship at the Smithsonian National Museum of American History. After a sojourn on the senior staff of the AT&T Archives, Dr. Sturchio joined Merck & Co., Inc. as Corporate Archivist in June 1989.

James J. Bohning holds the B.S., M.S., and Ph.D. degrees in chemistry, and has been a member of the chemistry faculty at Wilkes College since 1959. He was chair of the Chemistry Department for sixteen years, and was appointed chair of the Department of Earth and Environmental Sciences in 1988. He has been associated with the development and management of the oral history program at the Beckman Center since 1985, and was elected Chair of the Division of the History of Chemistry of the American Chemical Society for 1987.

TABLE OF CONTENTS

- 1 Universities of Vienna and Berlin
Leading professors at the University of Vienna.
Graduate study with Schlenk and move to Berlin with him, along with three colleagues. Berlin as cultural center.
- 3 Kaiser Wilhelm Institute
Conversation with Haber and circumstances of transfer to the Kaiser Wilhelm Textile Institute at Dahlem. Start of x-ray studies. Polanyi and other colleagues. Crystal structures of simple organic molecules and metals. Extension of studies to macromolecular compounds. Collaboration with Colloid Department. International visitors. Test of Compton experiment, contact with Einstein. Contemporary German physical chemistry; quantum theory, wave mechanics. Hungarians in Berlin scientific circles; recollections of Nernst and Haber. Berlin; culture, economy and politics. Research funding and personal finances during hyperinflation. Staudinger and the macromolecular controversy; the Düsseldorf meeting.
- 15 I. G. Farbenindustrie
Conversation with Meyer and establishment of laboratory at I. G. Farben. Cellulose crystal structure. Dispute with Staudinger on polymer conformation as evidenced by viscosity. Organization and function of Ludwigshafen laboratories; colleagues there. Pilot plant; troubleshooting. Patents. Awareness of Carother's studies. Synthetic rubber research at I. G. Farben. Styrene monomer synthesis. Publications and contact with academic circles; teaching at Karlsruhe. Standards of laboratory equipment.
- 29 Transfer to University of Vienna
Conversation with Gaus, Nazi assumption of power in Germany. Offer and acceptance of chair at University of Vienna. Family, and their reaction to move. Faculty at Vienna, new curricula, research projects, graduate students. International contacts; Cambridge Faraday Society Discussion. Meeting with Carothers. Approach by Thorne of Canadian International Paper Company.
- 37 Canada
Departure from Austria. Nature of Canadian International Paper Company laboratories. Duties as research director.

Second Interview

- 42 Publishing
Proskauer and Interscience; Polymer Monograph Series. Textile and tire-cord rayon; molecular weight distribution. Large-scale production, statistical sampling for specifications. Relations with Du Pont.
- 47 Early days at Brooklyn
Circumstances of move to Brooklyn Polytechnic Institute. Other academic opportunities, visit to General Electric laboratories. Family vacation in Florida. Shellac Bureau; planning the polymer curriculum at Brooklyn. Research directions. X-ray studies, appointment of Fankuchen. Molecular weight and distribution studies. Appointment of young faculty. Mechanical properties. Prominence of polymer education; part-time graduate students. Publications, seminars, symposia. Effect of World War II. Weasel, DUQC and Habakkuk.
- 61 Post-war years at Brooklyn
Part in setting-up of Weizmann Institute. Consulting. New research directions; copolymerization, polymer characterization, thermal transitions, crystallization of supercooled polymers.

Third Interview

- 69 Expansion of polymer studies at Brooklyn
Polymer Research Institute and activities. Expansion into larger facilities. Loss and replacement of faculty. Foundation of Journal of Polymer Science and other publications. Influence of Gordon Conferences and bridging the academic/industry gap. Examples of novel developments introduced at Gordon Conferences. Establishment of encyclopedias. Polymer Monographs. Expansion of polymer journals in U.S. and abroad. Japanese polymer science.
- 86 International Activities
Pre-war joint venture, H/D ratio in glacial ice. Start of polymer division in IUPAC. Pulp and paper chemistry in forestry division of FAO. Royal demonstration in Japan. UNIDO fiber and plastics teaching institutes. Technology transfer, UNIDO venture in India. Visit to China in 1972.
- 91 More Recent Research Programs
High performance polymers and composites. Recent funding sources at Polymer Research Institute. Consulting. Experimental methods, transfer of knowledge.

