
Finding Aid to the Leo Brewer Papers, 1921-2004, bulk 1939-2004

Finding Aid written by Josh Schneider

Funding for processing this collection was provided by Roger Brewer

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Phone: (510) 642-6481

Fax: (510) 642-7589

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Collection Number: BANC MSS 2005/298

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Date Completed:

December 2007

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Collection Summary

Collection Title: Leo Brewer papers

Date (inclusive): 1921-2004,

Date (bulk): bulk 1939-2004

Collection Number: BANC MSS 2005/298

Creators : Brewer, Leo, 1919-2005

Extent: Number of containers: 25 cartons, 2 boxes, 1 oversize folder Linear feet: 34.25 linear ft.

Repository: The Bancroft Library

University of California, Berkeley

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Abstract: The Leo Brewer papers, 1921-2004, comprise the correspondence, teaching materials, laboratory notes, writings, and research files of renowned chemist Leo Brewer, universally regarded as one of the founders of the field of modern high-temperature chemistry. Brewer served as Professor in the College of Chemistry at the University of California, Berkeley, from 1946-1989, and as Director of the Inorganic Materials Research Division at the Lawrence Berkeley National Laboratory from 1961-1975. The collection includes materials documenting Brewer's doctoral research on Mesityl Oxide and his wartime research as a member of the Manhattan Project, as well as his later research on high temperature thermodynamics, materials science, the study of metallic phases, and the development of metallic bonding theory.

Languages Represented: Collection materials are in English, French and German

Physical Location: Many of the Bancroft Library collections are stored offsite and advance notice may be required for use. For current information on the location of these materials, please consult the Library's online catalog.

Access

Collection is open for research.

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Preferred Citation

[Identification of item], Leo Brewer Papers, BANC MSS 2005/298, The Bancroft Library, University of California, Berkeley.

Alternate Forms Available

There are no alternate forms of this collection.

Additional Notes on Collection:

The Leo Brewer papers form part of the History of Science and Technology Collection at The Bancroft Library.

Related Collections

Records of the University of California, Berkeley, College of Chemistry. CU-30

Kenneth S. Pitzer papers. BANC MSS 99/170 c

William Zev Hassid papers. BANC MSS 79/32 c

Henry Rapoport papers. BANC MSS 2002/261 c

Joel Henry Hildebrand papers. BANC MSS 71/69 c

Indexing Terms

The following terms have been used to index the description of this collection in the library's online public access catalog.

Brewer, Leo, 1919-2005 --Archives

Brewer, L. (Leo), 1919-2005

Lawrence Berkeley National Laboratory

United States. Dept. of Energy. Lawrence Berkeley National Laboratory

Lawrence Radiation Laboratory

Lawrence Radiation Laboratory. \$ Inorganic Materials Research Division

Manhattan Project (U.S.)

United States. Army. Manhattan Project

University of California, Berkeley. College of Chemistry

University of California, Berkeley. Dept. of Chemistry

U.S. Atomic Energy Commission

Acid-Base Chemistry

Actinides

Ceramics. --Research

Chemical engineering

Chemistry, Physical and theoretical

Chemistry, Physical and theoretical --Research

High temperature chemistry

Lanthanides

Metallurgy. --Research

Molybdenum

Molybdenum. --Metallurgy

Nuclear chemistry

Plutonium

Plutonium. --Metallurgy

Thermodynamics

Uranium

Uranium. --Metallurgy

Faculty papers.

History of science and technology collection

Acquisition Information

The Leo Brewer Papers were given to The Bancroft Library by Roger Brewer in October 2005.

Accruals

No additions are expected.

System of Arrangement

Arranged to the folder and container levels.

Processing Information

Processed by Eresmia Ouranitsas and Josh Schneider in 2007.

Biographical Information

Leo Brewer, American chemist, was born on June 13, 1919 in St. Louis, Missouri. Brewer received his undergraduate degree from the California Institute of Technology in 1940 and his PhD from the University of California, Berkeley, in 1942. He joined the Manhattan Project following his graduate work, and joined the faculty at UC Berkeley in 1946. Leo Brewer married Rose Strugo (d. 1989) in 1945. They had three children, Beth Gaydos, Roger Brewer, and Gail Brewer. Leo Brewer died on Feb. 22 2005, in Lafayette, California, at the age of 85.

EARLY LIFE AND EDUCATION

Brewer spent the first ten years of his life with his family in Youngstown, Ohio, where his father worked as a shoe repairman. In 1929, in the wake of the Great Depression, his family moved to Los Angeles, California. It was only six years later that Brewer decided to attend the California Institute of Technology. As an undergraduate at Cal Tech, Leo Brewer was strongly influenced by Professors E. Swift and D. Yost, and had his first taste of research studying equilibria and kinetics of olefin hydration under Professors D. Pressman and H. J. Lucas. After the B.S. in 1940, Professor Linus Pauling persuaded him to pursue advanced instruction at the University of California, Berkeley, where he continued kinetic studies under Professor Axel R. Olson. In the shadow of the United States' entrance into World War II, Brewer pursued his Ph.D. with steady determination, and completed his dissertation on the effect of electrolytes upon the kinetics of aqueous reactions in November 1942, after only 28 months.

MANHATTAN PROJECT

Following his doctoral work, Brewer was immediately recruited by UC Berkeley professor Wendell Latimer to join the top-secret wartime research group that would become known as the Manhattan Engineering District Project. Assigned to work under Professor E.D. Eastman (whose deteriorating health forced him to withdraw from the project soon after work had begun), Brewer headed a group composed of Leroy Bromley, Paul Gilles and Norman Lofgren, assigned with the three-fold task of predicting the possible high-temperature properties of the newly discovered element plutonium, then available only in trace amounts; developing refractory materials capable of containing molten plutonium without excessive contamination, even if the worst predictions should be true; and developing a micro-analytical procedure for the determination of oxygen.

The first of these tasks led to a fundamental examination of the behavior of all elements at high temperature, and resulted in a series of papers describing the high-temperature behavior of metals, oxides, halides, and many other compounds. The second task led to the development of the refractory sulfides of Cesium (Ce), Thorium (Th), and Uranium (U). The third task led to development of a micro method of analysis of electropositive metals using a molten platinum bath.

The immediate result of the research was the creation of the new material Cesium Sulfide (CeS), from which they made several hundred crucibles for use at Los Alamos National Laboratory. Brewer's crucibles were ready when the plutonium became available.

ACADEMIC CAREER

In 1946, following his service as a member of the Manhattan Project, Brewer was appointed an assistant professor in the Department of Chemistry at the University of California. He rose steadily through the ranks, achieving the rank of full professor in 1955. Brewer served as a faculty member of the Department of Chemistry for over sixty years, during which time he directed 41 Ph.D. candidates, and nearly two-dozen post-doctoral research associates.

In addition to his academic appointment, Brewer was associated with the Lawrence Berkeley National Laboratory (formerly the Lawrence Radiation Laboratory) from 1943-1994, and served as Director of the Inorganic Materials Research Division of LBNL from its inception in 1961 until 1975.

Brewer's dual appointment afforded him the opportunity to take an active role in all levels of academic instruction, both inside and outside of the laboratory. Besides providing classroom instruction in solid-state chemistry, heterogeneous equilibria, and inorganic chemistry, Brewer also delivered lectures and supervised laboratory work for laboratory courses in freshman chemistry, advanced quantitative analysis, instrumental analysis, inorganic synthesis, inorganic reactions, and organic chemistry, as well as courses in chemical thermodynamics from the sophomore to graduate student level. In order to ensure a high standard of instruction at even the most basic levels, Brewer initiated a course for freshman-chemistry teaching assistants that reviewed principles and certified their ability to adequately fulfill their responsibilities.

Brewer was a caring and gifted teacher who was greatly admired by students and colleagues alike as a caring and gifted teacher. In 1966 he was selected by the Academic Senate at UC Berkeley to deliver the annual Faculty Research Lecture. The title of his lecture was, "A Broad University Education Leads to Astrochemistry." In 1988, in recognition of his

achievements as an educator, he received the Henry B. Linford Award for Distinguished Teaching from the Electrochemical Society. Upon his official retirement from the University of California, Berkeley in 1989, he was presented with the Berkeley Citation, and an academic symposium was held in his honor.

PROFESSIONAL SERVICE

Brewer was instrumental in founding the National Academy of Sciences' National Research Council Committee on High-Temperature Chemistry, as well as organizing the first Gordon Research Conference on High-Temperature Chemistry in 1960. At the request of the Atomic Energy Commission and its successors, the Energy Research and Development Administration, and the Department of Energy, Brewer worked on numerous committees, including the DOE Council for Materials Sciences and the DOE Selection Committee for the Fermi Award.

He also maintained close ties with organizations that represented the international scientific community, including the International Union of Pure and Applied Chemistry, and the International Atomic Energy Agency.

Brewer sat on the editorial advisory boards of many respected scholarly journals and academic monograph series, including the *Journal of Physical Chemistry Solids* (1956-1992), *Progress in Organic Chemistry* (1958-1969), the *Journal of Chemistry Physics* (associate editor, 1959-1963), *Progress in Inorganic Chemistry* (1967-2005), *Progress in Solid State Chemistry* (1967-1996), *High Temperature Science* (founder, 1968-2005), the *Journal of Chemistry Thermodynamics* (1969-1978), the *Journal of Solid State Chemistry* (1969-1984), the *Journal of the Electrochemical Society* (divisional editor, 1976-1984), the *Journal of Chemical Engineering Data*, the *Journal of Physical Chemistry Ref. Data* (1978-1981, 1989-1992), the *Metals Handbook* (co-editor, 1983), the *Princeton Series in the Physico-Chemical Sciences for Technology* (co-editor, 1983-2005), and the *Handbook of Chemistry and Physics* (1991).

In addition, Brewer single-handedly compiled and maintained Part II of the *Bibliography on the High-Temperature Chemistry and Physics of Materials*.

Besides his distinguished career as a chemist and educator, Brewer was also an avid gardener who held a keen interest in native California plant life. In 1965, he became one of the founding members of the California Native Plant Society. A species of manzanita was named after him to honor his contribution to the study and preservation of California's native flora: *Arctostaphylos uva-ursi leo-breweri*, also referred to as "Leo Brewer's Manzanita."

WRITINGS

Outside of his editorial work, Brewer authored nearly 200 articles on a variety of advanced topics in the field of thermodynamics. In addition, in 1961, he and Kenneth Pitzer revised Gilbert N. Lewis and Merle Randall's classic 1923 text, *Thermodynamics and the Free Energy of Chemical Substances*.

RESEARCH FOCUS

Although Brewer's research covered an unusually wide range of subjects and employed a multitude of techniques from theory to spectroscopy, his primary focus was on high-temperature thermodynamics, materials science (including refractory containment materials), studies of metallic phases, and the development of metallic bonding theory, incorporating the concepts of electron promotion and generalized acid-base theory. He was also involved at different points in his career with astrophysics and ceramics.

