

**Malcolm Dole (1903-1990) Papers, 1924 - 1990****Series 11/3/8/5****Boxes 1-11 (including 2 slide boxes and 2 drop-front boxes)****Biography**

Malcolm Dole was born on March 4, 1903 in Melrose, Massachusetts. With his twin brother Kenneth, he attended Harvard University where he received a Bachelor of Arts in Chemistry in 1924, a Master of Arts in Chemistry in 1926, and a Doctorate in Physical Chemistry in 1928. From 1928 to 1930, Dole was a Postdoctoral Research Assistant at the Rockefeller Institute for Medical Research. During this time he also studied with Peter Debye and Hans Falkenhagen at the University of Leipzig.

Dole joined the faculty at Northwestern University in 1930 as an Instructor in Chemistry, marking the beginning of a career at Northwestern that would span almost forty years. Between 1930 and 1943 he held the positions of instructor, assistant professor and associate professor in the Chemistry Department. During World War II, Dole participated in gas mask research at Northwestern (1941-1943) and then was involved in Manhattan Project work, also at Northwestern (1942-1943). He took a leave of absence to serve as the civilian director of the National Defense Research Council Chemical Warfare Research Laboratory at Dugway Proving Grounds, and as the technical director of field trials of non-persistent war gases in Idaho and Florida. He later served as acting technical director of the thermal diffusion plant in Oak Ridge, Tennessee (1944-45).

Upon completion of his war duties, Dole returned to Northwestern as Professor of Chemistry. In 1963 he became Professor of Chemistry and Materials Science, and from 1964 to 1969 held a joint appointment in this department and in Northwestern's new Materials Research Center, which had been founded in 1959. After retiring from Northwestern University in 1969, Dole became the Robert A. Welch Professor of Chemistry at Baylor University and taught courses in physical and polymer chemistry until his retirement from Baylor in 1982.

Dole made significant contributions to the field of physical chemistry (especially in electrochemistry and polymer chemistry) during his career. Among his contributions were the discovery of the "Dole Effect" (1935), in which he proved that the atomic weight of oxygen in air is greater than that of oxygen in water, work on glass electrodes (1941), and the cross-linking of polymers (1966). In 1966 he pioneered the development of a form of mass spectrometry that would become electrospray ionization (ESIMS) in the 1980's. His principal publications include *Experimental and Theoretical Electrochemistry* (1935), *The Glass Electrode* (1941), *Introduction to Statistical Thermodynamics* (1954), and *The Radiation Chemistry of Macromolecules* (2 vol., 1973). In addition, he was the author of over 200 scientific papers and articles.

Dole received many honors throughout his career. Among these were the Army-Navy Certificate of Appreciation; Outstanding Faculty Scholar at Baylor University; Southwest Regional Award of the American Chemical Society; and the A. Ottenberg Service Award of the Santa Clara Valley chapter of the American Chemical Society. In addition, he was appointed an honorary faculty member of the University of San Marcos in Lima, Peru, and of the University of Chile, in Santiago, Chile. Dole served as a member of the Physical Chemistry Advisory panel, Office of Naval Research; member of the Chemistry Review Committee of the Argonne National Laboratory; advisory panel member of the National Science Foundation; and consultant to the Oak Ridge National Laboratory. He also served as a Trustee of the Gordon Research

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Conferences; President of the Association of Harvard Chemists; and Vice-president of the Electrochemical Society.

Dole was an avid yachtsman. While at Northwestern he belonged to the Sheridan Shores Yacht Club, where he won numerous sailing awards. He continued his sailing at Baylor University as a member of the Ridgewood Yacht Club.

He was also known as an ardent bicyclist, riding his bike to campus each day in Evanston and in Waco. In 1961, he was arrested for bicycling on Sheridan Road after an ordinance was passed prohibiting bicycle riding on busy streets. Dole won his court case due to a technicality – no signs stating the restriction had been posted.

