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## Guide to the Charles Loewner Papers

### Collection number: SC 104

Department of Special Collections and University Archives  
Stanford University Libraries  
Stanford, California

Processed by:  
Charles Loewner Papers

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Encoded by:  
Jennifer E. Johnson

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### Descriptive Summary

**Title:** Charles Loewner papers

**Dates:** 1919-1990

**Collection number:** SC 104

**Creator:** Charles Loewner

**Collection Size:** 4.5 linear feet

**Repository:** Stanford University. Libraries. Dept. of Special Collections and University Archives.

**Abstract:** Professional records include lecture notes, course material, manuscripts, research notes, writings; personal papers include academic records, correspondence, clippings, photographs, and publishing contracts created and maintained by Charles Loewner, a world-renowned mathematician and Professor Emeritus at Stanford University from 1951-1968.

**Languages:** Languages represented in the collection: English

### Access

Collection is open for research; materials must be requested at least 24 hours in advance of intended use.

### Publication Rights

Property rights reside with the repository. Literary rights reside with the creators of the documents or their heirs. To obtain permission to publish or reproduce, please contact the Public Services Librarian of the Dept. of Special Collections.

### Preferred Citation

[Identification of item], Charles Loewner papers, SC 104. Stanford University Archives, Stanford, Calif.

### Acquisition Information

Administrative transfer, Mathematics Library, 1972; Gift of Marian Tracy, 2007.

### Biography / Administrative History

Professor Emeritus Charles Loewner was born on May 29, 1893, in the village of Lany, near Prague, which was at the time the capital of Bohemia. Loewner received his Ph.D. in Mathematics at the Prague University. From 1922-1928 he taught at Friedrich Wilhelm University in Berlin. Following a brief lectureship at Cologne, he was appointed to a chair in Mathematics at the German Charles University in Prague. The occupation of Czechoslovakia in 1939 prompted his emigration to the United States. He taught at Louisville, Brown, and Syracuse University prior to his appointment in 1951 as Professor of Mathematics at Stanford University, where he specialized in complex analysis and differential geometry. Loewner remained at Stanford University until his death in 1968.

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### **Scope and Content of Collection**

The first seven boxes of this collection consist largely of Loewner's lectures notes, 1923-1956, with some exams and class projects; manuscripts and typescripts of articles, 1919-62, including his 1933 thesis; and research notes and writings. Subjects of his writings and research include differential equations, matrices, and semigroups. Other items include several articles by other mathematicians on Loewner's work, note cards, and a small amount of correspondence.

Accession 2007-257 consists of Loewner's personal papers, which are comprised of correspondence pertaining to his emigration to the United States during World War II, his wartime employment search, and attempts to determine the whereabouts of his family remaining in Europe. This accession also contains Loewner's personal academic records, and correspondence to and from colleagues at the many academic institutions where Loewner taught including the University of Louisville, Brown University, Syracuse University, and Stanford University. Other items include photographs, publishing contracts, memorial tributes to Loewner and his wife Elizabeth, and news clippings about the Loewner family.

### **Indexing Terms**

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

Loewner, Charles, 1893-1968.

Stanford University. Dept. of Mathematics--Faculty.

Differential equations.

Mathematics--Study and teaching.

Matrices.

Semigroups.