Brewer's early high-temperature work also showed that the equilibrium vapor above CuCl was mainly Cu₃Cl₃ molecules at normal pressures. This simple observation led to what became known as Brewer's Rule. He showed that when vapor and condensed phases are in equilibrium, the vapor species become more complex as the temperature is raised. This includes the formation of polymers and unusual oxidation states. His rule became the foundation of the field of high-temperature chemistry.

Much of his research focused on resolving discrepancies between reported experimental values and values predicted by chemical bonding models. In many instances, the reported data were shown to be in error, and the reliability of the model was confirmed. Examples are the demonstrations that the enthalpies of formation of C(g) and N(g) were much larger than the widely accepted values. Brewer's compilation of the thermodynamic properties and phase diagrams of 101 binary systems of molybdenum provides many examples of use of predictive models when no reliable experimental data are available.

In some instances, the experimental results were confirmed and it was necessary to improve the models. An example would be the neglect of gaseous polymer species at high temperatures. The war-time study uncovered evidence of polymerization in high-temperature vapors. This led to a general theory which predicted that saturated high-temperature vapors would be complex mixtures of species and that the complexity would increase with increasing temperature. These predictions have been confirmed by high-temperature workers for many systems. The refractory studies initiated with the sulfides were extended to studies of silicides and borides and other refractory phases. The experience on the Manhattan Project on the use of platinum to reduce the volatility of lanthanides and actinides were extended to a wide range of transition metal intermetallic compounds through use of the Engel correlation of electronic and crystal structures that has

led to the prediction of the structures and compositions of the phases of most of the two billion multi-component phase diagrams of the transition metals.

Brewer devoted major effort to the characterization of the thermodynamic properties at high temperatures, and the critical evaluations of the thermodynamic properties from the Manhattan Project were updated periodically. One of Brewer's compilations covered the thermodynamic properties of the solid, liquid and gaseous phases of the elements and their oxides between room temperature and temperature to above 3000 K. The thermodynamic applications of these data were well-illustrated by the 2nd edition of Lewis and Randall's *Thermodynamics*, which Brewer and Kenneth Pitzer revised in 1961. Brewer's global interest in all of the elements is illustrated by a paper in 1951 on the equilibrium distribution of the elements in the earth's gravitational field.

Brewer conducted a wide range of spectroscopic studies both at high temperatures and in matrices to fix the thermodynamic properties of high-temperature vapors. From 1950 to 1970, Brewer published many papers on the analysis of the spectra produced by high-temperature gaseous molecules. Several of these papers described a molecular beam method for determining their ground electronic states. When low temperature matrix isolation was developed by George Pimentel at UC Berkeley, Brewer produced many papers on the spectra of his high-temperature molecules in a frozen inert matrix. Brewer also had a long-term interest in the electronic states of I₂, and he had several papers on its remarkable complexities.

Much of Brewer's later research was aimed at characterizing the extremely strong generalized Lewis acid-base interactions between lanthanides, actinides and left-hand transition metals with the platinum group metals. A combination of high-temperature solid electrolyte cells, equilibration with oxides, carbides and nitrides, and vapor pressure measurements were used. These intermetallics were shown to be among the most stable of all types of compounds, as predicted by the Engel theory. Engel had suggested a correlation between the number of conduction electrons and the crystal structure of the metals. Brewer extended this concept to include the nature of d and f electrons, and the concept of acid-base interactions. Starting investigations with undergraduate students, he tested these ideas by heating ZrC with the noble metal platinum, and found that the formation of ZrPt₃ released a great deal of energy despite the great stability of ZrC. Over several years Brewer developed the Brewer-Engel theory for such bonds, and he published many papers about its application.

RECOGNITION OF HIS ACHIEVEMENTS

Brewer's professional achievements were recognized with many awards and honors, including the L.H. Baekeland Award of the American Chemical Society (1953), the E. O. Lawrence Award of the Atomic Energy Commission (1961), the Palladium Medal of the Electrochemical Society (1971), and the William Hume-Rothery Award of the Metallurgical Society of the American Institute of Mining (1983). Brewer also served as a Guggenheim Fellow (1950) and as an elected member of the National Academy of Sciences (1959), the American Academy of Arts and Sciences (1979), and the American Society for Metals. In 1984, a special festschrift in his honor was prepared by his former students and colleagues, published under the title *Modern High Temperature Science*.

Partially adapted from an autobiographical essay written by Leo Brewer, as well as biographical essays prepared by his colleagues and students, including Paul Gilles, Karen Kruschwitz, Rollie Myers, Gerd Rosenblatt, Herbert Strauss, Richard Brewer, and Jane Scheiber.

Scope and Content of Collection

The Leo Brewer papers, 1930-2004, comprise the correspondence, teaching materials, laboratory notes, writings, and research files of renowned chemist Leo Brewer, universally regarded as one of the founders of the field of modern high-temperature chemistry. Brewer served as Professor in the College of Chemistry at the University of California, Berkeley, from 1946-1989, and as Director of the Inorganic Materials Research Division at the Lawrence Berkeley National Laboratory from 1961-1975. The collection includes materials documenting Brewer's doctoral research on Mesityl Oxide, his wartime research as a member of the Manhattan Project, as well as his later research on high temperature thermodynamics, materials science, the study of metallic phases, and the development of metallic bonding theory.

The papers have been arranged into six series: *Correspondence*, *Publications*, *UC Berkeley Materials*, *Professional Files*, *Subject Files*, and *Biographical Files*.

The collection includes substantive correspondence between Brewer and many notable twentieth-century chemists, including Linus Pauling, Luis W. Alvarez, Niels Engel, and John Margrave. Brewer maintained an extensive network of close professional relationships, and retained ties to many of his former doctoral candidates and research associates long after they had left his charge and moved on to careers in research or education. In some cases, this correspondence is quite extensive and spans many decades.

The collection also includes drafts, notes, source materials, and related correspondence for many of Brewer's publications. In many cases, the drafts vary significantly from the published work, and include data or exegetic passages that were not

included in the final manuscript. Many of these scholarly articles and reports represent the culmination of years of research and experiments.

A few publications are especially well-documented. These include, "Thermodynamic Properties and Equilibria of Uranium Halides, Oxides, Nitrides, and Carbides" (1945), "Dissociation Energies and Free Energy Functions of Gaseous Monoxides," (1960-1970), "Bonding and Structures of Transition Metals" (1968), "High Temperature Thermodynamic Properties of Elements and their Oxides" (1960-1994), "Calculation of Thermodynamic Properties of Metastable Phases of the Elements" (1992), and "Calculation of the Thermodynamic Effect of the Brewer-Engel Generalized Acid-Base Reactions of 1:1 Intermetallics for Non-transition Metals Al and Mg with Transition Metals," (1995-1997).

Other publication materials in the collection include Brewer's drafts and notes for various internal LBL/LBNL reports relating to calculator programs that Brewer designed to aid in his research (1975-1993), as well as extensive files relating to his work with Molybdenum, including his Molybdenum: Physicochemical Properties of its Compounds and Alloys (1980), the result of a thirteen-year study Brewer performed at the bequest of the International Atomic Energy Agency.

Besides publication drafts, correspondence, and related materials, the collection also includes a near-complete set of reprinted articles and book chapters written by Brewer over the course of his professional career, including many of his published articles on native California flora.

Coverage of Brewer's more than fifty-year tenure as a Professor in the College of Chemistry at the University of California, Berkeley, as well as his position as the Director of the Inorganic Materials Research Division at Lawrence Berkeley Laboratory, is comparatively sparse. However, the less than voluminous holdings are compensated for somewhat by the sheer range and high quality of the materials, owing to both the extensive length of Brewer's service, as well as the distinguished positions he held within the College of Chemistry and at Lawrence Berkeley Laboratory.

UC Berkeley related files include a diverse collection of materials relating to the history of chemistry research at Berkeley, departmental correspondence, course notes, and laboratory notebooks documenting Brewer's work with Galvanic cells. The collection also includes an intellectual genealogy tracing Brewer's extensive professional influence on future generations of chemists. Its length and breadth testify to the profound pedagogical impact Brewer made in the lives of his students and research assistants over the course of his extensive teaching career.

The collection also contains materials documenting Brewer's professional commitments and achievements, including materials relating to his work on national and international committees, files relating to conferences that Brewer attended or helped plan, consulting and grant-related materials, and reviews of scholarly articles written by colleagues across many scientific fields.

Brewer kept many of his professional files organized by research topic; these subject files span Brewer's academic lifespan and professional career; often a single folder contains notes from multiple decades. Subject-based correspondence originally kept with these materials has been retained among these files. Likewise, various publications by Brewer and others, have also been retained among these files.

One of the strongest elements of the collection is a number of files relating to Brewer's work as a member of the Manhattan Project. These files may be found predominantly in Series 5, Subseries 1: *Manhattan Project Files*. Additional materials relating to the Manhattan Project may be found in Series 1: *Correspondence*, Series 2: *Publications*, and Series 5, Subseries 2: *General Research Files*.

Finally, the collection contains a fair amount of biographical material, including student notes from Brewer's undergraduate studies at the California Institute of Technology and his doctoral studies at the University of California, Berkeley, award materials, portraits of Brewer with his students and colleagues, as well as a number of autobiographical statements composed for various occasions over the course of Brewer's lifetime, which together provide a more complete picture of Brewer's many professional achievements, allowing the researcher to trace the ebb and flow of his research interests.

Series 1 Correspondence 1940-2005

Physical Description: Carton 1-4; Carton 5, folders 1-23.

Arrangement

Arranged alphabetically, then chronologically.

Scope and Content Note

This series includes incoming and outgoing correspondence between Brewer and his colleagues, students, and friends. Editorial correspondence is for the most part not included here; rather, correspondence regarding a particular publication may be found among related materials in Series 2, *Publications*. To a lesser extent, professional correspondence with colleagues at the University of California and Lawrence Berkeley National Laboratory may also be found in Series 3, *UC Berkeley Materials*. Additional correspondence between Brewer and various professional organizations may be found in Series 4, *Professional Files*. Likewise, further correspondence regarding Brewer's work as member of the Manhattan Project may also be found in Series 5, Subseries 1: *Manhattan Project Files*.