Malcolm Dole passed away on November 29, 1990 at his home in Los Gatos, California at the age of 87. He was survived by his wife, his daughter, son and three grandchildren.

**See also:** *Oral Memoirs of Malcolm Dole, April 17, 1979 – October 14, 1980* by the Baylor University Project, Baylor University Program for Oral History (1981). A transcription of this interview is shelved in the Northwestern University Archives Faculty Authors Collection. The original eight hour videotaped interview is available at The Texas Collection, Baylor University, Waco, Texas.

The Texas Collection Archives, Baylor University, Waco, Texas, holds the Malcolm Dole Collection, containing Dole's lectures, reading and lecture notes at conferences, data interpretation, abstracts of student research and some photographs.

**Description of the Series**

The Malcolm Dole (1903-1990) Papers fill eleven boxes (including two slide and two drop-front boxes), spanning the years 1924 to 1990 and including materials from his tenures at both Northwestern and Baylor. The bulk of the papers consist of personal data, personal financial records, and materials relating to research projects. The papers are arranged in five sub-series: Biographical, Correspondence, Teaching, Personal Financial, and Research Files.

The biographical files, spanning the years 1924 to 1989, include personal data, clippings, news releases, obituaries, notes on the Dole Symposium at Baylor University, date books, passports, and the log of Dole's yacht, the *Malolo III*. Items are arranged chronologically within folders. Several items are of particular interest, including clippings about the "Pedaling Professor" and a 1946 news release detailing Dole's wartime research experience. The scrapbook *Malcolm Dole: A Lifetime of Contributions*, was created by the Chemistry Department at Baylor University upon Dole's retirement, and contains photographs, clippings, a biographical sketch, and letters of congratulations. Also of interest are Dole's Cambridge Journal (July 8-28, 1933) which records his impressions during a research trip to England, and his Post-Bellum Diary (1948-1950) that describes his travels to meetings and presentations after World War II. The file titled "Driving Directions," containing 3x5 cards with directions to friends' homes and other locations, sheds light on Dole's thought processes.

The correspondence files, spanning the years 1951 to 1989, are arranged chronologically by date and include mainly personal correspondence (mostly incoming, but some outgoing), letters of congratulation upon Dole's retirement, and a few business letters.

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The teaching file contains several exam questions, date and course unknown.

Personal financial records, spanning the years 1929 to 1990, are arranged chronologically and include meticulously detailed daily, monthly, and yearly budgets for travel and household expenses.

Research files, spanning the years 1929 to 1987, are arranged chronologically by project and include reports, proposals, article reprints, and correspondence. The "Research Notes" folder includes parts of articles and a small notebook with references to cancer experiments. Two boxes hold slides arranged by subject. These slides were used for lectures and presentations at various symposiums and conferences. Topics include Radiation Chemistry, the History of Oxygen, H<sub>2</sub> Solubility, Cancer, Viscosity, and Macro Ions. The papers also document his work on projects for the Atomic Energy Commission (1966-76).

Slides include graphs and charts Dole prepared for lectures and symposia in San Diego, Tokyo, Ottawa, and Houston on oxygen, viscosity, radiation chemistry, and other topics.

Drop-front boxes hold some of the many awards Dole received. Box 10 contains the professional awards garnered by Dole throughout his career. Among these are an academic award for algebra (1917), the A. Ottenberg Service Award (1987), the ACS Southwest Regional Award (1979), a certificate from the Henry Wade Rogers Society at Northwestern University (1988), and various retirement plaques and certificates from Baylor University (1982). Box 11 contains various yachting trophies including the Wilmette Arrow Fleet Antwerp Series (1967), the John S. Knight Award from the Chicago Daily News Regatta (1956), and the C.C.Y.C. Hobleman Regatta (1969).

**Separations:** Twenty-two photographs, two cubic feet of travel slides, and one audiocassette tape were separated to the Northwestern University Archives' audio-visual collection. One cubic foot of duplicate and extraneous materials was discarded.