**Series I: Original Accession**

Physical Description: 7 boxes

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**Class Materials**

Box 1, Folder 1	<b>Notebook, mathematics lecture notes (in German), 1923</b>
Box 1, Folder 2	<b>Notebook, mathematics lecture notes (in German), 1930</b>
Box 1, Folder 3	<b>Notebook, mathematics lecture notes (in German), 1934</b>
Box 1, Folder 4	<b>Notebook, mathematics lecture notes, 1946</b>
Box 1, Folder 5	<b>Notebook, mathematics lecture notes, 1948</b>
Box 1, Folder 6	<b>Notebook, mathematics lecture notes, 1950</b>
Box 1, Folder 7	<b>Notebook, mathematics lecture notes, 1951</b>
Box 1, Folder 8	<b>Notebook, mathematics lecture notes, 1952</b>
Box 1, Folder 9	<b>Notebook, mathematics lecture notes, 1953</b>
Box 1, Folder 10	<b>Notebook, mathematics lecture notes, 1955</b>
Box 1, Folder 11	<b>Notebook, mathematics lecture notes, 1958-1959</b>
Box 1, Folder 12	<b>Notebook, mathematics lecture notes, 1960</b>
Box 1, Folder 13	<b>Notebook, mathematics lecture notes, 1961</b>
Box 2, Folder 1	<b>Notebook, mathematics lecture notes, 1962-1964</b>
Box 2, Folder 2	<b>Notebook, mathematics lecture notes, 1965</b>
Box 2, Folder 3	<b>Notebook, mathematics lecture notes, 1966</b>
Box 2, Folder 8	<b>Mathematics lecture notes, Math 212, 1955-1956</b>
Box 2, Folder 9	<b>Mathematics examination programs, miscellaneous classes, 1957-1958</b>
Box 2, Folder 47	<b>Notebooks, mathematics lecture notes, undated</b>
Box 3, Folder 1	<b>Problem seminar, notes and student work, circa 1953-1962</b>
Box 3, Folder 2	<b>Notes for seminar on order properties in mathematics, 1954-1955</b>
Box 3, Folder 3	<b>Exams, miscellaneous, 1957-1958 and undated</b>
Box 3, Folder 4	<b>Class project, "Continuous Groups," undated</b>
Box 3, Folder 5	<b>Class project, Math 220 A,B pages 1-93, undated</b>
Box 3, Folder 6	<b>Class project, Math 220 A,B pages 94-201, undated</b>
Box 3, Folder 7	<b>Class project, Math 220 A,B pages 202-end, undated</b>
Box 3, Folder 8	<b>Notes on complex variables (not in Loewner's hand but possibly from his lectures), undated</b>

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**Correspondence**

Box 3, Folder 9	<b>Mitchell, Josephine, 1967</b>
Box 3, Folder 10	<b>Pick, George (in German), 1936</b>
Box 3, Folder 11	<b>Miscellaneous, undated</b>

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**Manuscripts and Typescripts by Loewner**

Box 3, Folder 12	<b>"Approximation on a real interval by polynomials with restricted zeroes" (written with J. Korevaar), 1962</b>
Box 3, Folder 13	<b>Baecklund's transformation theory of partial differential equations and fluid flow, undated</b>
Box 3, Folder 14	<b>Baecklund's transformation theory of partial differential equations and fluid flow, undated</b>
Box 3, Folder 15	<b>"Conservation laws in compressible fluid flow and associated mappings," undated</b>
Box 3, Folder 16	<b>"Conservation laws of certain systems of partial differential equations and associated mappings," undated</b>
Box 3, Folder 17	<b>"Determination of the critical exponent of the Green's function," undated</b>
Box 3, Folder 18	<b>"Generation of solutions of systems of partial differential equations by composition of infinitesimal Baecklund transformations," circa 1952</b>
Box 3, Folder 19	<b>"A group theoretical characterization of some manifold structures," undated</b>
Box 4, Folder 1	<b>Integral operators, undated</b>

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Series I: Original Accession