Carton 1, Folder 1	Alexander, Carl A. 1969
Carton 1, Folder 2	American Chemical Society 1963
Carton 1, Folder 3	Allamandola, Lou 1968
Carton 1, Folder 4	Andrews, Lester 1975-1978
Carton 1, Folder 5	Angell, Austen 1989
Carton 1, Folder 6	Arrhenius, G. 1969
Carton 1, Folder 7	Atteridge, David 1973
Carton 1, Folder 8-9	A, Miscellaneous Circa 1950-1990
Carton 1, Folder 10	Barac, George 1997
Carton 1, Folder 11	Barrow, R.F. 1952-1986
Carton 1, Folder 12	Beck, Paul A. 1957-1958
Carton 1, Folder 13	Bennett, Larry H. & Baker, Hugh 1980
Carton 1, Folder 14	Berg, Robert 1972
Carton 1, Folder 15	Bever, Michael B. 1963-1964
Carton 1, Folder 16	Bird, George 1965-1972
Carton 1, Folder 17	Blaise, Jean 1983-1989
Carton 1, Folder 18	Bonnell, David 1975
Carton 1, Folder 19-20	Brabson, G. Dana 1965-1981
Carton 1, Folder 21	Bragg, R.H. 1969
Carton 1, Folder 22	Brooks, Harvey 1957
Carton 1, Folder 23	Brunner, Frederick C. 1974
Carton 1, Folder 24	Büchler, Alfred 1965, 1979
Carton 1, Folder 25-26	Bularzik, Joseph 1988-1989
Carton 1, Folder 27-28	Bullard, Gary L. 1974-1995

Carton 1, Folder 29-32	B, Miscellaneous c. 1950-2000
Carton 1, Folder 33	Cameron, Donald undated
Carton 1, Folder 34-35	Chandrasekharaiah, M.S. 1963-1989
Carton 1, Folder 36-37	Chang, Austin Y. 1971-1995
Carton 1, Folder 38	Chang, Chin-An 1970-1971
Carton 1, Folder 39-40	Chang, Shih Ger & Chevalier, Margaret 1972-1973
Carton 1, Folder 41	Chase, Malcolm W. 1994
Carton 1, Folder 42-48	Chipman, John 1946-1978
Carton 1, Folder 49	Chutjian, Ara 1972-1983
Carton 1, Folder 50	Cubicciotti, Dan 1971-1987
Carton 1, Folder 51-52	C, Miscellaneous
Carton 1, Folder 53	Darken, Lawrence 1952-1963
Carton 1, Folder 54	Davies, Tom 1993-1994
Carton 1, Folder 55	Davis, Drucilla G. 1978-1997
Carton 1, Folder 56	Derge, G. 1953
Carton 1, Folder 57	Derry, Gregory N. 1989
Carton 1, Folder 58-60	Desai, Pramod D. 1967, 1984-1985
Carton 1, Folder 61-64	Drowart, Jean 1958-1984
Carton 1, Folder 65-66	Duley, W.W. 1972-1975
Carton 1, Folder 67	Durlu, Nuri 1991
Carton 1, Folder 68	D, Miscellaneous Circa 1950-2000
Carton 2, Folder 1	Eisenberg, Morris 1960
Carton 2, Folder 2-3	Elliott, John 1962-1964, 1977
Carton 2, Folder 4	Ellner, Miroslav 1981
Carton 2, Folder 5-7	Engel, Niels 1950-1990
Carton 2, Folder 8	England, Walter B. 1979
Carton 2, Folder 9	Eyring, Leroy 1951-1992
Carton 2, Folder 10	E, Miscellaneous 1949-1969
Carton 2, Folder 11	Fegley Jr., Bruce 1982-1983
Carton 2, Folder 12-18	F, Miscellaneous Circa 1950-2000
Carton 2, Folder 19	Gabbay, Nisan 1997

Carton 2, Folder 20	Gau, George J. 1992
Carton 2, Folder 21	Giessen, Bill C. 1964
Carton 2, Folder 22-27	Gilles, Paul W. 1943-1999
Carton 2, Folder 28-30	Gingerich, Karl A. 1963-1983
Carton 2, Folder 31	Glaser, Frank W. 1954
Carton 2, Folder 32	Glausinger, William S. 1987-1991
Carton 2, Folder 33	Glesier, Molly 1959-1960
Carton 2, Folder 34-35	Gokcen, Nev A. 1982-1995
Carton 2, Folder 36	Goldberg, Leo 1957
Carton 2, Folder 37	Gole, James L. 1997
Carton 2, Folder 38	Green, David 1968-1990
Carton 2, Folder 39	Greer, Paul S. Circa 1964
Carton 2, Folder 40	Grimes, Warren 1970
Carton 2, Folder 41	Grimley, Robert 1960-1975
Carton 2, Folder 42	Grosse, Aristed V. 1950-1960
Carton 2, Folder 43	Guillermet, A. Fernandez 1984-1985
Carton 2, Folder 44	Guminski, Cezary 1986
Carton 2, Folder 45	Gurvich, Lev. V. 1978-1989
Carton 2, Folder 46-49	G, Miscellaneous Circa 1960-2000
Carton 2, Folder 50	Haakon, Haraldsen Circa 1957
Carton 2, Folder 51	Harris Semiconductor/ Harris-Intertype Corporation 1972
Carton 2, Folder 52	Hartsough, Larry 1967-1974
Carton 2, Folder 53	Hauge, Robert H. 1975-1997
Carton 2, Folder 54	Herrick, Claude 1971
Carton 2, Folder 55	Herschman, A. 1965
Carton 2, Folder 56	Hildebrand, Donald 1980-1986
Carton 2, Folder 57	Hilpert, Klaus 1996
Carton 2, Folder 58	Ho, Shih Ming 1969
Carton 2, Folder 59	Holleck, H. 1970

Carton 2, Folder 60	Houseman, Barton 1969-1972
Carton 2, Folder 61-66	Hume-Rothery, William 1956-1967, 1991-1993
Carton 2, Folder 67-68	H, Miscellaneous Circa 1950-2000
Carton 3, Folder 1-2	H, Miscellaneous Circa 1950-2000
Carton 3, Folder 3	Immergut, Edmund H. 1983
Carton 3, Folder 4	Imoto, S. 1993
Carton 3, Folder 5	I, Miscellaneous 1953-2002
Carton 3, Folder 6-15	Jaksic, Milan M. 1990-1992
Carton 3, Folder 16	James, C.G. 1954-1961
Carton 3, Folder 17	Jensen, Dan 1969-1976
Carton 3, Folder 18	Johansson, Börje 1973-1984
Carton 3, Folder 19	Jordine, Edmund S. 1963-1971
Carton 3, Folder 20-21	J, Miscellaneous Circa 1950-2000
Carton 3, Folder 22	Kaldis, E. 1981
Carton 3, Folder 23	Kangmin, Guo 1983
Carton 3, Folder 24	Katz, Joseph J. 1950
Carton 3, Folder 25	Kauffman, Larry 1966-1995
Carton 3, Folder 26	Keenan, Phillip C. 1950-1958
Carton 3, Folder 27	Kelsh, Harry T. 1962
Carton 3, Folder 28	Kent, Arthur
Carton 3, Folder 29	King, Baldwin 1969-1989
Carton 3, Folder 30	King, Juneja 1983-1985
Carton 3, Folder 31	Kirsliis, Stanley 1948-1949
Carton 3, Folder 32-33	Kleinschmidt, Philip D. 1985-1986
Carton 3, Folder 34	Klemperer, William 1964-1965
Carton 3, Folder 35	Kleppa, Ole J. 1976-1998
Carton 3, Folder 36	Kolks, Gary 1987
Carton 3, Folder 37	Kouvetakis, John Undated
Carton 3, Folder 38	Krikorian, N.H. 1967-1970
Carton 3, Folder 39	Krupenie, Paul H. 1963-1966

Carton 3, Folder 40	Kubaschewski, O. 1970-1971
Carton 3, Folder 41-43	K, Miscellaneous Circa 1950-2000
Carton 3, Folder 44-45	Lamoreaux, Robert & Hildebrand, Dan 1978-1983, 1995
Carton 3, Folder 46	Lashley, Jason C. 2003
Carton 3, Folder 47	Lavine, Barry 1997
Carton 3, Folder 48	Leibowitz, Leonard 1993
Carton 3, Folder 49	Leitnaker, J.M. 1980
Carton 3, Folder 50	Lipscombe, Trevor 1998
Carton 3, Folder 51	Lofgren, Norman 1963
Carton 3, Folder 52	Long, S. Randolph 1981
Carton 3, Folder 53-54	L, Miscellaneous Circa 1950-2000
Carton 3, Folder 55	Margrave, John 1994 Physical Description: Carton Scope and Content Note 3
Carton 3, Folder 57	Massini, Susan 1998
Carton 3, Folder 58	McGraw-Hill Book Company 1962-1981
Carton 3, Folder 59	Meschter, Peter 1974
Carton 3, Folder 60	Meyer, Carl B. 1967, 1978-1989
Carton 3, Folder 61	Ministry of Public Security (People's Republic of China) 1995
Carton 3, Folder 62	Morin, F.J. 1960 Physical Description: Carton Scope and Content Note 3
Carton 3, Folder 64	Mulliken, Robert S. & Tellinghuisen, Joel B. 1971
Carton 3, Folder 65	Myers, Clifford E. 1980-1984
Carton 3, Folder 66-67	M, Miscellaneous Circa 1950-2000
Carton 3, Folder 68	Neumann, J.P. 1985
Carton 3, Folder 69	Nininger, Eugene 1991
Carton 3, Folder 70	Niwa, Kichizo 1982 Physical Description: Carton Scope and Content Note 3

Carton 3, Folder 72	N, Miscellaneous Circa 1950-2000
Carton 3, Folder 73	Ohse, Roland W. 1986-1987
Carton 3, Folder 74	Okada, Masuo 1992
Carton 3, Folder 75	Olander, D.R. 1962-1975
Carton 3, Folder 76	Oppenheim, Antoni K. 1998
Carton 3, Folder 77	Otto, Earl 1962
Carton 3, Folder 78	O, Miscellaneous Circa 1950-2000
Carton 3, Folder 79	Parthe, Erwin 1955-1956
Carton 3, Folder 80	Pauling, Linus 1950-1975 Scope and Content Note Includes correspondence regarding the bonding energies of carbon, nitrogen, and oxygen, the metallurgical research of Niels Engel electron spin for the lowest rotational states of an oxygen molecule, and native California plants.
Carton 3, Folder 81	Pešić, D.S. 1967
Carton 3, Folder 82	Pecora, Louis M. & Ficalora, Peter Circa 1975
Carton 3, Folder 83	Phillips, L.F. 1967-1999
Carton 4, Folder 1	Pigford, Thomas H. 1954, 1963
Carton 4, Folder 2	Pitzer, Kenneth Circa 1990
Carton 4, Folder 3	Poonawala, Nazir Mohemedi 1999
Carton 4, Folder 4	Pourbaix, Marcel 1982-1983
Carton 4, Folder 5	Prausnitz, J.M. 1968-1993
Carton 4, Folder 6	Preston, Richard 1985
Carton 4, Folder 7-8	P-Q, Miscellaneous Circa 1950-2000
Carton 4, Folder 9	Rayner, David 1988
Carton 4, Folder 10	Reddy, Ramana G. 1989-1994
Carton 4, Folder 11	Redlich, Otto 1962-1975
Carton 4, Folder 12	Reynolds, George 1986-1993
Carton 4, Folder 13	Richards, N.E. 1959-1960
Carton 4, Folder 14	Richardson, F. Denys 1955-1957, 1964
Carton 4, Folder 15	Rickert, Hans 1963
Carton 4, Folder 16	Roberts, E.J. 1954-1967
Carton 4, Folder 17	Rosen, B. 1948-1963
Carton 4, Folder 18-22	Rosenblatt, Gerd M. 1963-1997
Carton 4, Folder 23	Rudy, Erwin Circa 1964-1965

