CHEMICAL HERITAGE FOUNDATION

CHARLES P. SMYTH

Transcript of an Interview Conducted by

Jeffrey L. Sturchio and Ronald E. Doel

in

Princeton, New Jersey

on

30 May 1986

(With Subsequent Additions and Corrections)

THE BECKMAN CENTER FOR THE HISTORY OF CHEMISTRY Oral History Program

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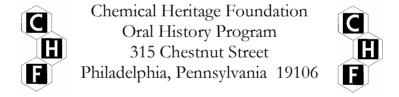
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CHARLES P. SMYTH

1895 1990	Born in Clinton, New York on 10 February Died in Bozeman, Montana on 18 March
	Education
1916	A.B., chemistry, Princeton University
1917	A.M., chemistry, Princeton University
1921	Ph.D., chemistry, Harvard University
	Professional Experience
1917	Chemist, National Bureau of Standards
	U.S. Army
1918	2nd Lieutenant, Ordnance Reserve Corps
1918	2nd Lieutenant, Chemical Service Section
1918	1st Lieutenant, Chemical Warfare Service Princeton University, chemistry department
1920-1923	Instructor
1923-1927	Assistant Professor
1927-1938	Associate Professor
1938-1958	Professor
1958-1963	David B. Jones Professor of Chemistry
1963-1990	David B. Jones Professor of Chemistry Emeritus
Honors	
1947	Medal of Freedom, U.S. Army
1954	Nichols Medal, New York Section, American Chemical Society
1970	Honorary Degree (Science honoris causa) July 23 University of Salford, Salford, England

ABSTRACT

Charles P. Smyth begins the interview by naming the many scientists in his family and discussing his undergraduate education at Princeton, with descriptions of the curriculum, faculty and facilities. He then describes his tenure at the National Bureau of Standards and the Chemical Warfare Service, where he worked on electroplating and poison gas during the First World War. Smyth continues with a discussion of his Ph.D. training at Harvard, where his thesis examined thallium amalgams. He then describes his return to Princeton as an instructor, his early teaching and students, and the options he considered for research projects. His work on dipole moment leads to an important discovery about benzene ring structure that proves correct the Kekulé model. He then discusses the funding situation at Princeton and his first visits to Europe, where he meets Peter Debye, Karl Bonhöffer and James Franck. Smyth next discusses department colloquia at Princeton, attempts to recruit Debye and Enrico Fermi to Princeton and changes in the chemical field during the 1920s and 1930s, including the emergence of chemical physics. The interview ends with a discussion of Smyth's work on deuterium and the Manhattan Project. In the appendix, "Scientist in a Jeep," Smyth narrates a detailed account of his work in the U.S., France and Germany with the ALSOS Mission, which investigated Nazi Germany's scientific capabilities at the end of the Second World War.

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 Institution's 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. He is currently Director, Science & Technology Policy, in the Public Affairs Department at Merck.

Ronald E. Doel received a B.A. in english and astronomy from Northwestern University, a M.A. in American Studies from Bowling Green State University, and a Ph.D. in history from Princeton University. He was Postdoctoral Historian at the Center for the History of Physics from 1990-1993, and Postdoctoral Fellow at the Smithsonian Institution in 1993-94. He has taught history and history of science at the University of Maryland.

TABLE OF CONTENTS

- 1 Family and Early and Undergraduate Education
 Many family members are scientists. Attends the
 Lawrenceville school and Princeton University in
 pursuit of a broad education, and enters the chemistry
 department. Discusses classmates, professors,
 curriculum and facilities at Princeton.
- National Bureau of Standards and Chemical Warfare Service
 Works on an electroplating project as part of the war
 effort. Discusses colleagues at the National Bureau
 of Standards. Becomes second lieutenant in the Army
 Ordnance Department and works on poison gas.
 Discusses safety standards and toxic substances.
 Names the best physical chemists in that era.
- 9 Graduate Education at Harvard University
 Attends Harvard after World War I. Pursues thesis on
 thallium amalgam project with T. W. Richards.
 Discusses colleagues and faculty at Harvard.
- 13 Early Career at Princeton University
 Accepts instructorship at Princeton. Teaches freshman
 lab while completing thesis. Discusses relationships
 with Karl Compton and William Foster. Research program
 options of infrared, atom smashing or dielectrics.
 Students. Chemical physics versus physical chemistry.
 Early publications on dipole moment. Research
 expenses, research support, and consulting. Instrument
 building.
- 21 Early Voyages to Europe

 Travels to Bucharest as the American delegate to the
 International Union of Pure and Applied Chemistry.

 Meets Peter Debye and visits his lab in Leipzig.
 European colleagues Karl Bonhöffer and James Franck.
- 23 Princeton University
 Studies quantum mechanics with Eugene Wigner.
 Departmental colloquia with Niels Bohr and Niels
 Bjerrum. Collaboration with Henry Eyring. Princeton
 attempts to recruit Debye and Enrico Fermi.
 Publications on resonance shifts in organic molecules.
 Collaboration with Kodak.
- 29 Chemical Physics in the 1920s and 1930s
 Princeton is a center for chemical physics in the
 interwar years. Edits <u>Journal of Chemical Physics</u>.
 Section for Chemical Physics is started in the American
 Chemical Society. Organizes a symposium on
 dielectrics. Students in the interwar years.
 Deuterium research and the Manhattan Project.

- 37 Appendix: "Scientist in a Jeep:" the ALSOS Mission Joins the ALSOS Mission and begins work at the Pentagon. Difficulties in leaving for Europe.
- 39 Paris

Flight to Paris. Paris and the Royal Monceau hotel in wartime: accommodations, uniforms, food, transportation. German lessons with E. C. Kemble. Incendiary investigations with Louis Fieser at the Pouderie Nationale.

45 The Rhineland

Crosses into Germany. First headquarters and Easter services at Aachen. Investigates the Physical Institute at Cologne. Explores the Rhine district. Explains that ALSOS civilian scientists were unarmed. Crosses the Rhine at Frankfurt on a pontoon bridge. Interrogates Dr. Czerny. Searches for Schumacher. Cinema in Frankfurt, "wine liberation" in Aachen and squab near Cologne. Wetzlar, Giessen, Marburg and Kassel.

55 Göttingen

Interrogates four prominent professors at the University of Göttingen and offered the rectorship of the university. Discovers headquarters of the German National Research Council at Merseburg. Finds German supply of heavy water at Osterode.

61 Leipzig

Visits Debye's former lab in Leipzig. Interviews Hund and Doepple at the University of Leipzig. Recalls earlier visit to Leipzig when Hitler stayed in same hotel. Encounters Nazi tank column and finds supply of uranium yellow cake in Stassfurt. Interrogates Paul Harteck about his work on isotope separation. War ends. Visits Karl Bonhöffer, whose bishop brother was assassinated by the Nazis. Finds Gestapo scientific papers in buried urns in the Harz region.

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NOTES

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