Manuscripts and Typescripts by Loewner

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Box 4, Folder 2	Introduction [semigroups and non-Euclidean geometry], undated
Box 4, Folder 3	"Monotonic and convex functions of higher order in arbitrary manifolds," undated
Box 4, Folder 4	Monotonic functions of arbitrary order, undated
Box 4, Folder 5	"On generation of solutions of the biharmonic equation in the plane by conformal mappings," undated
Box 4, Folder 6	"On generation of solutions of the biharmonic equation in the plane by conformal mappings," undated
Box 4, Folder 7	"On pairs of quadratic forms in Hilbert space," 1945
Box 4, Folder 8	"On some classes of functions associated with line congruences and partial differential equations of first order," undated
Box 4, Folder 9	"On some transformation semigroups," circa 1956
Box 4, Folder 10	"On the conformal capacity in space," undated
Box 4, Folder 11	Riemann surfaces of infinite genus, undated
Box 4, Folder 12	"Semigroup of Conformal Mappings" [mss], undated
Box 4, Folder 13	"Semigroup of Conformal Mappings" [tss], 1957
Box 4, Folder 14	Semigroups, undated
Box 4, Folder 15	Semigroups, undated
Box 4, Folder 16	Semigroups-miscellaneous pages and bibliography, undated
Box 4, Folder 17	Semigroups-incomplete papers and miscellany, undated
Box 4, Folder 18	"Some classes of functions defined by difference or differential inequalities," undated
Box 4, Folder 19	"Spektraltheorie linearer operatoren," Prag, pp. 1-100,1933
Box 4, Folder 20	"Spektraltheorie linearer operatoren," Prag, pp. 101-200,1933
Box 4, Folder 21	"Spektraltheorie linearer operatoren," Prag, pp. 201-300,1933
Box 4, Folder 22	"Spektraltheorie linearer operatoren," Prag, pp. 301-395, 1933
Box 4, Folder 23	"Spektraltheorie linearer operatoren," Prag, miscellaneous pages, undated
Box 5, Folder 1	"A theorem on the partial order derived from a certain transformation semigroup," [with additional notes], 1959
Box 5, Folder 2	Transformation semigroups, undated
Box 5, Folder 3	"A Transformation theory of the partial differential equation of gas dynamics," undated
Box 5, Folder 4	"Ueber monotone Matrixfunktionen" [written in Prague], 1930s
Box 5, Folder 5	"Valueless vane diffusor with an arbitrary vane shape," undated
Box 5, Folder 6	Typescripts, incomplete, undated
Box 5, Folder 7	Typescripts, miscellaneous and fragmentary, undated

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Lectures

Box 5, Folder 8	Comparison of European and American universities, undated
Box 5, Folder 9	Partial differential equations and fluid flow in a plane, circa 1953
Box 5, Folder 10	Monotonic functions, undated
Box 5, Folder 11	Miscellaneous lecture notes, undated

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Research Notes and Writings by Loewner

Box 5, Folder 12	Notebook (in German), undated
Box 5, Folder 13	Miscellaneous notes (in German), undated
Box 5, Folder 14	Baecklund, undated
Box 5, Folder 15	B II, undated
Box 5, Folder 16	B. T. III, undated
Box 5, Folder 17	Capacity, undated
Box 5, Folder 18	Conservation laws, undated
Box 5, Folder 19	Conservation laws III, undated
Box 5, Folder 20	Distortion TI, undated
Box 5, Folder 21	Moebius transformations, undated
Box 5, Folder 22	P.D.E., undated
Box 5, Folder 23	Partial d.e. in the r-s-t space, undated
Box 5, Folder 24	Positive matrices, undated
Box 5, Folder 25	Project research, undated

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Series I: Original Accession