Carton 4, Folder 24	Russell, Allen S. 1949-1956
Carton 4, Folder 25-26	R, Miscellaneous Circa 1950-2000
Carton 4, Folder 27	Samara, Geroge A. 1988-1989
Carton 4, Folder 28	Satoh, Shun-Ichi 1955-1956
Carton 4, Folder 29	Sawyer, Dwight L. 1949-1974
Carton 4, Folder 30-31	Schäfer, H. 1955-1980
Carton 4, Folder 32	Schofield, K. 1964
Carton 4, Folder 33	Seaborg, Glenn T. 1996-1997
Carton 4, Folder 34-35	Searcy, Alan 1951-1965
Carton 4, Folder 36	Sears, Gerald W. 1958
Carton 4, Folder 37	Shaner, J.W. 1978
Carton 4, Folder 38	Sheikh, Younis 2002
Carton 4, Folder 39	Sheldon, Robert 1983-1984
Carton 4, Folder 40	Shintani, T. 1970
Carton 4, Folder 41	Silberg, Melvin 1987
Carton 4, Folder 42	Simpson, O.C. 1951-1952
Carton 4, Folder 43	Sinclair, Robert 1987
Carton 4, Folder 44	Smith, J.F. 1981
Carton 4, Folder 45	Somayjulu, G.R. 1960-1964
Carton 4, Folder 46	Stafford, Fred 1962-1988
Carton 4, Folder 47	Stolyarova, Valentina 1992
Carton 4, Folder 48	Stringer, John 1993-1995
Carton 4, Folder 49-50	Sugar, Jack & Kaufman, V. 1987-1989
Carton 4, Folder 51	Susa, Jack undated
Carton 4, Folder 52	Syverud, Alan 1970-1971
Carton 4, Folder 53-57	S, Miscellaneous Circa 1950-2000
Carton 4, Folder 58-60	Thurmond, Carl D. 1951-1961, 1984
Carton 4, Folder 61	Thurmond, Carl D. & Trumbore, Forrest A. 1954
Carton 4, Folder 62	Trajmar, Sandor A. 1962

Carton 4, Folder 63	Trumbore, Forrest A. 1954-1956
Carton 4, Folder 64-65	Tsriln'kov, Slava I. & Lomakin, Lora 1998
Carton 4, Folder 66-67	T, Miscellaneous Circa 1950-1990
Carton 4, Folder 68	United States Bureau of Mines 1992
Carton 4, Folder 69	U-V, Miscellaneous Circa 1950-2000
Carton 5, Folder 1	Wallace, Terry C. Circa 1983
Carton 5, Folder 2	Ward, John W. 1993
Carton 5, Folder 3	Weltner Jr., W. 1963-1970
Carton 5, Folder 4	Wentink Jr., Tunis 1969-1985
Carton 5, Folder 5	Westlund, Fred G. 1997-1999
Carton 5, Folder 6	Wijbenga, Grietje 1981-1982
Carton 5, Folder 7	Wilson, Rick 1991-1992
Carton 5, Folder 8	Wise, E.M. 1947-1960
Box 1, Folder 1	Wise, E.M. 1960
Carton 5, Folder 9	Wong, Chi-Hsiang 1957-1967
Carton 5, Folder 10-11	Woodyard, Jack 1993
Carton 5, Folder 12	Worrell, Wayne 1962-1976, 1992-1998
Carton 5, Folder 13-15	Wu, Hui-Fen 1996-1999
Carton 5, Folder 16-20	W, Miscellaneous Circa 1950-2000
Carton 5, Folder 21	Y, Miscellaneous Circa 1950-2000
Carton 5, Folder 22	Ziman, John M. 1967
Carton 5, Folder 23	Z, Miscellaneous Circa 1950-2000

Series 2 **Publications 1945-2005**

Physical Description: Carton 5, folders 24-54; Carton 6-9; Carton 10, folders 1-11; Carton 25; Box 1; Oversize Folder 1b

Arrangement

Arranged into two subseries: Publication drafts, and Publication reprints.

Scope and Content Note

This series includes drafts, notes, and related correspondence for many of Brewer's published writings, beginning with publications stemming from his doctoral research at the University of California, Berkeley on the compound Mesityl Oxide. As shorthand, Brewer often referred in correspondence to each of his writings numerically, by citing its corresponding position on the cumulative bibliography of his publications. Each of the publications is identified in this listing by both its title and the numerical indicator assigned to the publication by Brewer. A bibliography of Brewer's writings, including internal laboratory reports, may be found at the beginning of the series. A near complete set of reprints may be found beginning in carton 10, folder 12.

2:1 Publication drafts 1945-2005

Physical Description: Carton 5, 24-54; Carton 6, 1-38; Carton 7, 1-40; Carton 8, 1-42; Carton 9, 1-40; Carton 10, 1-11

Arrangement

Arranged chronologically by date of publication.

Scope and Content Note

Includes drafts, notes, and background materials for publications written by Brewer. Also includes related correspondence with collaborating authors, editors, and publishers.

Carton 5, Folder 24
 Carton 5, Folder 25-26
 Carton 5, Folder 27
 Carton 5, Folder 28
 Carton 5, Folder 29
 Carton 5, Folder 30-31
 Carton 5, Folder 32
 Carton 5, Folder 33
 Carton 5, Folder 34
 Carton 5, Folder 35
 Carton 5, Folder 36
 Carton 5, Folder 37
 Carton 5, Folder 38-39
 Carton 5, Folder 40
 Carton 5, Folder 41
 Carton 5, Folder 42-47
 Carton 5, Folder 48
 Carton 5, Folder 49
 Carton 5, Folder 50-51
 Carton 5, Folder 52
 Carton 5, Folder 53-54
 Carton 5, Folder 55
 Carton 6, Folder 1
 Carton 6, Folder 2
 Carton 6, Folder 3

Bibliography 2002

"The Thermodynamic Properties and Equilibria at High Temperatures of the Compounds of Plutonium," (15) 1945-1950

"Utilization of Equilibrium Vapor Pressure Data," (16) 1949

"The Thermodynamic and Physical Properties of the Elements," (17) 1945-1950

"Thermodynamics and Physical Properties of Nitrides, Carbides, Sulfides, Silicides, and Phosphides," (18) 1945

"The Thermodynamic Properties of Halides," (20) 1945, 1950

UCRL-572 1950

"The Thermodynamic Properties of Molybdenum and Tungsten Halides and the Use of the Metals as Refractories," (22) 1945

"The Thermodynamics of Gaseous Cuprous Chloride, Monomer and Trimer," (24) Undated

"The Stability of Gaseous Diatomic Oxides," (32) Undated

"The Equilibrium Distribution of the Elements in the Earth's Gravitational Field," (34) Undated

"The Gaseous Species of the Al-Al₂O₃ System," (35) 1950, 1987

"Cyanogen Flames and the Dissociation Energy of N₂" (37) 1952

"The Stability of SiO Solid and Gas," (41) Undated

"A Study of the Ge-GeO₂ System by an Inductively Heated DTA Apparatus," (51, UCRL-3116) 1955-1956

"Thermodynamic Properties and Equilibria of Uranium Halides, Oxides, Nitrides, and Carbides," (59) 1945

"Disassociation Energies of Some Common Molecules," (UCRL-2832) 1955

UCRL-3138 Circa 1955

"Dissociation Energies of Gaseous Metal Dioxides," (64, UCRL-9437) 1960-1961

"Ultraviolet Bands of Magnesium Hydroxide and Oxide," (70) 1961

"Thermodynamics of Suboxide Vaporization," (73) 1958-1962

UCRL-8713 1959-1968**UCRL-8713 1964-1968**

"Ultraviolet Fluorescent and Absorption Spectra of S₂ Isolated in Inert-Gas Matrices," (84) 1964-1982

"Non-Stoichiometric Compounds," (85) Circa 1971

Carton 6, Folder 4	"A Most Striking Confirmation of the Engel Metallic Correlation," (86) Circa 1966
Carton 6, Folder 5-6	"Near Infrared Bands of Diatomic CaO and SrO," (90, UCRL-16338) 1967, Circa 1965
Carton 6, Folder 7-10	"Bonding and Structures of Transition Metals," (91) 1968
Carton 6, Folder 11-13	"Low-Lying Electronic States of ScF, TiO, and ZrO," (93) 1968-1971
Carton 6, Folder 14-17	"Dissociation Energies and Free Energy Functions of Gaseous Monoxides," (94) 1960-1970
Carton 6, Folder 18	"Sulfur Hexafluoride. Its Reaction with Ammoniated Electrons and its Use as a Matrix for Isolated Gold, Silver, and Copper Atoms," (95) 1969
Carton 6, Folder 19	"Thermodynamics and Alloy Behaviour of the BCC and FCC Phases of Plutonium and Thorium," (97a) Circa 1969-1970
Carton 6, Folder 20	"Ground State of Gaseous CaO: A Study of the Matrix Spectra of Ca and CaO," (107) 1970-1972
Box 1, Folder 2	"Ground State of Gaseous CaO: A Study of the Matrix Spectra of Ca and CaO," (107) 1970-1972
Carton 6, Folder 21	"Transitional Metal Alloys of Extraordinary Stability: An Example of Generalized Lewis Acid-Base Interactions in Metallic Systems," (109) 1973
Carton 6, Folder 22	"Prediction of Transition Metal Phase Diagrams," (111/LBL-2234) 1974
Carton 6, Folder 23-35	LBL-5485 1975, 1978-1984, 1991
Carton 6, Folder 36-38	LBL-4994 1976
Carton 7, Folder 1-5	LBL-4994 1976-1983
Carton 7, Folder 6	"Optical Spectra of Calcium Atoms in Inert Matrices," (123) 1978
Carton 7, Folder 7	"Simplification of Thermodynamic Calculations Through Dimensionless Entropies," (124) 1979
Carton 7, Folder 8	"Principles of Critical Evaluation and Compilation of Phase Diagrams and Thermodynamic Data," (125) 1979
Carton 7, Folder 9-11	"Models for Calculation of Dissociation Energies of Homonuclear Diatomic Molecules," (127) 1980
Carton 7, Folder 12-14	Molybdenum: Physiochemical Properties of Its Compounds and Alloys, (128) 1980
Carton 7, Folder 15	"Compilation of Thermodynamic and Phase Information for the Binary Systems of Molybdenum," (133) 1980
Carton 7, Folder 16-17	"The Role and Significance of Empirical and Semiempirical Correlations " (135) 1981
Carton 7, Folder 18-19	"The Structure and Stability of Surface Platinum Oxide and of Oxides of Other Noble Metals," (136) 1981
Carton 7, Folder 20	"Thermodynamic Data for Flue-Gas Desulfurization Processes," (138) 1980
Carton 7, Folder 21-22	"Mathematical Representation of Size and Electronic Factors," (141) 1982
Carton 7, Folder 23-35	LBL-15346 1980-1993
Box 1, Folder 6	LBL-15346 Circa 1987
Carton 7, Folder 36-38	LBL-16726 1980-1983
Carton 7, Folder 39-40	LBL-17311 1983-1984
Carton 8, Folder 1-6	LBL-17311 1983-1984
Carton 8, Folder 7	"Chemical Bonding Concepts Applied to Metal and Their Alloys," (146) Circa 1983
Carton 8, Folder 8	"Generalized Lewis Acid-Base Titration of Palladium and Niobium," (155) 1988