**Restrictions:** Boxes 4 and 5 are restricted and may be used only with the permission of the University Archivist.

**Provenance:** The Malcolm Dole Papers were transferred to the Northwestern University Archives on June 9, 1995 as Accession Number 95-81. The Malcolm Dole Biographical File from the University Archives' Faculty Biographical Files has been incorporated into this series.

**Processor:** Kathy Young, June 21, 2001

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**Container List**

<b><u>Box</u></b>	<b><u>Folder</u></b>	<b><u>Title</u></b>	<b><u>Dates</u></b>
<b>1</b>		<b>Biographical Files</b>	
	1	Personal Data	1950-1966
	2	Clippings	1947-1961
	3	News Releases	1946-1967
	4	Harvard Class of 1924 Yearbook	1924
	5	Obituaries	1990
	6	<i>Malcolm Dole: A Lifetime of Contributions</i>	1982
	7	Dole Symposium	1982
	8	Address Book	n.d.
	9	Date Books	1927,1954-1959
	10	Date Books	1960-1970
<b>2</b>	1	Date Books	1971-1980
	2	Date Books	1981-1989
	3	Diary: "Cambridge Journal"	1933
	4	Diary: "Post-Bellum Diary"	1948-1950
	5	Driving Directions (3x5 index cards)	n.d.
	6	Passports	1959-1986
<b>3</b>	1	Yacht Club Directories, Handbooks	1948-1956,1982
	2	Log of the <i>Malolo III</i> , Book III	1966-1981
		<b>Correspondence</b>	
	3	Correspondence	1951-1982
	4	Correspondence	1983-1989
	5	Correspondence	n.d.
		<b>Teaching File</b>	
	6	Exam Questions	n.d.
<b>4</b>		<b>Personal Financial Records --RESTRICTED</b>	
		European Trip Financial Ledger	1929
		Daily Financial Ledger	1950-1957
		Daily Financial Ledger	1957-1963
		Daily Financial Ledger	1963-1976
		Household Financial Ledger	1977-1981
		Household Financial Ledger	1981-1986
		Alaskan Trip Financial Ledger	1986
		Household Financial Ledger	1987-1990
		Budget Summaries	1979-1990

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<b>5</b>	1	Financial Records	1963-1967
	2	Stock Information	1962-1988
	3	Medical File	1975,1983-1984
	4	Medicare/Retirement Information	1966-1979
<b>6</b>		<b>Research Files</b>	
	1	Article Reprints	1929-1987
	2	Proposals	1954-1959
	3	Proposals	1954-1959
	4	Reports	1960-1961
	5	Reports	1960-1961
	6	Polyethylene Radiation Project	1959-1961
	7	Reports and Publications Vol. II	1962-1967
	8	Reports and Publications Vol. II	1962-1967
	9	Office of Ordnance Research Reports	1952-1955
	10	Office of Ordnance Research Reports	1952-1955
	11	Quarterly Progress Reports 1-13	1958-1961
12	Quarterly Progress Reports 1-13	1958-1961	
<b>7</b>	1	A.E.C. Projects	1966-1969
	2	A.E.C. Projects	1966-1969
	3	A.E.C. – Baylor Projects	1969-1976
	4	A.E.C. – Baylor Projects	1969-1976
	5	A.E.C. – Baylor Projects	1973-1976
	6	A.E.C. – Baylor Projects	1973-1976
	7	N.S.F. Projects	1970-1976
	8	N.S.F. Projects	1970-1976
	9	Research Notes	n.d.
<b>8</b>		Chemistry Slides: lectures/symposia in San Diego, Tokyo, Ottawa, Houston	n.d.
<b>9</b>		Chemistry Slides: History of Oxygen, hydrogen solubility, cancer, viscosity, macro ionization, misc.	n.d.
<b>10</b>		Professional Awards	1917-1988
<b>11</b>		Yachting Awards	1956-1971