Frank Baron Papers

Guide written by Josh Schneider
The Bancroft Library.
University of California, Berkeley
Berkeley, California, 94720-6000
Phone: (510) 642-6481
Fax: (510) 642-7589
Email: bancref@library.berkeley.edu
URL: http://bancroft.berkeley.edu

Guide to the Frank Baron Papers

Collection number: BANC MSS 2003/244 c

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Processed by:

Guide written by Josh Schneider

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James Lake

Collection Summary

Collection Title: Frank Baron Papers,

Date (inclusive): 1886-1994

Date (bulk): (bulk 1931-1982)

Collection Number: BANC MSS 2003/244 c

Creator: Baron, Frank, 1914-1994

Extent: Number of containers: 15 cartons, 2 oversize foldersLinear feet: 18.75

Repository: The Bancroft Library.

Berkeley, California 94720-6000

Abstract: The Frank Baron Papers, 1886-1994, comprises records of Baron's accomplishments as student, professor, researcher, and structural engineer. It consists of student notebooks, lecture materials, writings (published and unpublished), consulting reports, notes, calculations, correspondence, materials documenting Baron's involvement on academic and professional committees, and research files. Occasional blueprints, maps, slides, and photographs are also included.

Languages Represented: Collection materials are in English.

Physical Location: For current information on the location of these materials, please consult the Library's online catalog.

Restrictions

Collection is open for research.

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Title: T.Y. Lin Papers, 1932-1998

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Title: Charles Derleth Papers, 1893-1953

Identifier/Call Number: BANC MSS 91/116 c

Title: Construction Photographs of the Golden Gate Bridge

Identifier/Call Number: BANC PIC 1905.14251-14284--PIC

Indexing Terms

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

Baron, Frank, 1914-1994--Archives.

University of California, Berkeley. Dept. of Engineering--Faculty.

Saint Mary's Cathedral (San Francisco, Calif.)

Civil engineers--California.

Civil engineering.

Structural engineering.

Structural design.

Structural analysis (Engineering)

Prestressed concrete.

Suspension bridges.

Bridges--Gibraltar, Strait of--Design and construction.

Bridges--Saudi Arabia--Design and construction.

Golden Gate Bridge (San Francisco, Calif.)

Dumbarton Bridge (Calif.)

Blueprints.

Faculty papers.

History of science and technology collection.$CU-BANC.

Acquisition Information

The Frank Baron Papers were given to The Bancroft Library by Peter I. Yanev on May 12, 2003.

Processing Information

Processed by Josh Schneider in 2005.

Biographical Information

Francis (Frank) Martin Baron, born July 7, 1914 in Chicago, Illinois, served as professor of civil engineering at University of California, Berkeley and held an international reputation as a an expert in the fields of bridge and roof-structure design, and seismic and wind analysis. He was twice the recipient of the prized Leon S. Moisseiff Award issued annually by the American Society of Civil Engineers (ASCE), and among his manifold professional affiliations, served as chairman of the US Council of the International Association for Bridge and Structural Engineering.

Baron's research interests traced the current of cutting-edge theory in civil engineering design and construction. As an undergraduate architecture and engineering student and masters-level graduate student in structural engineering at the University of Illinois, Baron had the privilege of studying under two premier names in engineering design: H.M. Westergaard, known for his research on the use of reinforced concrete for pavement and dams, and Hardy Cross, an undisputed authority on contemporary structural frame analysis. He formed lasting bonds with both of these scholars, later reuniting with Westergaard at Harvard University and Cross at Yale University.

Baron married Milena Yaneva in September 1938, and shortly thereafter received his Sc. D. in structures and mechanics at Harvard University. The following year, Baron accepted a position on the civil engineering faculty at Yale University. While at Yale, Baron further explored his dissertation interest in the shearing stresses of slabs, and also spearheaded the formulation of a new departmental curriculum in transportation studies. After spending four years in New Haven, Baron accepted a full-professorship at Northwestern University, where he stayed for seven years. Plasticity and the comparative behavior of riveted and bolted steel joints served as his principal research interests.