Carton 8, Folder 9-10	"Solute Stabilization for HCP-FCC Transitions: Co-Mo," (142) 1984
Carton 8, Folder 11	"The Generalized Lewis Acid-Base Theory: Surprising Recent Developments," (143) 1984
Carton 8, Folder 12	"Thermodynamics of Several Lewis Acid-Base Stabilized Transition Metal Alloys," (145) 1984
Carton 8, Folder 13	"Chemical Bonding Concepts Applied to Metals and Their Alloys," (146) 1984
Carton 8, Folder 14	"The Au-Mo (Gold-Molybdenum) System," and "Thermodynamic Properties and Phase Diagrams of Binary Molybdenum Systems," (150-151) 1986
Carton 8, Folder 15	"The Unusual Bonding of Actinide Systems," (152) 1987
Carton 8, Folder 16-18	"High Temperature Vaporization of Oxide II. Oxides of Be, Mg, Ca, Sr, Ba, B, Al, Ga, In, Tl, Si, Ge, Sn, Pb, Zn, Cd, and Hg," (153) 1987
Carton 8, Folder 19-42	"High Temperature Thermodynamic Properties of Elements and Their Oxides," (154) 1960-1994
Carton 9, Folder 1-18	"High Temperature Thermodynamic Properties of Elements and Their Oxides," (154) 1984-1994
Box 1, Folder 3-5	"High Temperature Thermodynamic Properties of Elements and Their Oxides," (154) 1980-1989
Oversize B, Folder 1	"High Temperature Thermodynamic Properties of Elements and Their Oxides," (154) Undated
Carton 9, Folder 19-22	"The Nature of Bonding in Transition Metal Aluminides," (164) 1980-1990
Carton 9, Folder 23	"Ionic Metallic Solutions," (167 /LBL-28393) Circa 1990
Carton 9, Folder 24-35	"High Temperature Chemistry," Eyring Lectures in Chemistry (171) 1987-1996
Carton 9, Folder 36	"Temperature Stability Range of the Binary MoC Phase," (173) Undated
Carton 9, Folder 37-38	"The Power of Chemical Bonding Models for Prediction of Thermodynamics and Phase Diagrams," (174) 1991
Carton 9, Folder 39-40	"Calculation of Thermodynamic Properties of Metastable Phases of the Elements" (175) 1992
Carton 10, Folder 1-4	"Calculation of Thermodynamic Properties of Metastable Phases of the Elements," (175) 1992
Box 1, Folder 7-8	"Calculation of Thermodynamic Properties of Metastable Phases of the Elements," (175) Circa 1992
Carton 10, Folder 5	"Calculation of Phase Diagrams of the Actinides," (176) 1993
Carton 10, Folder 6	"Calculation of Binary Phase Diagrams of Refractory Metals, Ta, W, Tc, and Re, with Liquid Metals, Am, Cm, and Bk, Using a Regular Solution Theory Modification," (178) 1995
Carton 10, Folder 7-9	"Calculation of the Thermodynamic Effect of the Brewer-Engel Generalized Acid-Base Reactions of 1:1 Intermetallics for Non-transition Metals Al and Mg with Transition Metals," (179) 1995-1997
Carton 10, Folder 10-11	"Parameters for Calculation of Properties of Acid-Base Intermetallics," (180) 1997
Carton 25, Folder 1	Draft materials in electronic format 1980-2000

2:1 Publication Reprints 1942-2000

Physical Description: Carton 10: 12-25; Carton 11: 1-5.

Arrangement

Arranged hierarchically, then chronologically by date of publication.

Scope and Content Note

Includes a near-complete set of reprinted articles and book chapters written by Brewer over the course of his professional career. Besides his distinguished career as a chemist and educator, Brewer was also an avid gardener who held a keen interest in native California plant life. Many of his published articles related to gardening are also included in this subseries.

Carton 10, Folder 12	Reprints: 1-4 1942-1946
Carton 10, Folder 13	Reprints: 4-7 1947-1950
Carton 10, Folder 14	Reprints: 8-14, 16, 19-27 1948-1950
Carton 10, Folder 15	Reprints: 15, 17, 19-21 1946-1949
Carton 10, Folder 16	Reprints: 28-46 1951-1955
Carton 10, Folder 17	Reprints: 47-57, 59 1947, 1956-1959
Carton 10, Folder 18	Reprints: 61-78, 81-82 1958-1965
Carton 10, Folder 19	Reprints: 79, 83-88 1962-1967
Carton 10, Folder 20	Reprints: 92-180 1968-1973
Carton 10, Folder 21	Reprints: 111-114, 117-124 1974-1979
Carton 10, Folder 22	Reprints: 125-127, 131-136 1979-1981
Carton 10, Folder 23	Reprints: 137, 138 1981
Carton 10, Folder 24	Reprints: 140-150 1983-1987
Carton 10, Folder 25	Reprints: 151-164 1987-1988
Carton 11, Folder 1	Reprints: 159-170, 176-178 1987-1995
Carton 11, Folder 2	Reprints: 158-159, 161, 164-174 1988-1993
Carton 11, Folder 3	Reprints: 177 1989
Carton 11, Folder 4	Reprints: 179-181, 183-184 1997-2000
Carton 11, Folder 5	Reprints on Gardening 1961-1979

Series 3 UC Berkeley Materials 1953-2004

Physical Description: Carton 11, 6-36; Carton 12; Carton 13, 1-20.

Arrangement

Arranged into two subseries: Administrative Files, and Teaching Materials.

Scope and Content Note

This series includes administrative files and teaching materials produced over the course of Brewer's extensive career as a member of the faculty of the College of Chemistry at the University of California, Berkeley, and as a researcher at the Lawrence Berkeley National Laboratory. Brewer served as Professor in the College of Chemistry from 1946-1989, and as Director of the Inorganic Materials Research Division at LBNL from 1961-1975.

3:1 Administrative Files 1953-2004

Physical Description: Carton 11, folders 6-36; Carton 12, folders 1-17

Arrangement

Arranged into four sub-subseries: Committee Files, Lecture Files, Memorial Files, and Laboratory Files.

Scope and Content Note

Includes departmental correspondence, planning materials from various UC Berkeley lecture series and memorial events, including many sponsored by the College of Chemistry. Also includes laboratory notebooks as well as materials documenting the history of chemistry programs at UC Berkeley.

3:1:1 Committee Files 1966-2002

Physical Description: Carton 11, folders 6-15.

Arrangement

Arranged alphabetically.

Scope and Content Note

Includes files relating to administrative committees at the College of Chemistry at the University of California, Berkeley. Also includes some materials relating to Brewer's colleagues at the University.

Carton 11, Folder
6-7

Carton 11, Folder
8

Carton 11, Folder
9

Carton 11, Folder
10

Carton 11, Folder
11-12

Carton 11, Folder
13-15

Lewis, Gilbert N. Circa 2002

MMRD Powder Metallurgy Committee 1998

Non-resident tuition waivers 1967

Pimentel, George 1966-1972

Pitzer, Kenneth 1976-2000

Visiting Professors (Hirai, Shinji) 1981-1994

3:1:2 Lecture Files 1967-1997

Physical Description: Carton 11, folders 16-20

Arrangement

Arranged alphabetically.

Scope and Content Note

Includes materials relating to the establishment and execution of various lecture series sponsored by the College of Chemistry at the University of California, Berkeley.

Carton 11, Folder
16-17

Chemistry Lecture Programs 1978-1995

Carton 11, Folder
18
Carton 11, Folder
19-20

Faculty Research Lectures 1970-1973**Lewis Lectures 1967-1997****3:1:3 Memorial Files 1987-2000****Physical Description:** Carton 11, folders 21-23**Arrangement**

Arranged alphabetically.

Scope and Content Note

Includes materials relating to memorial services held for faculty of the College of Chemistry at the University of California, Berkeley. In the case of Kenneth Pitzer, materials include planning materials and correspondence relating to the symposium held in his honor.

Carton 11, Folder
21
Carton 11, Folder
22
Carton 11, Folder
23

Kelley Memorial Committee 1992**Meyer Memorial Committee 1987****Pitzer Memorial Symposium 1999-2000****3:1:4 Laboratory Files 1953-2004****Physical Description:** Carton 11, folders 24-36; Carton 12, folders 1-17**Arrangement**

Arranged hierarchically.

Scope and Content Note

Includes a diverse collection of materials relating to the history of chemistry research at Berkeley, including laboratory notebooks documenting Brewer's research, especially with regard to his work with Galvanic cells, as well as monthly principal investigator reports covering Brewer's final years with the Laboratory. Also includes an intellectual genealogy tracing Brewer's extensive professional influence on future generations of chemist. Its length and breadth both testify to the profound pedagogical impact Brewer made on the lives of his students and research assistants over the course of his extensive teaching career.

Carton 11, Folder
24-27
Carton 11, Folder
28-30
Carton 11, Folder
31
Carton 11, Folder
32
Carton 11, Folder
33
Carton 11, Folder
34
Carton 11, Folder
35
Carton 11, Folder
36
Carton 12, Folder
1-2
Carton 12, Folder
3-4
Carton 12, Folder
5

College of Chemistry-Administrative Correspondence 1976-2003**Monthly Principal Investigator Reports 2002-2004****William Jolly's History of Chemistry at the University of California, Berkeley 1985****Gilman Hall 1996****Laboratory and Building Images Undated****Laboratory Equipment. Circa 1965-1985****Lab Portraits-Helen Johanson Circa 1970****Leo Brewer Notebooks 1994****Leo Brewer Notebooks 1994-1998****Leo Brewer Notebooks 1999-2002****Galvanic Cells 1965-1992**

Carton 12, Folder 6	Galvanic Cells 1994-1998
Carton 12, Folder 7-8	Galvanic Cells 1994-1998
Carton 12, Folder 9-10	UCB Radiation Safety 1995-1998
Carton 12, Folder 11	Survey of Chemistry Departments in China Circa 1995
Carton 12, Folder 12-13	Directories of UCB Graduate Students 1953, 1960-1964
Carton 12, Folder 14	Intellectual Genealogy - PhD Students 1959, 1995
Carton 12, Folder 15	UCB PhD Program 1960-1988
Carton 12, Folder 16-17	UCB College of Chemistry Newsletter 1955-1972

3:2 Teaching Materials 1962-2002

Physical Description: Carton 12, folders 18-27; Carton 13, folders 1-20.

Arrangement

Arranged chronologically.

Scope and Content Note

Includes course notes and lecture materials spanning Brewer's fifty year tenure as Professor in the College of Chemistry at the University of California.