98	Soviet Contacts
	Pre-war contacts in Vienna; post-war international visits. The Tashkent boycott; human rights.
100	Notes
104	Index

NOTES

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INDEX

A

Abrasion resistance, 16, 24, 53
Academic career, desire for, 43, 45
Academic contacts, I.G. Farben, 27
Akademische Verlagsgesellschaft, 42
Akron, Ohio, 43
Alfrey, Turner, 51, 53, 54, 56-58, 61, 65-67, 73, 76, 77, 81-83, 94, 95, 102, 103
Allied Chemical Corporation, 55, 72
Alpha value, 37, 38
Alps, The, 86
American Chemical Society [ACS], 48, 54, 57, 63, 74, 91
American Cyanamid Company, 35, 55, 72
Ames Research Center [NASA], 93, 94
Ammonia, 24
Amoco Corporation, 95
Analytical chemistry, polymer, 81
Anfangslesung [University of Vienna], 30
Anschluss, 37
Astbury, William T., 7
Atlas Powder Company, 71
Atlas, Sheldon M., 90, 92
Auger, Pierre, 7
Automation, analytical chemistry, 46
Automobiles, polymer applications in, 16

B

Baker, William O., 70
Bamford, Clement H., 36
Baroni, Eugen, 87, 103
Bell Laboratories, 70-72, 79
Benedikt, Bertha, 2
Benger, Ernest B., 46-48
Benzene, 25
Bergmann, Max, 12, 14
Berkeley, University of California at, 17
Berlin, 9, 11, 32
 cultural life, 2, 11
 University of, 2, 16, 23, 27
Bezingi glacier, 87
Biedenkopf, --, 20, 25
Block copolymers, 65, 67, 103
Bohr, Niels, 9
Bohrer, John J., 65, 103
Bolton, Elmer K., 23
Bonhöffer, Karl F., 30, 32
Boyer, Raymond F., 62, 63, 67, 102
Böhm, J., 6
Bragg, Lawrence, 7, 52
Bragg, William, 7
Bredig, Georg, 27
Breslau, 30
Brill, Rudolf, 5, 13

Brooklyn, New York, 49, 50
Brooklyn Polytechnic Institute, 39, 47, 48, 50, 53-55, 60, 63, 64,
71, 72, 76, 85, 89, 93, 95
Bueche, Arthur M., 65, 70, 96
Buna N [butadiene/acrylonitrile rubber], 19, 25
Buna S [butadiene/styrene rubber], 19, 25
Bunzl, Max, 34
Burlington Industries Inc., 76
Burst strength, 53
Butadiene, 24, 29
Butadiene/acrylonitrile copolymer, 19, 25
Butadiene/styrene copolymer, 19, 25
Butyl lithium, 78

C

Caltech [California Institute of Technology], 7
Cambridge, University of, 7, 35, 52
Campus [Brooklyn Polytechnic Institute], 72
Canadian International Paper Company, 36, 38, 42-44, 46, 47, 59
Carbon fibers, 92
Carothers, Wallace H., 23, 36, 38, 43, 51, 56, 75, 79, 81, 82, 84
Case Western Reserve University, 73
Casting, polymer film, 20
Caucasus, The, 87
Celanese Corporation, 55
Cellophane, 82
Cellulose, 6, 12, 14, 24, 37, 48, 81, 82, 87, 103
 chemistry, 37-40, 81, 87, 88
 crystal structure, 5, 13, 17, 37, 100, 101
 fibers, 3, 5, 23
Cellulose acetate, 16 21, 66
Characterization, polymer, 19, 20, 33, 35, 36, 58, 71
Charlottenburg, University of, 10
Chemistry department [Brooklyn Polytechnic Institute], 61, 73
Chemists' Club, New York, 57
Chicago, University of, 48
China, visit, 90, 91
Chloroethyl benzene, 25
CIBA Ltd., 34
Clinic, polymer, 57
Colloids, polymers as, 12, 13, 15
Colloid chemistry, 6, 12, 13, 19, 22, 33
Columbia University, 69, 70
Commercial production, polymer, 20, 21
Commodity plastics, 92
Composites, polymer, 92, 93
Compton, Arthur H., 7, 8
Compton effect, 8, 9, 100
Conaway, Rollin F., 46
Conformation, molecular, 76
Consultancy, 34, 39, 45, 49, 59, 62, 64, 95
Consultants, academic [I.G. Farben], 28
Controversy, the macromolecular, 12-15, 17, 36, 39
Coolidge, William D., 5, 9, 48, 49
Copolymerization, 65-67, 76, 77, 103