In 1953, Baron accepted an invitation from the University of California at Berkeley to assume a dual position as Director of the Structural Engineering Laboratory and Professor of Civil Engineering. Shortly after his arrival, Baron resigned his position as head of the laboratory and devoted himself fully to his role as educator and researcher, increasing his course load and adopting a more expansive research methodology. Theory of design and planning became his primary instruction matter. Baron continued to teach at UC Berkeley for another thirty years, and was known by faculty and students alike as an unparalleled educator whose enthusiasm for his research was matched only by his concern for the intellectual and professional growth of his students.

Baron was perhaps best known in the Bay Area for his structural design work on the Dumbarton, Golden Gate, and Bay Bridges, as well as for his role in designing the roof structure of St. Mary's Cathedral in San Francisco. Other projects in which he served as consultant include the retrofitting of bridges across Saudi Arabia, the proposed bridge across the Strait of Gibraltar, and the proposed Inter-Continental Peace Bridge (ICPB) which would have joined Alaska and Siberia.

Frank Baron died October 17, 1994. Always interested in the history and progression of engineering and its role in society, one of his final activities was helping to ensure that the unacknowledged principal designer of the Golden Gate Bridge, Charles Ellis, gain proper recognition. To the end, he was man of integrity, who recognized and took pride in the ability of one engineer to change the world.

Scope and Content of Collection

The Frank Baron Papers, 1886-1994, comprises records of Baron's accomplishments as student, professor, researcher, and professional structural engineer. It consists of student notebooks, lecture materials, writings (published and unpublished), consulting reports, notes, calculations, correspondence, materials documenting Baron's involvement on academic and professional committees, and research files. Occasional blueprints, maps, slides, and photographs are also included.

The most comprehensive areas of the collection include the lecture notes, which in the case of quite a few courses span a number of decades, and the writings series, which in some instances includes not only drafts, but notes, correspondence, and reviews, also covering a number of years. Also well-represented are Baron's research files, containing a thorough assemblage of early articles on railroad bridge design and construction, and notes on a wide variety of topics including seismic analysis, transportation, and city planning.

Correspondence in general has been integrated with the rest of the collection. Certain projects, especially the Golden Gate Bridge retrofit and the proposed bridge across the Strait of Gibraltar, are particularly well documented, and include the vast majority of correspondence. Files pertaining to the roof-construction of St. Mary's Cathedral, although lacking in correspondence, are otherwise equally thorough.

Biographical and personal materials are minimal, consisting mainly of student notebooks, dissertation materials, certificates of professional achievement, and correspondence documenting academic appointments and salary adjustments. Of particular interest is a letter from Hardy Cross tentatively offering Baron a position on the faculty at Yale. Although Baron was extremely active on a number of university and association committees, materials documenting his participation are quite limited.

Unique to the collection are materials documenting the intersection of Baron's academic and professional lives, including a systematically meticulous set of correspondence between Baron, and various parties at University of California, Berkeley (including past UC Berkeley Chancellor Clark Kerr). The correspondence documents Baron's appointment at UC Berkeley in 1953 as well as his resignation as director of the structural engineering laboratory, which enabled him to further his already extensive career as professor of civil engineering. It also includes letters to and from colleagues and prospective employers.

Cartons 1-2; Carton 3, Folders 1-8

Series 1: **Biographical Files, 1931-1980**

Scope and Content Note

Arrangement

Arranged by genre. Further arranged chronologically.

This series comprises materials documenting Baron's professional growth, as well as student notes from the University of Illinois and Harvard University. Included are his registration as a structural engineer from the State of Illinois, his dissertation materials from Harvard University, and correspondence documenting various academic appointments and resignations. There are two areas of particular interest: correspondence concerning a former student's plagiarism of Baron's intended course book on structural analysis and design, and documents related to his resignation as head of the UC Berkeley structural engineering laboratory and the internal investigation that followed.

Carton 1, Folders 1-12

Subseries 1.1: **Personal Materials, 1935-1980**

Scope and Content Note

Arrangement

Arranged chronologically.