Carton 12, Folder 18	Chemistry Examinations 1962
Carton 12, Folder 19	Laboratory Notebook 1970
Carton 12, Folder 20	Chemistry 107 Circa 1970
Carton 12, Folder 21-22	Laboratory Computation Notebooks I-II 1977-1978
Carton 12, Folder 23	Oxide Systems / Potential Electrolyte Notes Circa 1978
Carton 12, Folder 24-25	Electrodes / Electrolytes Notebooks I-II 1981-1982
Carton 12, Folder 26	Electrodes / Electrolytes Photographs 1981-1982
Carton 12, Folder 27	Cells I Notebooks 1978
Carton 13, Folder 1-2	Pictures / Analysis Lab Notebook Circa 1978
Carton 13, Folder 3	Kinetic EMFs 1980
Carton 13, Folder 4	Chemistry 2046 1983-1986
Carton 13, Folder 5	XRF Data Storage / Matrix Connection Programs Circa 1984
Carton 13, Folder 6	Course Notes 1985
Carton 13, Folder 7	Notebook Copies 1985
Carton 13, Folder 8-9	Notebook Copies / Seminar 91A and 91B Circa 1986
Carton 13, Folder 10	Chemistry 204 Homework 1986

Carton 13, Folder 11	Lab Notebook 1988
Carton 13, Folder 12	High Temperature Chemistry Lecture 1989
Carton 13, Folder 13	Computer Science 7S Study Guide Circa 1994
Carton 13, Folder 14	Mass Spectrometry / Solid State Class 2001
Carton 13, Folder 15	ThO₂, Al₂O₃, La₂O₃ Undated
Carton 13, Folder 16	X-Ray Crystallography Undated
Carton 13, Folder 17-20	Solid State Chemistry Lecture Notes 2002

Series 4 **Professional Files 1950-2004**

Physical Description: Carton 13, 21-42; Carton 14; Carton 15, folders 1-35

Arrangement

Arranged into 5 subseries: Committee Files, Conference Files, Consulting Files, Grant Files, and Review Files.

Scope and Content Note

This series comprises materials documenting Brewer's professional commitments and achievements. It includes materials relating to his work on regional, national, and international professional committees, files relating to conferences that he planned or else attended as a guest speaker, materials relating to his consulting work for private industry groups, funding applications and summary reports for research grants offered through a diverse assortment of government agencies, and reviews of scholarly journal articles written by colleagues across many scientific fields.

4:1 **Committee Files 1958-1997**

Physical Description: Carton 13, folders 21-24

Arrangement

Arranged chronologically.

Scope and Content Note

Includes files relating to Brewer's participation on professional committees and advising boards not directly affiliated with the University of California.

Carton 13, Folder 21	Materials Advising Board 1958-1960
Carton 13, Folder 22	NAS / SCI 1964-1966
Carton 13, Folder 23	Alloy Phase Diagram Program 1983-1987
Carton 13, Folder 24	Study of Research Needs in High Temperature Sciences Undated

4:2 **Conference Files 1950-2004**

Physical Description: Carton 13, folders 25-42; Carton 14; Carton 15, folders 1-40

Arrangement

Arranged chronologically.

Scope and Content Note

Includes materials relating to professional meetings and conferences that Brewer planned or attended. Conferences include the Gordon Research Conference, the Hume-Rothery Symposium, and the Thermodynamics of Alloys Conference (TOFA).

Carton 13, Folder 25-27	Chemical Bonding in Semiconductors and Semimetals 1950-1995
Carton 13, Folder 28	Paris 1957
Carton 13, Folder 29	Purdue Section of American Chemistry Society 1958
Carton 13, Folder 30	Gordon Research Conference Circa 1960
Carton 13, Folder 31	American Chemistry Society Meeting 1981
Carton 13, Folder 32	High Temperature Thermodynamics (Asilomar) 1963-2003
Carton 13, Folder 33	Chemistry Kinetics Conference 1967
Carton 13, Folder 34-36	American Society for Metals 1967-1969
Carton 13, Folder 37-38	Gordon Research Conference 1970-1994
Carton 13, Folder 39-42	Alloy Data Center - Alloy Phases 1975-1994
Carton 14, Folder 1-2	Alloy Data Center - Alloy Phases 1975-1994
Carton 14, Folder 3-5	Alloy Data Center 1976-1986
Carton 14, Folder 6	Gas Desulphurization (Morgantown) 1979
Carton 14, Folder 7	Thermodynamics and Kinetics of Metallurgical Processes 1980
Carton 14, Folder 8	Midwest High Temperature (Lawrence) 1983
Carton 14, Folder 9	Midwest Thermodynamics Symposium 1988
Carton 14, Folder 10-14	Symposium on High Temperature and Materials Chemistry 1989
Carton 14, Folder 15	50th Anniversary of Plutonium Discovery 1991
Carton 14, Folder 16	Midwest High Temperature and Solid State Chemistry 1991
Carton 14, Folder 17	GIAUQUE Scientific Papers Foundation 1995
Carton 14, Folder 18	China 1996-1999
Carton 14, Folder 19	High Temperature Chemistry Materials 1997
Carton 14, Folder 20	Gordon Research Conference 1998-2000
Carton 14, Folder 21	Gordon Research Photographs 1996, 1999
Carton 14, Folder 22	TMS - Hume-Rothery Symposium 1998-2000
Carton 14, Folder 23	TMS Meeting (San Diego) 1999
Carton 14, Folder 24	ASM 1999-2000
Carton 14, Folder 25	American Chemical Society 2000

Carton 14, Folder 26-27	ICCT / IUPAC 2000
Carton 14, Folder 28-29	Plutonium Futures 2000
Carton 14, Folder 30	General Meetings 2000-2001
Carton 14, Folder 31-32	TMS (Kaufman) 2002
Carton 14, Folder 33	Thermodynamics of Alloys - Manuscript 2002
Carton 14, Folder 34-35	Thermodynamics of Alloys - Memoranda 2002
Carton 14, Folder 36-38	Thermodynamics of Alloys - Talk 2002
Carton 14, Folder 39	Thermodynamics of Alloys - Wien File 2004
Carton 14, Folder 40	Chemistry of High Temperature Species Undated

4:3 Consulting Files 1959-1996

Physical Description: Carton 14, folders 41-42; Carton 15, folders 1-4

Arrangement

Arranged chronologically.

Scope and Content Note

Includes correspondence with corporations and various research groups, as well as related research reports.

Carton 14, Folder 41	Bell Telephone Laboratories Circa 1959
Carton 14, Folder 42	General Atomic 1959-1971
Carton 15, Folder 1	Dow Chemical Company 1964-1980
Carton 15, Folder 2	Exxon 1978-1981
Carton 15, Folder 3	Chevron 1982
Carton 15, Folder 4	Electronic Power Research Institute 1993-1996

4:4 Grant Files 1972-2000

Physical Description: Carton 15, folders 5-28

Arrangement

Arranged chronologically.

Scope and Content Note

Includes correspondence with various granting agencies, including the Department of Energy and the National Science Foundation.

Carton 15, Folder 5	National Science Foundation 1972-1973
Carton 15, Folder 6	SRI International 1980-1983
Carton 15, Folder 7-9	Department of Energy 1981-1986, 1990

Carton 15, Folder 10	National Science Foundation 1991-1997
Carton 15, Folder 11-13	National Research Council - Cooperation in Applied Science and Technology 1992-1994
Carton 15, Folder 14	Electric Power Research Institute 1993-1995
Carton 15, Folder 15	Department of Energy / National Science Foundation 1994
Carton 15, Folder 16-17	National Science Foundation Proposal Guide 1994-1996
Carton 15, Folder 18-20	National Science Foundation - 1st Review 1994-1995
Carton 15, Folder 21-22	National Science Foundation - 2nd Review 1995
Carton 15, Folder 23	National Science Foundation - 3rd Review 1996
Carton 15, Folder 24	National Science Foundation - 4th Review 1996
Carton 15, Folder 25	Electrical Power Research Institute 1996
Carton 15, Folder 26-27	Organisation for Economic Co-operation and Development / Nuclear Energy Agency Circa 1999
Carton 15, Folder 28	Petroleum Research Fund Circa 2000

Review Files 1958-1994

Physical Description: Carton 15, folders 29-35

Arrangement

Arranged chronologically.

Scope and Content Note

Includes reviews of scholarly articles and related correspondence.

Carton 15, Folder 29	Reviews 1958-1979
Carton 15, Folder 30	Review Correspondence 1972
Carton 15, Folder 31	Reviews 1982-1989
Carton 15, Folder 32	Serial Reviews / Proposals 1988-1986
Carton 15, Folder 33	Proposal Reviews 1989-1992
Carton 15, Folder 34-35	Review Correspondence 1990-1991, 1992-1994

Series 5 Subject Files 1921-2004**Physical Description:** Carton 15, folders 36-41; Cartons 16-22; Carton 23: 1-20.**Arrangement**

Arranged into two series: Manhattan Project Files, and General Research Files.

Scope and Content Note

This series includes files relating to Brewer's work during World War II as a member of the Manhattan Project, as well as more general subject files that evidence the depth and breadth of Brewer's research interests. In some cases, the coverage within a single subject folder spans many decades.

The first subseries, *Manhattan Project Files*, includes correspondence, research reports, notes, and other materials relating to Brewer's work as a member of the top-secret United States government project to develop a nuclear weapon during World War II. As the leader of a small team of other young chemists from UC Berkeley, Brewer continued to hone his knowledge of chemistry and develop as a mentor and educator. The materials here provide insight into the difficult theoretical and material challenges Brewer overcame over the course of the project.

The challenge of the Manhattan Project to use theoretical models to predict properties of systems for which no data was available continued to be a dominant feature of Brewer's research throughout his professional career. The second subseries,

General Research Files, includes correspondence, notes, reports, and data documenting Brewer's research over the subsequent half-century. Many of these files document a long series of investigations aimed at establishing the general principles of high-temperature behavior, and at developing methods and materials to gain new information about high-temperature systems.

5:1 Manhattan Project Files 1930-1999**Physical Description:** Carton 15, folders 36-41; Carton 16; Carton 17, folders 1-21**Arrangement**

Arranged alphabetically.

Scope and Content Note

This subseries includes correspondence, research reports, equipment notes, and other related materials relating to Brewer's work as a member of the Manhattan Project. Although Brewer kept most materials relating to his work on the Manhattan Project separate from his general research files, some materials were in fact interfiled among related research dating from other projects and time periods. In these cases, the original order of the files has been left undisturbed. For this reason, some materials relating to the Manhattan Project may also be found in Series 5, Subseries 2: *General Research Files*.