Cordura rayon, 44, 46, 47, 52, 58, 59, 63, 64
Cornell University, 65
Cotton, 3, 5, 75
Courses, polymer science, 33, 34, 51, 54, 71
Courtaulds Ltd., 36
Crown Prince of Japan, 88
Cruickshank, Alexander M., 79
Crystal, unit cell, 13
Crystal structures, metal, 6, 7
Crystallization, polymer, 66, 67
Curriculum, polymer science, 33, 34, 51, 54, 71

D

Dacron, 75
Dahlem, Berlin, 4, 6-8, 10, 24, 30, 39
Darmstadt, 27
De Broglie, Louis, 7, 9
De Broglie, Maurice, 7
De Gennes, Pierre-Gilles, 66
Debye, Peter, 65, 70, 96
Degree of crystallinity, 54
Dekker, Mauritz, 42, 80, 82
Derring-Milliken Inc., 75, 76
Detergents, 19, 22
Deutsch, --, 39
Diacid chloride, 88
Diamine, 88
Dickenson, Roscoe G., 7, 17
Diffraction techniques, x-ray, 6
Diffusion, polymer, 33
Direct reaction, benzene/ethylene, 25
Dispute with Staudinger, 17, 18
Division of Polymer Chemistry [IUPAC], 87
Dolfuss, Engelbert, 29
Donaruma, L. Guy, 92
Dorrer, Eugene, 25, 101
Dostal, H., 34
Doty, Paul M., 53, 56-58, 83
Dow Chemical Company, 63, 64, 67, 73, 77, 95
Dow fellowship, 93
Dresden, 37
du Pont de Nemours & Co., E.I., Inc., 23, 38, 39, 43-47, 49, 55, 59, 63, 64, 67, 71, 73, 78, 88, 95-97
Du Pont fellowship, 93
Duane, William, 8
Dunkel, Manfred, 19, 22, 25
DUQC, 59, 60, 64
Düsseldorf, 12, 13, 18, 32, 35
Dyeing, textile, 16, 75
Dyestuffs, 19, 22, 24
D'Alelio, Gaetano F., 48, 49

E

Eastman Kodak Company, 28
Eastman, George, 28

Egloff, Gustav, 79
Einstein, Albert, 2, 8, 9
Eirich, Frederick R., 34, 35, 53, 90, 95, 98, 102
Elasticity, rubber, 54, 102
Electrical applications, polymer, 16
Electron diffraction, 19, 22
Electrophoresis, 19, 70
Elementary cell, crystal, 13
Elmendorf tear strength, 38
Elongation, fiber, 41, 44, 53
Elsevier Publishing Company, 42
Emeryville, California, 64
Emperor Hirohito, 88, 89
Empress of Japan, 89
Emulsion polymerization, 58, 63, 102
Encyclopedias, 68, 74, 79, 81, 84
Encyclopedia of Polymer Science and Technology, 80
Ender, Hans, 2
Engineering problems, production, 44
Environmental concerns, 88
Equipment, research, 62
Esso Oil Company, 55, 64
Ethylene, 25
European visits, 67
Exclusion, oxygen, in reactions, 1
Extensibility, fiber, 44