This subseries includes Baron's dissertation materials, his structural engineering license, and personal correspondence with family, friends, and academic associates.

carton 1, folder 1 **Illinois Graduation Materials 1935**
carton 1, folder 2 **Harvard Dissertation/Graduation Materials 1937-1941**
carton 1, folder 3 **Correspondence, re: Academic Appointments 1937-1951**
carton 1, folder 4 **Correspondence with Hardy Cross and H.M. Westergaard 1937-1958**
carton 1, folder 5 **Structural Engineering License, State of Illinois 1945**
carton 1, folder 6 **License Materials 1945-1955**
carton 1, folder 7 **Correspondence re: Baron Book 1945-1958**
carton 1, folder 8 **Personal Correspondence 1953-1980**
carton 1, folder 9 **Correspondence with UC Berkeley, re: Appointment and Resignation 1953-1956**
carton 1, folder 10 **Correspondence, re: Resignation 1954-1957**
carton 1, folder 11 **Correspondence with UC Berkeley Chancellor Clark Kerr, re: Academic Investigation 1954-1957**
carton 1, folder 12 **Resumes and Bio-supplements 1958-1980**

Carton 1, Folders 13-25; Carton 2; Carton 3, Folders 1-8

Subseries 1.2: **Student Notes, 1931-1939**

Scope and Content Note

Arrangement

Arranged by academic institution. Further arranged by department, course number, and chronology.

This subseries includes Baron's undergraduate and masters-level coursework from the University of Illinois, as well as his doctoral coursework from Harvard University.

1.2.1: **Illinois, 1931-1936**

carton 1, folder 13 **Dept.: Mechanical Engineering**
Course no.: 22
Course: Vibrations 1931
carton 1, folder 14 **Dept.: ME**
Course no.: 23
Course: Heating and Ventilation 1934
carton 1, folder 15-16 **Dept.: Architectural Engineering**
Course no.: 43
Course: Technology of Materials 1934-1935

carton 1, folder 17-21	**Dept.: AE** **Course no.: 45** **Course: Steel 1934-1935**
carton 1, folder 22	**Dept.: AE** **Course no.: 46** **Course: Graphic Statics 1934-1935**
carton 1, folder 23	**Dept.: AE** **Course no.: 57** **Course: Reinforced Concrete 1934-1935**
carton 1, folder 24-25	**Dept.: AE** **Course no.: 58** **Course: Reinforced Concrete Balcony 1935**
carton 2, folder 1	**Dept.: AE** **Course: Report on Industrial Buildings 1936**
carton 2, folder 2-3	**Dept.: AE** **Course: Report on Structural Engineering 1936**
carton 2, folder 4	**Dept.: Civil Engineering** **Course no.: 113** **Course: Foundations 1934-1935**
carton 2, folder 5	**Dept.: CE** **Course no.: 114-15** **Course: Theory of Elasticity (Westergaard) 1935-1936**
carton 2, folder 6	**Dept.: CE** **Course no.: 105** **Course: Reinforced Concrete Buildings (Cross) 1935**
carton 2, folder 7-8	**Dept.: CE** **Course no.: 106** **Course: Structural Theory and Design (Cross) 1935-1936**
carton 2, folder 9	**Dept.: CE** **Course no.: 107** **Course: Steel Design 1936**
carton 2, folder 10-11	**Dept.: CE** **Course no.: 108** **Course: Structural Theory and Design (Cross) 1936**

1.2.2: **Harvard, 1937-1939**

carton 2, folder 12	**Dept.: Engineering** **Course no.: 11a** **Course: Hydromechanics 1937-1938**
carton 2, folder 13	**Dept.: Engineering** **Course no.: 11b** **Course: Hydro & Aerodynamics 1937**
carton 2, folder 14-18	**Dept.: Engineering** **Course no.: 35a** **Course: Advanced Engineering Calculus 1937-1938**
carton 3, folder 1-2	**Dept.: Engineering** **Course no.: 35b** **Course: Advanced Engineering Calculus 1937**
carton 3, folder 3	**Dept.: Engineering** **Course no.: 114a** **Course: Mechanical Vibrations 1938**
carton 3, folder 4	**Dept.: Engineering** **Course no.: 361a** **Course: Soil Mechanics 1937-1938**
carton 3, folder 5-6	**Dept.: Engineering** **Course no.: 361b** **Course: Soil Mechanics 1938-1939**

carton 3, folder 7 **Dept.: Engineering**
Course no.: 362b
Course: Ground Water and Seepage 1938

carton 3, folder 8 **Dept.: Engineering**
Course no.: 364
Course: Soil Mechanics 1938

Carton 3, Folders 9-18; Carton 4; Carton 5, Folders 1-18 Series 2: **Course Notes, 1937-1982**

Scope and Content Note

Arrangement

Arranged by academic institution. Further arranged by course number and chronologically.

