

THE BECKMAN CENTER FOR THE HISTORY OF CHEMISTRY

RALPH LANDAU

Transcript of an Interview
Conducted by

James J. Bohning

at

Listowel, Inc.
New York City

on

18 December 1990

THE BECKMAN CENTER FOR THE HISTORY OF CHEMISTRY

Oral History Program

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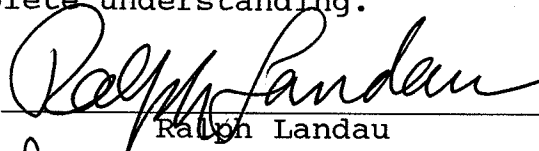
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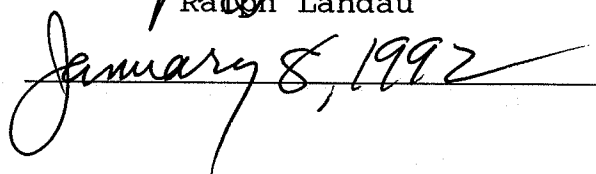
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RALPH LANDAU

1916 Born in Philadelphia, Pennsylvania on 19 May

Education

1937 B.S., chemical engineering, University of Pennsylvania
1941 Sc.D., chemical engineering, Massachusetts Institute of Technology

Professional Experience

1941-1943 Process Development Engineer, M. W. Kellogg Company
1943-1945 Head, Chemical Department, Kellogg Corporation
1945-1946 Process Development Engineer, M. W. Kellogg Company
1946-1963 Executive Vice President, Scientific Design Company, Inc.
1963-1975 President, Halcon International, Inc.
1975-1981 Chairman and CEO, Halcon International, Inc.
1977-1987 Member, Board of Directors, Alcoa
1981-1982 Chairman, The Halcon SD Group, Inc.
1981-1990 Vice President, National Academy of Engineering
1983- Consulting Professor of Economics and of Chemical Engineering, Stanford University
1984- Research Fellow, Kennedy School, Harvard University

Honors

1972 National Academy of Engineering - elected
1972 Petroleum and Petrochemical Division Award, American Institute of Chemical Engineers
1973 Chemistry Industry Medal, Society of Chemical Industry, American Section
1977 Winthrop-Sears Award, Chemical Industry Association
1978 Newcomen Society Award
1981 Perkin Medal
1981 Chemical Pioneers Award, American Institute of Chemists
1981 D.Sc., honorary, Polytechnic University of New York
1982 Founders Award, American Institute of Chemical Engineers
1982 D.Sc., honorary, Clarkson University
1983 Designated Eminent Chemical Engineer, American Institute of Chemical Engineers
1983 D.Sc., honorary, Ohio State University
1985 National Medal of Technology
1987 John Fritz Medal
1988 Foreign Member, British Fellowship of Engineering (to become Royal Academy of Engineering)

ABSTRACT

Ralph Landau begins the interview with a description of his childhood and high school years in West Philadelphia. He then describes his undergraduate education in chemical engineering at the University of Pennsylvania, emphasizing a strong chemistry background. In recounting his graduate years at the Massachusetts Institute of Technology, he focuses particularly on the indispensable benefits of the Practice School as well as on the extremely high caliber of the chemical engineering program and faculty there. After telling of initial work at Kellogg, Landau summarizes his role with Kellogg on the Manhattan Project. Next, he reviews the history of Scientific Design and its development into an international business, eventually to become Halcon, recapitulating significant discoveries and innovations. Finally, he describes his new career in the Economics Department of Stanford University, inspired by his frustration with the effects of macroeconomic policies on technological development. He concludes the interview with a brief account of his personal life and leisure activities.

INTERVIEWER

James J. Bohning, Assistant Director for Oral History at the Beckman Center, holds the B.S., M.S., and Ph.D. degrees in chemistry. He was a member of the chemistry faculty at Wilkes University from 1959 until 1990, where he served as chair of the Chemistry Department for sixteen years, and chair of the Earth and Environmental Sciences Department for three years. He was Chair of the Division of the History of Chemistry of the American Chemical Society in 1987, and has been associated with the development and management of the Center's oral history program since 1985.

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- 1 Childhood and Early Education
Takes education very seriously from early age, working hard to graduate first to receive Penn scholarship. Grows up in Philadelphia, moving numerous times. Attends Overbrook High School with fine teachers. Facility in mathematics leads to interest in science and engineering.
- 4 University of Pennsylvania (Penn)
Enters chemical engineering program in 1933, at age sixteen. Enjoys laboratory work. Takes advantage of strong English Department as well as courses in philosophy, astronomy, and foreign languages. Studies chemical engineering under well-reputed Norman W. Krase. Very demanding engineering curriculum. Despite extremely high aptitude in mathematics and physics, prefers practical aspects of engineering.
- 9 Massachusetts Institute of Technology (MIT)
Receives Tau Beta Pi Fellowship to attend any university. MIT is "natural" choice due to unquestionable superiority in chemical engineering at the time. First experience away from home. Practice School offers tremendous practical experience. Very rigorous program and stimulating environment--the best and brightest. Completes thesis virtually unsupervised.
- 19 M. W. Kellogg Company
Begins work with catalytic cracking and picks up other chemical projects that emerge. Asked to transfer to subsidiary, Kellex Corporation.
- 20 Kellex Corporation (Manhattan Project)
Works with highly skilled engineers to design and run plant to produce highly concentrated uranium-235. Very little understanding of fission or the project as a whole. Works with Eyring, Urey, Groves, and Rehnberg. Actual diffusion plant controlled by Union Carbide which did not wish to involve engineers.
- 25 Scientific Design Company (SDC)
Starts company with Rehnberg by proposing construction of monochloroacetic anhydride plant to former boss, then vice president of Stauffer. Although initial project never completed, both take advantage of contacts to expand worldwide. Work in England leads to further contacts in Europe and Japan.

- 30 Halcon International, Inc.
As SDC expands and petrochemical industry becomes saturated, Halcon created as holding company for SDC (for engineering licensing) as well as Catalytic Development Corporation (for manufacturing) and SD Plants (for construction). Pioneers in many chemical production processes, including ones for ethylene oxide, terephthalic acid, maleic anhydride, Oxirane, and acetic anhydride. Recession of early 1980s forces sellout. Receives several awards for research and industrial development.
- 44 Stanford University
Frustration with the macroeconomic atmosphere leads to new career in academe--in the Economics Department. Publishes a great deal and teaches seminar on relationship between economics and technological development. Contact with government officials.
- 48 Thoughts on Development of Chemical Engineering
Great opportunities of post-war era no longer available because majority of industry sustained by huge corporations. Practical experience in industry necessary to facilitate progress and innovation. The field has become so theoretical that the gap between academe and industry has widened, making the Practice School concept increasingly critical.
- 53 Leisure Activities
Enjoys swimming, opera, travel, wine, art, tapestries. Maintains numerous contacts throughout industry.
- 58 Notes
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NOTES

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