F

Family, 32, 49
 Hans (son), 32, 49, 50, 93
 Mimi (wife), 10, 12, 31, 32, 36, 49, 89
 Peter (son), 32, 49, 50
Fankuchen, Isidor, 52, 56, 62, 70, 96, 101
FAO [United Nations Food & Agriculture Organization], 87-89, 91
Faraday Society Discussion, 7, 35, 36, 101
Farmingdale campus [Brooklyn Polytechnic Institute], 72
Federal research funds, 94
Fertilizers, 24, 26
Fiber chemistry, 4
Fiber technology, 8, 16, 23, 24, 43, 52, 70, 75, 89, 92
Fieser, Louis F., 62
Fink, A., 87, 103
Fire hazards, 91, 103
Flatbush, New York, 49
Flexible chains, polymer, 17, 18, 66, 92
Florida, vacation, 49, 50
Flory, Paul J., 18, 67, 79, 82, 92, 99, 103
Forestry, 87
Fractionation, polymer, 52, 102
Franke, Adolf, 1
Free radicals, 1, 3
Freiburg, 18
Freundlich, Herbert, 6, 12, 13, 100
Friedrich, Martin E. P., 78
Fuller, Carl S., 70, 79

Fundamental research laboratory [I.G. Farben], 16
Fuoss, Raymond M., 76
Furtwängler, Wilhelm, 2

G

Gardner, William H., 50
Gaus, W. K. Friedrich, 15, 19, 29, 30, 31
Gel formation, 13
General Electric [GE], 5, 28, 48, 49, 55
Geneva, 31
German Chemical Society, 11, 12
German textile industry, 3
Gibson Island, Maryland, 75
Glacial ice, 86, 103
Glass transition, polymer, 53, 66, 67, 103
Glesinger, Egon, 87
Goldfinger, George, 58, 77, 102, 103
Goodman, Murray, 57, 58, 70, 73, 94, 98
Gordon, Neil, 75, 76
Gordon Conferences, 67, 75, 76, 78, 83, 98
Gowanis, New York, 50
Göttingen, 9
Graduate students [Brooklyn Polytechnic Institute], 55, 69, 94, 95
Graft copolymers, 65, 67, 103
Grayson, --, 81
Gregor, Harry, 58, 70, 94
Grignard reagent, 78
Gross, Philip, 33, 34
Guggenheim Foundation, 12
Guth, Eugene, 17, 34, 35

H

Habakkuk, 59, 60, 64
Haber, Fritz, 2, 3, 4, 6, 11-13, 15, 16, 27, 31, 37
Hadding, Assar, 5
Hamburg, 30
Han, Chan D., 92
Hapsburg monarchy, 2
Harris, Milton, 76, 79, 83
Harvard University, 8
Hawkesbury, Ontario, 37-40, 43-46, 48-50, 63, 64
Heavy water, 86, 103
Heidelberg, 27, 28, 32
Heisenberg, Werner, 9
Hercules Powder Company, 48, 55, 71, 77, 78
Herlinger, --, 90
Hertzog, --, 89
Herzog, R. O., 5, 12, 13
Heuser, Emil, 38
Hibbert, Harold, 38, 39
High performance plastics, 92, 93
High pressure equipment, 20, 29
Hill, Julian, 36
Hitler, Adolf, 29, 30, 35, 37, 39

Hoffman, Fritz, 24
Hohenstein, Walter P., 50, 51, 54, 56, 58, 62, 102
Hoover plan, 12
Hopff, Heinrich, 19, 22, 28, 101
Horie, Kazuyuki, 86
Horton, Gerald J., 8
Houwink, Roelof, 17
Hulse, George E., 78
Human rights violations, Soviet, 99
Hunt, Morton, 72, 103
Hyperinflation, German, 11, 12

I

ICI [Imperial Chemical Industries Ltd.], 36
Illinois, University of, 34, 54, 55
India, visit, 90
Information transfer, 90
Infrared spectroscopy, 38, 62, 70
Inmont Company [now division of BASF], 72
Institute for Microelectronics [Brooklyn Polytechnic Institute], 72
Institute for Physical Chemistry [Kaiser Wilhelm], 6
Institute of Physics, University of Vienna, 2
International contacts, 57, 61, 64, 67, 86
Interpreter, Japanese/English, 89
Interscience Publishing Company, 42, 74, 79, 81
Isoprene, 24
IUPAC [International Union of Pure & Applied Chemistry], 86, 87
I.G. Farbenindustrie, 15, 16, 18, 20-24, 26, 28, 30, 31, 33, 34, 62