This series includes course materials from Baron's earliest experiences as a teacher's aid at University of Illinois, through his instructorship at Harvard University and associate professorship at Yale University, to his eventual full professorships at Northwestern University and UC Berkeley. Baron's talent and teaching interest in structural theory, planning, and design becomes more pronounced at each institution.

Carton 3, Folders 9-18 Subseries 2.1: **Harvard, 1937-1939**

Scope and Content Note

Arrangement

Arranged by course number. Further arranged chronologically.

This subseries includes materials from four course sections in which Baron served as Instructor, in the process of earning his Sc. D. Two of these courses were taught by Baron's former mentor at the University of Illinois, H.M. Westergaard.

carton 3, folder 9 **Dept.: Engineering**
Course no.: 332b
Course: Structural Mechanics (Westergaard) 1937-1939

carton 3, folder 10-15 **Dept.: Engineering**
Course no.: 334a-b
Course: Photoelasticity 1937-1939

carton 3, folder 16 **Dept.: Engineering**
Course no.: 335a
Course: Experimental Elasticity and Stress Analysis 1937-1938

carton 3, folder 17-18 **Dept.: Engineering**
Course no.: 340a
Course: Reinforced Concrete (Westergaard) 1938-1939

Carton 4, Folders 1-17 Subseries 2.2: **Yale, 1939-1946**

Scope and Content Note

Arrangement

Arranged by course number. Further arranged chronologically.

This subseries comprises course materials from Baron's earliest post-doctoral appointment as a junior member of the Civil Engineering department faculty at Yale University. Notes from a yearly two-week seminar that Baron gave on design practice are also included.

carton 4, folder 1-2 **Dept.: Civil Engineering**
Course no.: 19
Course: Industrial Plants 1940-1942

carton 4, folder 3 **Dept.: CE**
Course no.: 19
Course: Advanced Planning 1943

carton 4, folder 4	**Dept.: CE** **Course no.: 28a** **Course: Transportation 1942-1943**
carton 4, folder 5	**Dept.: CE** **Course no.: 28** **Course: Transportation 1944**
carton 4, folder 6	**Dept.: CE** **Course no.: 29** **Course: Transportation 1943**
carton 4, folder 7	**Dept.: CE** **Course no.: 29** **Course: Transportation 1944**
carton 4, folder 8	**Dept.: CE** **Course no.: 30-31** **Course: Industrial Plants 1943**
carton 4, folder 9-11	**Dept.: CE** **Course: 1st Year Graduate Seminar: Hardy Cross Lectures 1939-1941**
carton 4, folder 12	**Dept.: CE** **Course: 2nd Year Graduate Seminar: Hardy Cross Lectures 1939-1941**
carton 4, folder 13	**Dept.: CE** **Course no.: 108** **Course: 1st & 2nd Year Graduate Seminars: Hardy Cross Lectures 1940-1946**
carton 4, folder 14	**Dept.: CE** **Course no.: 171** **Course: Technology Seminar 1939-1940**
carton 4, folder 15-16	**Dept.: CE** **Course no.: 293** **Course: Structural Design 1940**
carton 4, folder 17	**Dept.: CE** **Course: Design Practice (2 week course) 1940-1942**

Carton 4, Folders 18-22

Subseries 2.3: **Northwestern, 1948-1950**

Scope and Content Note

Arrangement

Arranged by course number. Further arranged chronologically.

This subseries includes materials from three courses that Baron taught at Northwestern: Mechanics of Materials, Allied Design, and Structural Analysis.

carton 4, folder 18-19	**Dept.: Civil Engineering** **Course no.: 321-2** **Course: Mechanics of Materials 1949-1950**
carton 4, folder 20-21	**Dept.: CE** **Course no.: 519** **Course: Allied Design 1948-1950**
carton 4, folder 22	**Dept.: CE** **Course no.: 612** **Course: Structural Analysis 1948**

Carton 4, Folders 23-29; Carton 5, Folders 1-18

Subseries 2.4: **UC Berkeley, 1952-1982**

Scope and Content Note

Arrangement

Arranged by course number. Further arranged chronologically.