Research Notes and Writings by Loewner

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Box 5, Folder 26	<b>Scalar function of matrices, undated</b>
Box 5, Folder 27	<b>Sequence of functions, undated</b>
Box 5, Folder 28	<b>S-group and convex domains, undated</b>
Box 5, Folder 29	<b>Semigroup theoretical considerations, undated</b>
Box 6, Folder 1	<b>Some semigroups of linear operators, undated</b>
Box 6, Folder 2	<b>Symmetrization of functions, undated</b>
Box 6, Folder 3	<b>Transformation semigroup, undated</b>
Box 6, Folder 4	<b>U.P. I, undated</b>
Box 6, Folder 5	<b>U.P. II, undated</b>
Box 6, Folder 6	<b>U.P. III, undated</b>
Box 6, Folder 7	<b>Viscous fluids, undated</b>
Box 6, Folder 8	<b>Unlabelled 1, Summer 1957</b>
Box 6, Folder 9	<b>Unlabelled 2, undated</b>
Box 6, Folder 10	<b>Unlabelled 3, undated</b>
Box 6, Folder 11	<b>Unlabelled 4, undated</b>
Box 6, Folder 12	<b>Unlabelled 5, undated</b>
Box 6, Folder 13	<b>Unlabelled 6, undated</b>
Box 6, Folder 14	<b>Unlabelled 7, undated</b>
Box 6, Folder 15	<b>Unlabelled 8, undated</b>
Box 6, Folder 16	<b>Unlabelled 9, undated</b>
Box 6, Folder 17	<b>Unlabelled 10, undated</b>
Box 6, Folder 18	<b>Unlabelled 11, undated</b>
Box 6, Folder 19	<b>Unlabelled 12, undated</b>
Box 6, Folder 20	<b>Unlabelled 13, undated</b>
Box 6, Folder 21	<b>Miscellaneous notes, undated</b>
Box 6, Folder 22	<b>Fragments, undated</b>
Box 6, Folder 23	<b>Proposals, undated</b>
Box 6, Folder 24	<b>Miscellaneous items, undated</b>

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**Works by Others**

Box 6, Folder 25	<b>Donoghue, W. F. "The Theorems of Loewner and Pick" [tss], reprint, and correspondence, 1966</b>
Box 6, Folder 26	<b>Yanikowski, Y. "Methode algebrique et equation de Löwner" [tss], undated</b>
Box 6, Folder 27	<b>Reprints of articles about Loewner's work by Ch. Pommerenke, E. L. Whitney, Izydor Dziubinski, and M. Pinl, 1958-1967</b>
Box 6, Folder 28	<b>Duff, G. F. D. and R. A. Ross, "Indefinite Green's functions and elementary solutions" [tss] with letter to Loewner in German, possibly from a reviewer of this article, 1960</b>
Box 6, Folder 29	<b>Wigner, Eugene P. and Mutsuo M. Yanase, three articles, undated</b>
Box 6, Folder 30	<b>"Matrix differential equations," manuscript possibly by C. S. Ballantine, undated</b>
Box 6, Folder 31	<b>Notes on temperature distribution in a slab of two layers, possibly by G. R. Stibitz, undated</b>
Box 6, Folder 32	<b>German reprint, 1931</b>

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**Miscellaneous Items**

Box 7, Folder 1	<b>Loewner, "Der Lichtdruck," Prag, 10 January 1919</b>
Box 7, Folder 2	<b>Notebook of Hans Freudenthal (in German), undated</b>
Box 7, Folder 3	<b>Notes on bounds for the eigenvalue, not in Loewner's hand, undated</b>
Box 7, Folder 4	<b>Advanced Matric Theory, lectures by Charles Loewner, notes by C. S. Ballantine, 1957</b>
Box 7, Folder Not Foldered	<b>Notecards on mathematical problems, definitions, etc., undated</b>