J

James River Corporation, 75, 76
Jancke, Willie, 5
Jay Street [Brooklyn Polytechnic Institute], 69
Joffé Abram F., 7
Josefowitz, David, 54, 102
Journal of Applied Polymer Science, 82
Journal of Polymer Science, 56, 57, 64, 74, 82, 83
Journals, polymer, 56, 67, 74
Journals, Soviet polymer, 98

K

Kabanov, B. N., 87, 98
Kaiser Wilhelm Institute, 4-6, 10-12, 15, 29, 48, 52
Kallmann, Hartmut, 9, 100
Kapillarchemie, 6, 100
Kargin, Valentin A., 98
Karlsruhe, Technische Hochschule, 27
Karrer, Paul, 12
Katchalsky, Aaron, 87
Katz, Johann R., 13, 24
Kautski, Hans, 6
Kharasch, Morris S., 48
Kinetics, polymerization, 33
Kirk, Raymond E., 47, 50-52, 59, 61, 70, 80

Kirk-Othmer Encyclopedia, 80, 84
Kontinental A. G., 34
Korshak, Vasily V., 98
Kratky, Otto, 33
Kressig, Hans, 39
Kroschwitz, Jacqueline, 81
Kuhn, Werner, 17, 18
Kun, Bela, 10
Kyoto University, 86

L

Laboratories [I.G. Farben], 19, 21, 29
LaMer, Victor K., 69, 70
Langley Research Center [NASA], 93, 94
Langmuir, Irving, 48, 49
Leeds, University of, 7
Lehar, Franz, 11
Leipzig, 30
Leverkusen [I.G. Farben], 24, 25
Lewis, Frederick M., 77
Lewis Research Center [NASA], 93, 94
Liège, University of, 87
Light scattering, polymer solutions, 65, 70, 96, 97
Lignin, 88
Literature, polymer, 43, 56
Living polymerization, 77
Livingston Street [Brooklyn Polytechnic Institute], 69, 72
London, University of, 7
Lubricants, 22
Ludwigshafen [I.G. Farben], 16, 19, 21, 23-25, 27, 30-33, 36, 38, 39, 45, 52, 65
Luster, filament, 16

M

Macromolecular controversy, 12-15, 17, 36, 39
Macromolecules, 12, 14, 17, 26, 35
Maidenhead laboratories [Courtaulds], 36
Mannheim, 32
Mannheim Waldhof A. G., 39
Margaretha, Herbert, 34, 35
Mark-Wulff process, 25
Marriage, 2, 11
Marvel, Carl S. [Speed], 34, 54, 58, 74, 78, 83, 84
Max Planck Gesellschaft, 4
Mayo, Frank R., 77
McGill University, 39, 40, 46
Mechanical crystallization, polymer, 67
Mechanical properties, 51, 53, 56, 58, 59, 82, 102
Mechanism of polymerization, 33, 36, 51, 54
Medical applications, polymer, 92
Melting point, polymer, 86
Melville, Sir Harry W., 35, 87
Membrane permeability, 53
Membranes, osmotic, 58
Mesrobian, Robert B., 53, 56, 57

Metals, crystal structure, 6
Methylmagnesium bromide, 78
Meyer, Kurt H., 15-19, 23, 26, 27, 31, 36, 42, 82, 100, 101
Miami, University of, 73
Micellar theory, 15
Michelin et Cie., 34, 36
Michigan, University of, 73
Microelectronics, 85
Midland, Michigan, 63
Mijovic, Jovan S., 92, 93
Minnesota Mining & Manufacturing Company [now 3M Company], 64
MIT [Massachusetts Institute of Technology], 28, 69
Mizushima, --, 88
Moisture content, paper, 41
Moisture resistance, fiber, 21
Molding equipment, polymer, 20
Molecular structure, fiber, 5
Molecular weight, polymer, 17, 44, 51-53, 57, 63-66, 96, 103
Molecular weight distribution, polymer, 44, 45, 51-54, 56, 64
Monomer synthesis, 25
Monsanto Company, 64, 95
Monsanto fellowship, 93
Montecatini S.p.A., 77
Montreal, 37, 38, 42, 43
Montrose Corporation, 50
Morawetz, Herbert, 24, 56, 94, 95, 98, 101
Morgan, Paul W., 88
Motz, Hans, 35
Mt. Elbrus, 87
Munich, University of, 9
Münster, University of, 30