This subseries, which spans by far the longest duration Baron spent at any academic institution, includes notes from twelve courses, ranging from Reinforced Concrete Design to Advanced Structural Theory.

carton 4, folder 23	**Dept.: Civil Engineering** **Course no.: 113** **Course: Foundations 1952-1954**
carton 4, folder 24-26	**Dept.: CE** **Course no.: 133** **Course: Elementary Structural Design 1954-1966**
carton 4, folder 27	**Dept.: CE** **Course no.: 133** **Course: Theory of Reinforced Concrete Design 1966, 1973-1980**
carton 4, folder 28	**Dept.: CE** **Course no.: 135** **Course: Reinforced Concrete Design 1954-1957**
carton 4, folder 29	**Dept.: CE** **Course no.: 135** **Course: Reinforced Concrete and Prestressed Concrete Design 1982**
carton 5, folder 1	**Dept.: CE** **Course no.: 137** **Course: Structural Analysis and Design of Buildings 1955**
carton 5, folder 2-3	**Dept.: CE** **Course no.: 137** **Course: Analysis and Design of Buildings 1958-1962**
carton 5, folder 4	**Dept.: CE** **Course no.: 198** **Course: Computer Methods 1968**
carton 5, folder 5	**Dept.: CE** **Course no.: 220** **Course: Statically Indeterminate Structures 1959-1963**
carton 5, folder 6-11	**Dept.: CE** **Course no.: 221** **Course: Advanced Structural Theory 1969-1980**
carton 5, folder 12-16	**Dept.: CE** **Course no.: 241** **Course: Theory of Design 1967-1980**
carton 5, folder 17-18	**Dept.: CE** **Course no.: 242** **Course: Analysis and Design of Structural Systems 1968-1980**

Carton 5, Folders 19-39; Carton 6; Carton 7, Folders 1-25

Series 3: **Writings, 1938-1979**

Scope and Content Note

Arrangement

Arranged hierarchically. Further arranged chronologically. If only the published article is extant, it is arranged and listed chronologically in the final subseries.

This series comprises published articles as well as drafts, notes, and related correspondence. Included is Baron's pivotal work on plasticity, the pressure line concept of loading, and the behavior of steel and riveted joints. Also included is the article *Torsional Analysis of Suspension Bridge Towers,* for which Baron received the Moisseiff Award from the American Society of Civil Engineers (ASCE) in 1962. Baron's interests in the history of soil mechanics, circuit analysis, and structural design are also well represented.

Subseries 3.1: **Unpublished, Untitled Book on Design Analysis, 1938-1961**

carton 5, folder 19	**Notes 1938-1959**
carton 5, folder 20	**Outline and Notes 1941-1959**
carton 5, folder 21	**Draft and Notes circa 1959**
carton 5, folder 22	**Draft from Seminar on Structural Design 1961**
carton 5, folder 23	**Figures undated**

Subseries 3.2: ***The Study of Earths: An A... Tradition,*** **1940-1955**

carton 5, folder 24-26	**Draft and Notes 1940-1941**
carton 5, folder 27-28	**Notes 1941**
carton 5, folder 29	***The Study of Earths: an American Tra...*** **1941**
carton 5, folder 30	**Correspondence circa 1955**

Subseries 3.3: ***Analysis of Torsion by Successive Corrections,*** **1941**

carton 5, folder 31	**Correspondence and Notes 1941**
carton 5, folder 32	***Analysis of Torsion by Successive Corrections*** **1941**

Subseries 3.4: ***Influence Surfaces for Stresses in Slabs,*** **1941**

carton 5, folder 33	***Influence Surfaces for Stresses in Slabs*** **1941**
carton 5, folder 34	**Drawings 1941**

Subseries 3.5: ***Effects of Plasticity Correlated with the Ordinary Theory of Mechanics,*** **1947**

carton 5, folder 35	**Notes 1947**
carton 5, folder 36	***Effects of Plasticity Correlated with the Ordinary Theory of Mechanics*** **1947**