Carton 15, Folder
36-37Carton 15, Folder
38Carton 15, Folder
39Carton 15, Folder
40-41Carton 16, Folder
1Carton 16, Folder
2-3Carton 16, Folder
4**Actinides, Thermodynamics of Circa 1948****Beryllium and Zirconium, Physical Properties of 1946****Calorimeter, Berkeley 1951****Ceramics and Molding (Metallurgy) 1930-1950****Correspondence Re: Cerium and Thorium Sulfide 1953-1960****Correspondence 1947-1978****Correspondence Re: Crucibles 1945-1947**

Carton 16, Folder 5	Correspondence Re: High Melting Electropositive... 1950-1951
Carton 16, Folder 6	Correspondence Re: Thermodynamics of Refractories 1943-1946
Carton 16, Folder 7	Crucibles 1945
Carton 16, Folder 8	Declassification of Brewer Project Proposal 1959
Carton 16, Folder 9	Engineer Receipt 1946
Carton 16, Folder 10-11	Equipment Undated
Carton 16, Folder 12-13	Equipment - High Temperature High Vacuum Undated
Carton 16, Folder 14	Equipment, Laboratory Photographs 1973
Carton 16, Folder 15	Gallium, Properties of 1948
Carton 16, Folder 16	Gaseous High Temperature Program, Study of Circa 1950
Carton 16, Folder 17-19	Heats of Formation of CeS, Ce3S4, and Ce2S3 1946
Carton 16, Folder 20	Heat from Lattice / Crystal Energies Undated
Carton 16, Folder 21	Heats of Plutonium Ions 1945
Carton 16, Folder 22	Heats, Solution Undated
Carton 16, Folder 23	Heat of Sublimation into Monatomic Carbon 1946
Carton 16, Folder 24	High Frequency Induction Furnaces, Use of 1943
Carton 16, Folder 25	High Temperature Files, Construction Materials for Undated
Carton 16, Folder 26	Higher Fluorides 1945
Carton 16, Folder 27	Investigation in Liquid - Solid Equilibria 1946
Carton 16, Folder 28	Ion Pots 1934-1941
Carton 16, Folder 29-30	Lattice Calculations 1946-1947
Carton 16, Folder 31-32	Metals 1945-1947
Carton 16, Folder 33	Notebook 1944
Carton 16, Folder 34	Oak Ridge Lab - Ceramics Meeting - Breeding Power Reactor Circa 1956
Carton 16, Folder 35	Oxides and Halides, Physical Properties of 1939-1945
Carton 16, Folder 36	Participants, Directory of 1976
Carton 16, Folder 37	Periodic Status Report... 1948
Carton 16, Folder 38-39	Plutonium and Pu - F System 1945-1950
Carton 16, Folder 40	Plutonium, 50th Anniversary of Discovery of 1991

Carton 16, Folder 41	Plutonium, Los Alamos Conference Talk 1996-1999
Carton 16, Folder 42-43	Pure Metals, Preparation of Circa 1954
Carton 16, Folder 44-45	Publications 1931-1955
Carton 16, Folder 46-49	Publication Drafts 1945-1947
Carton 16, Folder 50	Refractory Sulfides, Preparation and Properties of Circa 1950
Carton 16, Folder 51	RL lists 1941-1945
Carton 16, Folder 52	Shielding of Molybdenum Cylindrical Shells 1943-1944
Carton 16, Folder 53	Sublimation Reports 1947
Carton 16, Folder 54	Super Refractories, New 1951
Carton 17, Folder 1	Temperature Composition Diagrams 1946
Carton 17, Folder 2	Thermodynamics of Metallic Sulfides Undated
Carton 17, Folder 3-4	Thermodynamic Properties of Plutonium 1945-1949
Carton 17, Folder 5	Thermodynamic Properties of Uranium 1947-1949
Carton 17, Folder 6	Thermodynamic Properties of Uranium Compounds 1965-1994
Carton 17, Folder 7	Thermodynamic Properties of Uranium Halides, Oxides... 1945
Carton 17, Folder 8	Transuranium Elements - Research Papers 1949
Carton 17, Folder 9	UO₂ with S₂Cl₃, Reacting 1948
Carton 17, Folder 10	U-UBr₃ Circa 1945
Carton 17, Folder 11-13	Uranium Carbides, Bromides... Undated
Carton 17, Folder 14	Uranium Temperature 1959
Carton 17, Folder 15	VCl₂, VCl₃, and VCl₄ Undated
Carton 17, Folder 16	Westrum, Edgar F. Correspondence Re: P, U, and Cl 1945
Carton 17, Folder 17	X-Ray Calculations 1944-1948
Carton 17, Folder 18	Zachariasen, W.H. Correspondence Re: P, U, and Cl 1944
Carton 17, Folder 19-21	Zachariasen, W.H. Files 1946-1973

5:2 General Research Files 1921-2004

Physical Description: Carton 17, folders 22-54; Carton 18-22; Carton 23, folders 1-20

Arrangement

Arranged alphabetically.

Scope and Content Note

Brewer kept many of his files organized by research topic; these subject files span Brewer's academic lifespan and professional career; often a single folder contains notes from multiple decades. Subject-based correspondence originally kept with these materials has been retained in these files. Likewise, files that might otherwise appear elsewhere in the collection, including various publications by Brewer and others, have also been retained among these files.

Carton 17, Folder
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Carton 17, Folder
23-24
Carton 17, Folder
25
Carton 17, Folder
26-27
Box 1, Folder 9
Carton 17, Folder
28
Carton 17, Folder
29
Carton 17, Folder
30
Carton 17, Folder
31
Carton 17, Folder
32
Carton 17, Folder
33
Oversize B, Folder
1
Carton 25, Folder
2
Carton 17, Folder
34-35
Carton 17, Folder
36
Carton 17, Folder
37-38
Carton 17, Folder
39-40
Carton 17, Folder
41
Carton 17, Folder
42-43
Oversize B, Folder
1
Carton 17, Folder
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Carton 17, Folder
45-49
Carton 17, Folder
50

Acid-Base Catalyzed Reactions, Generalized Undated**Actinides 1980-1990****Aluminum / Al 1964****Alloys Circa 1952, 1958-1999****Alloys, Metal Undated****Alloy Systems 1972-1975****Aqueous Programs Circa 1977-1983****Band Spectrums 1921-1951****Beryllium 1956-1999****Beryllium - Gallium System Circa 1955****Bonch - Bruyevich, A.M. and V. Shirokov 1955****Bonding Undated****Bonding: The Power of Chemical Bonding, Vol. I-II, VHS Program Tapes 1991****Bonding and Structure of Highly Stable Intermetallics 1968-1969****Bonding, Chemical: Metals 1965-1990****Brewer - Engel Dynamics Circa 2000****C2 1962-1966****C2 and C3 Circa 1953****Calculations of Generalized Acid-Base Catalyzed Reactions Circa 1941****Calculator Programs 2004****The 5s State of Carbon Circa 1947****Carbides 1948-1960, 1971-1982****Carbides: Ta-C, Ta₂C System Circa 1955**

Carton 17, Folder 51	Carbides: ThS, ThS₂ Circa 1955
Carton 17, Folder 52	Carbides: UC 1953-1964
Carton 17, Folder 53-54	Carbonium Ion Theory Undated
Carton 18, Folder 1	Ceramic Journals Circa 1930
Carton 18, Folder 2	Chalcogenides and Aluminides / Binary Circa 1959
Carton 18, Folder 3-4	Chipman, John 1975-1976
Carton 18, Folder 5-6	CODATA Thermodynamic Tables 1986-1987
Carton 18, Folder 7	Constants, Physical Undated
Carton 18, Folder 8	Crystallography Circa 1970
Carton 18, Folder 9-10	Diatomic Molecules 1969-1979
Carton 18, Folder 11	Diatomic Spectra References 1960
Carton 18, Folder 12-13	Dihalides and Halides Circa 1940
Carton 18, Folder 14-20	Elements 1961-1989
Carton 18, Folder 21-32	Elements and Oxides 1984-1985
Carton 18, Folder 33	Enol - Reaction Theory Undated
Carton 18, Folder 34	Entropy Circa 1947
Carton 18, Folder 35	Electron Configurations Circa 1970
Carton 18, Folder 36	Electronic Levels Circa 1985
Carton 18, Folder 37-38	Electron Spectroscopy 1966-1982
Carton 18, Folder 39	Energies, Promotion 1965
Carton 18, Folder 40	Ethers, Vinyl Undated
Carton 18, Folder 41-42	F-Values 1957-1965
Carton 18, Folder 43	Gaseous Atoms Circa 1983
Carton 18, Folder 44	Graphs Undated
Carton 18, Folder 45	Gradient Furnace Experiment Circa 1983
Carton 18, Folder 46-47	Elements, JANAF Oxides 1962-1979
Carton 18, Folder 48	Gurvich, Lev 1983
Carton 18, Folder 49	Hg₂ 1983-1984
Carton 18, Folder 50	Henry's Law 1988

Carton 18, Folder 51-52	High Temperature Chemistry Undated, 1947
Carton 18, Folder 53	High Temperature Thermodynamic References Circa 1970
Carton 18, Folder 54	High Temperature Thermodynamics - Unusual Properties Undated
Carton 18, Folder 55-56	Hirai, Shinji 1993
Carton 19, Folder 1-3	Hirai, Shinji 1993
Carton 19, Folder 4-7	Human Rights 1999-2003
Carton 19, Folder 8	Impurities Undated
Carton 19, Folder 9	Ionization Constants Undated
Carton 19, Folder 10	Ionization Energies / Energy Levels Circa 1971
Carton 19, Folder 11	Ionization of Weak Acids, Determination Undated
Carton 19, Folder 12	I2 Dissertation Paper Undated
Carton 19, Folder 13	Irreversibility Papers Circa 1961-1988
Carton 19, Folder 14	IUPAC 1996-1997
Carton 19, Folder 15-18	Lanthanides, Elements 1958-1986
Carton 19, Folder 19-21	Lanthanides and Actinides 1965-1971
Carton 19, Folder 22-25	Lanthanides, Actinides, and Alloy Phase Diagrams 1964-1978
Carton 19, Folder 26	Liquid Metals 1976-1983
Carton 19, Folder 27	M(g) 1984-1985
Carton 19, Folder 28	Madelung Constants Undated
Carton 19, Folder 29	Magnesium and Aluminum in Oxygen, Combustion of Circa 1943
Carton 19, Folder 30	Metal Alloy Densities 1972
Carton 19, Folder 31-33	Metal Alloy Systems - Mo-Al, Ti, Mx 1982-1990
Carton 19, Folder 34	Metallic Lewis Acid-Base Interactions 1995-1997
Carton 19, Folder 35-36	Metals, Transition / Intermetallics Circa 2000
Box 1, Folder 20	Metals, Transitional Aluminides with Diagrams 1989-1990
Carton 19, Folder 37-38	Metals, Transition - Bibliographies Circa 1988
Carton 19, Folder 39	Metals, Ultra-Purification at High Temperatures Undated
Carton 19, Folder 40	Miedema Alloys 1975-1995
Carton 19, Folder 41	MAIx Circa 1988
Box 1, Folder 10	MAIx Undated