N

NASA [National Aeronautical & Space Agency], 93-95
National Academy of Sciences, 91
National Bureau of Standards, 54, 94
National Institutes of Health, 94
Natural fibers, 16
Natural rubber, 16
Nernst, Walther, 2, 10
Nichols Hall [Brooklyn Polytechnic Institute], 72
Nishijima, Yasunori, 86, 87
Nobel Prize, 8, 14, 32, 86
North Carolina State University, 54, 55
Notre Dame, University of, 48, 69
Novacel rayon, 44-46, 52
Nucleation of crystallization, 66
Nylon, 52, 66, 70, 75, 78, 88, 90, 92
Nylon rope trick, 88, 89

O

Ogata, Naoyi, 86
Olsen, John C., 53
Ontario, 42
Oppau [I.G. Farben plant], 26

Organic chemistry, polymer, 56
Organic molecules, crystal structure of simple, 6
Orlon, 75
Osaka, 88
Osmotic pressure measurement, 19, 33, 52, 53, 58, 65, 70
Oster, Gerald, 58
Othmer, Donald F., 80
Ott, Emil, 48, 81-83, 88
Ottawa River, Canada, 40
Overberger, Charles G., 57, 58, 73, 83, 94, 95, 98

P

Paper chemistry, 44, 88
Parks, Wilber G., 75, 76
Particle size, colloids, 6
Patat, Franz, 33, 34
Patents, 22, 62, 96, 101, 102
Pauling, Linus C., 7
Pearce, Eli M., 90, 92, 93
Pentaphenylethyl, 2, 100
Periodicity, molecular, in crystal, 13
Perkin-Elmer Corporation, 70
Permeability, films, 58, 63
Phenol-formaldehyde resins, 48
Physical chemistry, polymers 56
Physics, polymer, 34
Ph.D. program [Brooklyn Polytechnic Institute], 60
Pittsburgh Plate Glass Company [now PPG Industries, Inc.], 95
Planck, Max, 2, 10
Planning committee [Weizmann Institute], 62
Plants, pulp and paper, 40
Plasticizers, for polymers, 22, 44
Plate, A. F., 98
Polanyi, Michael, 5, 7, 10, 100
Politics, German, 11
Polyacrylonitrile, 58
Polybenzimidazoles, 92
Polycarbonates, 81
Polyesters, 23, 63, 66, 78, 90, 92
Polyethylene, 66, 77, 81
Polyimides, 92
Polymer chemistry courses, 34, 40, 51, 56, 71, 101
Polymer laboratory [UNIDO], 89
Polymer literature, 84
Polymer Monograph Series [Interscience], 43, 56, 64, 68, 74, 81-83
Polymer research [I.G. Farben], 24
Polymer Research Institute [Brooklyn Polytechnic Institute], 39, 54, 69, 72, 73, 93
Polymer Research Institute [University of Vienna], 32, 33
Polymer technology, 75
Polymerization, mechanism, 33, 36, 51, 54
Polymerization unit [I.G. Farben], 26
Polymers, developing field of, 6, 16, 19, 22
Polymethyl methacrylate, 66

Polyolefins, 81
Polypropylene, 66, 77, 92
Polysaccharides, 14
Polystyrene, 16, 19, 21, 23, 25, 40, 45, 65, 66, 78, 92, 103
Polytechnic Institute of Brooklyn...see Brooklyn Polytechnic Institute
Polyurethanes, 81
Polyvinyl acetate, 16, 19
Polyvinyl chloride, 17, 19, 58
Polyelectrolytes, 76
Press, J., 54
Price, Charles C., 69
Princeton University, 69
Pringsheim, Hans, 12, 14
Prisoner of war, 1
Production, large-scale, 45
Professors [Brooklyn Polytechnic Institute], 53, 54, 69, 70, 73, 94, 95
Professors [University of Vienna], 1
Properties, physical, of polymers, 34, 51, 54
Proskauer, Eric S., 42, 43, 79, 80
Proteins, 14
Publications, 22, 27, 36, 38, 43, 54, 56
Publishing, 64, 74, 81
Putnam, C. P., 59
Pykrete, 60