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## Series II: 2007-257

Physical Description: 2 boxes

Box 1, Folder 1 **Academic Records-Report Cards, 1905-1910**  
 Box 1, Folder 2 **Academic Records-Report Cards, 1911-1913**  
 Box 1, Folder 3 **Academic Records-Report Cards, 1914-1915**  
 Box 1, Folder 4 **Academic Records-Report Cards, 1916-1917, 1919**  
 Box 1, Folder 5 **Academic Records-Correspondence-Deutschen Technischen Hochschule & Karl Ferdinands-Universität (Prague),1918, 1920-1922**  
 Box 1, Folder 6 **Academic Records-Correspondence-Deutsche Univerität (Prague), 1934-1935**  
 Box 1, Folder 7 **Personal Correspondence (Family), 1934, 1939-1940**  
 Box 1, Folder 8 **Personal Correspondence (Family), (folder 1 of 2), 1940**  
 Box 1, Folder 9 **Personal Correspondence (Family), (folder 2 of 2), 1940**  
 Box 1, Folder 10 **Personal Correspondence (Family), 1941**  
 Box 1, Folder 11 **Personal Correspondence (Family), 1942**  
 Box 1, Folder 12 **Personal Correspondence, 1939-1943**  
 Box 1, Folder 13 **Personal Correspondence, 1946-1948**  
 Box 1, Folder 14 **Personal Correspondence (Including correspondence to Loewner's family after his death),1950s-1980s**  
 Box 1, Folder 15 **Family Records (Miscellaneous), 1937-1939**  
 Box 1, Folder 16 **Emigration to America-Correspondence, 1933-1939**  
 Box 1, Folder 17 **Emigration to America-Correspondence & Curriculum Vitae, 1939**  
 Box 1, Folder 18 **Emigration to America-Correspondence (Testimonial by L.L. Silverman) 1931-1939**  
 Box 1, Folder 19 **Emigration to America-Correspondence (Testimonial by J.E. Littlewood),1939**  
 Box 1, Folder 20 **Emigration to America-Correspondence (Testimonial by Harald Bohr), 1939**  
 Box 1, Folder 21 **Emigration to America-Correspondence & Testimonials, 1939**  
 Box 1, Folder 22 **Emigration to America-Correspondence from Society For the Protection of Science and Learning,1939**  
 Box 1, Folder 23 **Emigration to America-Correspondence, Telegrams, and Affidavits Concerning Loewner's Family's Whereabouts,1939-1944**  
 Box 1, Folder 24 **Emigration to America-Travel to America and Transfer of Effects to Louisville, KY,1940**  
 Box 1, Folder 25 **Correspondence from "Selfhelp of Emigres from Central Europe, Inc.," 1940**  
 Box 1, Folder 26 **Employment Offers, 1939-1942**  
 Box 1, Folder 27 **Employment Search-Offers and Rejections, 1942-1950**  
 Box 2, Folder 1 **Correspondence-University of Louisville, 1941-1945**  
 Box 2, Folder 2 **Correspondence-William Marshall Bullit (Louisville), 1944-1956**  
 Box 2, Folder 3 **Correspondence-Brown University, 1940s**  
 Box 2, Folder 4 **Correspondence-Syracuse University (Professional), 1942-1951**  
 Box 2, Folder 5 **Correspondence-Syracuse University (Personal), 1941-1958**  
 Box 2, Folder 6 **Correspondence-Stanford University, 1950-1951**  
 Box 2, Folder 7 **Political Correspondence-Lee Lorch, 1949-1967**  
 Box 2, Folder 8 **Political Correspondence-Lee Lorch, 1950-1956**  
 Box 2, Folder 9 **Political Correspondence-William A. Pierce, 1958-1962**  
 Box 2, Folder 10 **Political Correspondence-Chandler Davis, 1967**  
 Box 2, Folder 11 **Correspondence-To/From Elizabeth Loewner, 1940-1944**  
 Box 2, Folder 12 **Correspondence-Miscellaneous, 1940-1958**  
 Box 2, Folder 13 **Publishing-Contracts & Correspondence, 1943-1969**  
 Box 2, Folder 14 **Publishing-Correspondence with M.I.T. Press, 1970, 1974-1975, 1990**  
 Box 2, Folder 15 **Publishing-Correspondence (Miscellaneous), 1979-1985**  
 Box 2, Folder 16 **Article Abstract by Loewner (Syracuse), 1947**  
 Box 2, Folder 17 **Miscellaneous Documents (Lists), undated**  
 Box 2, Folder 18 **Elizabeth Loewner's Death, 1956**  
 Box 2, Folder 19 **Charles Loewner's Death, 1968**  
 Box 2, Folder 20 **News Clippings, 1939-1964**  
 Box 2, Folder 21 **Concert Announcements-Elizabeth Loewner, undated & 1949**  
 Box 2, Folder 22 **Photographs, circa 1930s-1990s**  
 Box 2, Folder 23 **Articles, 1985-1986**