Carton 1, Folder 11	MCx Structures Undated
Carton 19, Folder 42	MNx Circa 1989
Carton 19, Folder 43	Molybdenum, Elements 1948
Carton 19, Folder 44	Molybdenum Systems 1967-1968
Carton 19, Folder 45-46	Molybdenum in Alkali Liquids 1969-1987
Carton 19, Folder 47	Molybdenum - Cobalt 1983
Carton 19, Folder 48-50	Molybdenum - Iron 1977-1978
Box 1, Folder 12	Molybdenum - Iron Undated
Carton 19, Folder 51	Molybdenum - Magnesium Circa 1981
Carton 19, Folder 52	Nitrogen, Energy Levels of 1951
Carton 19, Folder 53	Nickel, Elements 1973
Carton 19, Folder 54-55	Niobium, Elements Circa 1965, 1968-1989
Carton 19, Folder 56	NBI Project 1981
Box 1, Folder 13	NBI Project 1981
Carton 20, Folder 1	NO Vibrational Structure and Data Undated
Carton 20, Folder 2	Nuclear Magnetic Resonance in Group 8 Aluminides Circa 1970
Carton 20, Folder 3	Organic Chemistry Lab 1989
Carton 20, Folder 4-6	Oxides 1938-1984
Carton 20, Folder 7	Oxides, Alkaline Earth Circa 1985-1988
Carton 20, Folder 8	Oxides, Group II Circa 1981
Carton 20, Folder 9	Oxides, Group III Circa 1953
Carton 20, Folder 10	Oxides, Group IV Circa 1980-1981
Carton 20, Folder 11-13	Oxide, Lanthanum 1960-1984
Carton 20, Folder 14-38	Oxide, Mesityl 1939-1999
Carton 21, Folder 1-8	Oxide, Mesityl 1939-1999
Carton 21, Folder 9	Oxides, Ir, Pt, and Noble Metal 1979-1981
Carton 21, Folder 10	Oxides, P, Pd, Rh, Ru, and Re Circa 1985
Carton 21, Folder 11	Oxides, Tantalum and Niobium Circa 1973
Carton 21, Folder 12	Oxides, Tin 1945-1950
Carton 21, Folder 13	Oxides, W, Zr, V, S, and Pb 1965-1973

Carton 21, Folder 14-15	Oxide Phase Diagrams Undated
Carton 21, Folder 16	Oxides, Thermodynamic and Spectroscopic Study of Circa 1962
Carton 21, Folder 17	P Circa 1987
Carton 21, Folder 18	Pd₂, Structure and Bonding of Circa 1985
Carton 21, Folder 19	Parameter Representation, Three Circa 1975
Carton 21, Folder 20	Peroxide Reaction Theory Undated
Carton 21, Folder 21	Perturbation Undated
Carton 21, Folder 22-28	Phase Diagrams 1950-1990, 1991, Circa 1994
Carton 21, Folder 29	Phase Relations and Structures at High Temperatures 1964-1976
Carton 21, Folder 30	Plutonium (25 Years) 1967
Carton 21, Folder 31	Plutonium (50 Years) 1991
Carton 21, Folder 32	Plutonium and Uranium Circa 1982
Carton 21, Folder 33-34	Plutonium Alloys, Constitution of Circa 1969
Carton 21, Folder 35	Plutonium Crucibles 1948-1999
Carton 21, Folder 36	Protactinium Metal Undated
Carton 21, Folder 37	Properties Across the Periodic Table 1961-1988
Carton 21, Folder 38-39	Radiation Relations Undated
Carton 21, Folder 40	Radioactive Isotopes - Ra and Th 1975-1982
Carton 21, Folder 41	Rate Constants of Generalized Acid - Base Catalyzed Reactions Undated
Carton 21, Folder 42	Rate Law Integration Undated
Carton 21, Folder 43-44	Regular Solutions 1950-1980
Carton 21, Folder 45-46	Regular Solution Calculations 1962-1976
Carton 21, Folder 47	Rotation, Pure Undated
Carton 21, Folder 48	Russian Visitors 1963-1972
Carton 21, Folder 49	Schaller's Theory Circa 1988
Carton 21, Folder 50	Si Undated
Box 1, Folder 14	Si, SiO₂ Undated
Carton 21, Folder 51	SiO₂ Cristobalite 1973-1975
Carton 21, Folder 52	Sn System Undated

Carton 21, Folder 53	Solubility Undated
Carton 21, Folder 54	Solubilities in Transition Metal Alloys Undated
Carton 21, Folder 55-56	Solutions, Salt and Metal Circa 1939
Carton 21, Folder 57-59	Spectra Circa 1957, Circa 1986
Carton 22, Folder 1-2	Spectra Undated
Carton 22, Folder 3-5	Spectroscopy Undated, 1950. 1963-1964
Carton 22, Folder 6	Stable in the Gaseous Phase Undated
Carton 22, Folder 7	Stability of Lanthanide - Plutonium Compounds Circa 1977
Carton 22, Folder 8	Stability, Solute: Cobalt - Molybdenum 1983
Carton 22, Folder 9-10	Stimach, R-Brewer Group Undated
Box 1, Folder 15-17	Stimach, R-Graphs - Continuation Experiment 1982-1983
Carton 22, Folder 11	Substituents, Effects on Rates, Equilibria, and Products Undated
Carton 22, Folder 12-13	S2, Se2, Te2, BeS, TeO, Correspondence Re: 1962-1967
Carton 22, Folder 14	Sulfide Crucibles Circa 1951, 1966
Box 1, Folder 18	Summary of Early Research 1946
Carton 22, Folder 15	Symmetry of Time in Physics Circa 1930
Carton 22, Folder 16	Ta, Elements 1960-1965
Carton 22, Folder 17	Ta Oxides 1955-1972
Carton 22, Folder 18-21	Ternary Compounds Undated, 1963
Carton 22, Folder 22-23	Ternary Compounds - Fe Systems 1972-1975
Carton 22, Folder 24	THCAIC Circa 1991
Carton 22, Folder 25	Thermal Expansion Circa 1980
Carton 22, Folder 26-27	Thermodynamics, Bulletin of Chemical Circa 1955
Carton 22, Folder 28	Thermodynamic Capacities Undated
Carton 22, Folder 29-35	Thermodynamics, Fe Alloys 1950-1980
Box 1, Folder 19	Thermodynamics, Fe Alloys 1958-1980
Carton 22, Folder 36-41	Thermodynamics, High Temperature Circa 1979, 1984-1986
Carton 22, Folder 42-43	Thermodynamics of Metal, Molybdenum, others Circa 1999
Carton 22, Folder 44	Thermodynamic Programs Circa 1990
Carton 22, Folder 45	Thermodynamic Properties, Ta 1960

Carton 22, Folder 46	Thermo-Vac 1945
Carton 22, Folder 47	Thorium (Th) Undated
Carton 22, Folder 48	Thorium Ceramics Data Manual Undated
Carton 22, Folder 49	TiO, TiO₂, TiO₃ 1969-1972
Carton 22, Folder 50	Transpiration Method Undated
Carton 22, Folder 51	Tr Energy Levels 1965-1983
Carton 22, Folder 52-53	Urania / Uranium System Circa 1965, 1962-1982
Carton 22, Folder 54-55	Vacuum, High Temperature Systems Undated
Carton 23, Folder 1	Vanadium, V, Elements Undated
Carton 23, Folder 2	V2S3 1982
Carton 23, Folder 3-7	Vanadium Oxides 1988-1990
Carton 23, Folder 8	Vapor and Vapor Pressure of STO Undated
Carton 23, Folder 9-10	Vaporization of Oxides 1958
Carton 23, Folder 11	West, George - 3rd Law 1917-1952
Carton 23, Folder 12	West, George - Correspondence 1937
Carton 23, Folder 13	West, George - Cp Determination 1934-1935
Carton 23, Folder 14	West, George - Diffusion 1933-1945
Carton 23, Folder 15	West, George - Gaseous Hydrocarbons 1939-1940
Carton 23, Folder 16	West, George - High Temperature Heat Contents 1929-1946
Carton 23, Folder 17	West, George - Rates of Reactions 1934-1949
Carton 23, Folder 18	West, George - Vapor Pressure 1930-1957
Carton 23, Folder 19	Workers in the Field of High Temperature Chemistry Circa 1957
Carton 23, Folder 20	X-Rays 1944-1948

Series 6 Biographical Files 1930-2000**Physical Description:** Carton 23, folders 23-38; Carton 24, folders 1-28.**Arrangement**

Arranged into two subseries: Personal Materials and Award Materials.

Scope and Content Note

This series comprises materials documenting aspects of Brewer's personal life and professional achievements, including his graduate work, his relationships with his doctoral students and research associates, and the ways in which his accomplishments were recognized by his profession and his field.

The first subseries, *Personal Materials*, documents Brewer's early academic interests as a student at the California Institute of Technology, including student notes and his dissertation on Mesityl Oxide, for which he received his SC.D. in 1941. It also includes materials documenting Brewer's many achievements as an educator and researcher, including bio-bibliographical updates provided to the University of California over a close to fifty-year period.

The second subseries, *Award Materials*, is composed of files relating to honors and awards Brewer received over the course of his professional career in academia and scientific research, including appointment letters to academic and committee positions, articles describing his research, and both formal and candid photographs of Brewer in the laboratory, at various campus events, conferences, and speaking engagements. It also includes the full transcription of an oral history, as well as draft materials and correspondence relating to the festschrift compiled in Brewer's honor by his colleagues and former students.

6:1 Personal Materials 1930-2000**Physical Description:** Carton 23, folders 21-38; Carton 24, folders 1-5.**Arrangement**

Arranged hierarchically.

Scope and Content Note

Includes student notes and Brewer's dissertation on Mesityl Oxide, as well as a selection of other materials documenting Brewer's research achievements. Also includes photographs of Brewer with his students.

Carton 23, Folder
21-24Carton 23, Folder
25-26Carton 23, Folder
27-37Carton 23, Folder
38Carton 24, Folder
1Carton 24, Folder
2-4Carton 24, Folder
5**Student Notes 1930, 1934-1944****Mesityl Oxide Dissertation Circa 1941****Bio-Bibliographies 1955-2000****Bio-Bibliographies / MSCD Annual Reports 1985-1990****Metal Bibliographies 1989****Doctoral Students 1958-1971****Lab Portraits 1960-1990**

6:2 Award Materials 1959-2000**Physical Description:** Carton 24, folders 6-28**Arrangement**

Arranged hierarchically.

Scope and Content Note

Includes correspondence and program materials relating to honors and awards Brewer received over the course of his lifetime. Also includes personal photographs, the transcript of an oral history conducted through the Chemical Heritage Foundation, as well as draft materials and correspondence relating to the festschrift compiled in Brewer's honor by his colleagues and former students.

Carton 24, Folder
6Carton 24, Folder
7Carton 24, Folder
8Carton 24, Folder
9Carton 24, Folder
10Carton 24, Folder
11Carton 24, Folder
12Carton 24, Folder
13Carton 24, Folder
14Carton 24, Folder
15Carton 24, Folder
16Carton 24, Folder
17Carton 24, Folder
18Carton 24, Folder
19Carton 24, Folder
20-23Carton 24, Folder
24Carton 24, Folder
25Carton 24, Folder
26Carton 24, Folder
27Carton 24, Folder
28**Honors / Awards Circa 1961-1997****American Ceramic Society 1991****Chairmanship Invitations 1964, 1968****Committee Positions 1985-1998****High Temperature Chemistry Symposium Circa 1989****National Academy of the Sciences Circa 1959-1963****Nichols Medal Nomination 1984****Palladium Medalist Award 1971****Printed Materials Circa 1960-1990****Programs 1960-1990****UC Berkeley 1975-1992****Henry Werner Lecture 1963****70th Birthday Honor Letters 1989****Biographical Sketches 1979-1988****Festschrift - The Responsibility of High Temperature Scientists 1983-1985****Gilles, Paul - "Leo Brewer: Versatile Chemist" 1984****Oral History 2000****Personal Photographs Circa 1955-2000****Research Views 1970-1990****"Significance of Brewer's Work" 1990**