Q

Quality control laboratories [Canadian International Paper], 40
Quantum theory, 8, 9, 100
Quebec, 40

R

Raff, R., 36, 101
Rayon, 3, 4, 5, 16, 21, 44, 82
Rayoneer Company, 38, 39
Reaction mechanisms, polymer, 36
Reference books, polymer, 56, 68
Rehovot, Israel, 62
Reinforced ice, 59
Reinhardt, Max, 2
Rensselaer Polytechnic Institute, 28
Reppe, Walter, 28
Research [University of Berlin], 3
Research [Brooklyn Polytechnic Institute], 51, 52, 56
Research [University of Vienna], 1, 33, 34
Research laboratories [Brooklyn Polytechnic Institute], 69
Resilience, polymer, 44
Rhône-Poulenc S.A., 36
Rigid chain polymers, 17, 18, 66, 92
Rochow, Eugene, 48, 49
Rockefeller Foundation, 12
Rogers, Harry S., 47, 48, 57, 59, 61
Rogers Hall [Brooklyn Polytechnic Institute], 72

Rogovin, Z. A., 7, 8
Rothblum, --, 89
Rubber, 6, 12-14, 19, 21, 24, 43, 92, 101
 crystallization, 24
 synthetic, 16, 19, 24, 36, 45, 54, 58, 102
 technology, 23
Rutgers University, 48

S

Safety, in chemical production, 25, 26
St. Paul, Minnesota, 64
Saito, G., 52, 53, 102
Salley, Donovan J., 35
San Diego, University of California at, 73
Sasmira Company, 90
Saturday Symposia [Brooklyn Polytechnic Institute], 24, 56, 71
Schenectady, New York, 48, 49
Schlenk, Wilhelm, 1-4, 15, 16, 37, 48, 100
Schmidt, Otto, 16, 19, 28
Schrödinger, Erwin, 9
Semenov, N. N., 7
Seminars, polymer, 56, 71
Sheepshead Bay, New York, 49
Shell Chemical Company, 64
Shellac Bureau, 49, 50
Shellac conversion, 50, 51
Shroff, --, 90
Sieff Institute, 62
Siggia, Sidney, 62, 102
Silk, 6, 12, 13, 14, 24, 75, 90, 91
Simha, Robert, 31, 34, 35, 44, 51-53, 56
Sommerfeld, Arnold, 9
Sophia University, 86
Specifications, pulp, 41
Spinning, fiber, 19-21, 90
Sponsler, Olenus L., 17, 101
Springfield, Massachusetts, 64
Starch, 12, 24, 101
Statistics of sampling, 46
Staudinger, Hermann, 12-18, 26, 28, 34, 39, 42, 85, 101
Steinmetz, Charles P., 48, 49
Stern, Kurt G., 56, 62
J. P. Stevens & Company, Inc., 75, 76
Stockmayer, Walter H., 69, 99
Strategic Defense Initiative [SDI], 95
Strength, tensile, 5, 38, 44, 51, 53, 54, 63
Stretching and crystallization, 66, 100
Structure, crystal, 7
Structure/property relations, polymer, 71
Students, graduate, 55, 69, 94, 95
Styrene, 25, 62, 101
Suess, H., 31, 35
Support, research, 34, 93
Surfactants, 19
Symposia [Brooklyn Polytechnic Institute], 56, 57, 71

Symposium edition journal, 83
Synthesis, polymer, 33, 35, 54, 71
Synthetic fibers, 3, 16, 36, 101
Synthetic rubbers, 16, 19, 24, 36, 45, 54, 58, 102
Syracuse, State University of New York at, 77
Szilard, Leo, 9, 10, 100
Szwarc, Michael, 77

T

Tashkent, USSR, 99
Tashkent boycott, 98
Teaching, polymer, 30, 51, 71
Technion [I.G. Farben], 19, 20
Techniques, instrumental, 96
Technology transfer, 90
Teller, Edward, 10
Temiskanino River, Canada, 40
Tensile strength, fiber, 5, 38, 44, 51, 53, 54, 63
Textile fibers, 44, 63
Textile industry, German, 3
Textile processing, 5
Textile rayons, 44
Thermal crystallization, polymer, 67
Thesis, Ph.D., 2
Thiele,--, 30
Thirring, Hans, 34
Thorne, Carl B., 36, 37, 39, 43, 45, 47
Tin, crystal structure, 6, 100
Tinius Olsen Testing Machine Company, Inc., 53
Tire cord, 44, 63
Titanium tetrachloride, 77
Tobolsky, Arthur V., 53, 56, 69
Tokyo, 88
Tokyo University, 86
Topchiev, A. V., 98
Triethylaluminum, 77, 78
Trillat, Jean-Jacques, 7
Trivalent carbon, 3
Trouble-shooting, 21
Tschamler, Hubert, 89

U

Ueberreiter, Kurt, 66
Ullman, Robert, 73
Ullmann's Encyclopedia, 79, 80, 84
Ullmann, Fritz, 79
Ultracentrifuge, 33, 56, 65, 70
Uncertainty principle, 9
UNESCO, 87, 89, 90
UNIDO [United Nations Industrial Development Organization], 87, 89, 90
Union Carbide Corporation, 55, 72
United Nations, 89
University/industry relations, 28, 55, 70, 75, 76
Urea, 6

Urey, Harold C., 86
Usmanov, Kh. U., 98
U. S. Rubber Company, 72, 77

V

Valko, Emerich, 22
Vavilov, --, 87
Vienna, 2, 11, 31, 32, 36, 61
Vienna, University of, 1, 5, 17, 23, 29, 30-32, 34-6 32, 39, 50-52,
65, 86, 98, 100
Vinyl polymers, 92
Visas, 38
Viscometers, 70
Viscosity/Molecular weight equation, polymer, 17
Viscosity, polymer, 13, 17, 19, 33, 38, 44
Vogl, Otto, 98
Volmer, M., 10
von Karman, Theodore, 10
von Laue, Max, 2, 10
von Neumann, John, 10
von Susich, G., 22, 101

W

Wacek, Anton, 33-35
Waldschmidt-Leitz, Ernst, 14
Walter, Bruno, 2
Wang, Sigmund, 45-47
Waters Associates, Inc., 70
Wave theory, 9
Weasel, 59, 60, 64
Wegscheider, Rudolf, 1
Weickert, A. Reis, 31
Weisgal, Meyer, 62
Weissenberg, Karl, 5, 7
Weizmann, Chaim, 62
Weizmann Institute, 61, 62, 64, 87
Welwyn Garden City, England, 36
Westchester campus [Brooklyn Polytechnic Institute], 72
Wet strength, 16, 41
Whitby, George S., 43, 79, 83, 101
Wieland, Heinrich, 13
Wierl, Raimund, 22
Wigner, Eugene, 10, 100
Wiley & Company, 81
Willoughby Street [Brooklyn Polytechnic Institute], 69
Willstätter, Richard, 13, 14, 18
Wilmington, Delaware, 23, 46, 71
Wolf, Carl, 19, 22, 101
Wolf, Max, 2
Wood, structure, 103
Wood chemistry committee [FAO], 88
Wood pulp, 44
Wool, 3, 24, 75
Workshop, polymer, 57
World Health Organization [WHO], 87, 89

World War II, effects of, 47, 58-60
Wright-Patterson Air Force Base, 94
Wulff, Carl, 25, 101

X

Xylene, 25
X-ray crystallography, 5, 6, 7, 10, 12-18, 22, 48, 52-54, 70, 101, 102
X-ray equipment, 19, 38, 62, 96, 97
X-ray techniques, 4, 8, 9, 21, 22, 57
X-ray tube, 4, 5

Y

Yale University, 76

Z

Ziegler, Karl, 28, 29, 77
Ziegler polymerization, 77
Zimm, Bruno H., 53, 56, 58, 66
Zimmerli, William, 38, 39, 47, 48
Zinc, crystal structure, 6, 100
Zocher, Hans, 6