Subseries 3.6: ***Successive Corrections: a Pattern Of Thought,*** **1947-1949**

carton 5, folder 37-38	**Correspondence, Draft, and Notes 1947-1948**
carton 5, folder 39	***Successive Corrections: A Pattern of Thought*** **1949**

Subseries 3.7: ***Procedure for Computing the Effects of Plasticity and Other Non-Linear Relationships,*** **1948-1949**

carton 6 , folder 1-2	**Draft and Notes 1948**
carton 6, folder 3	***Procedure for Computing the Effects of Plasticity and Other Non-linear Relationships*** **1948**
carton 6, folder 4	**Correspondence 1948-1949**

Subseries: 3.8: ***Laterally Loaded Plane Structures and Structures Curved in Space,*** **1949-1955**

carton 6, folder 5	***Laterally Loaded Plane Structures and Structures Curved in Space*** **1949-1952**
carton 6, folder 6	**Transparencies circa 1950**
carton 6, folder 7	**Correspondence 1955**

Subseries 3.9: ***Elementary Theory Adjusted to Fit Conditions of Plasticity,*** **1950-1951**

carton 6, folder 8-9	**Draft and Notes 1950**
carton 6, folder 10	**Transparencies and Slides 1950**
carton 6, folder 11	***Elementary Theory Adjusted to Fit Conditions of Plasticity*** **1950**
carton 6, folder 12	**Correspondence 1950-1951**

Subseries 3.10: ***Comparative Behavior of Bolted and Riveted Joints,*** **1952-1954**

carton 6, folder 13 — ***Comparative Behavior of Bolted and Riveted Joints*** **1952**
carton 6, folder 14 — **Correspondence 1954**

Subseries 3.11: ***Circuit Analysis of Laterally Loaded Continuous Frames,*** **1956-1957**

carton 6, folder 15-18 — **Draft and Notes 1956**
carton 6, folder 19 — **Correspondence, Drafts, Notes, and Figures circa 1956**
carton 6, folder 20 — ***Circuit Analysis of Laterally Loaded Continuous Frames*** **1956-1957**

Subseries 3.12: ***Pressure Line Concept for Inelastic Bending,*** **1956-1958**

carton 6, folder 21 — **Correspondence and Draft 1956-1958**
carton 6, folder 22 — ***Pressure Line Concept for Inelastic Bending*** **1956-1958**

Subseries 3.13: ***Pressure Line and the Inelastic Buckling of Columns,*** **1956-1959**

carton 6, folder 23-25 — **Correspondence, Drafts, and Notes 1956-1957**
carton 6, folder 26 — ***Pressure Line and the Inelastic Buckling of Columns*** **1957-1959**

Subseries 3.14: ***Engineering in the Development of Natural Resources,*** **1957**

carton 6, folder 27 — **Drafts 1957**
carton 6, folder 28 — ***Engineering in the Development of Natural Resources*** **1957**

Subseries 3.15: ***University Research in Structural Engineering,*** **1957-1958**

carton 6, folder 29 — **Correspondence and Draft 1957**
carton 6, folder 30 — ***University Research in Structural Engineering*** **1957-1958**

Subseries 3.16: ***Torsional Analysis of Suspension Bridge Towers,*** **1959-1961**

carton 6, folder 31-32 — **Draft and Notes 1959-1960**
carton 6, folder 33 — ***Torsional Analysis of Suspension Bridge Towers*** **1961**

Subseries 3.17: ***Logic and Topology of Structural Analysis,*** **1962**

carton 7, folder 1 — **Draft and Article 1962**
carton 7, folder 2 — ***Logic and Topology of Structural Analysis*** **1962**
carton 7, folder 3 — **Review 1962**

Subseries 3.18: ***Optimum Design of Two Large Span Shells of Post-Tensioned Precast Concrete,*** **1965-1966**

carton 7, folder 4 — **Correspondence, Draft, and Notes 1965**
carton 7, folder 5 — ***Optimum Design of Two Large Span Shells of Post-Tensioned Precast Concrete*** **1966**

Subseries 3.19: ***Inelastic Response for Arbitrary Histories of Loads,*** **1969**

carton 7, folder 6-9	**Correspondence, Draft, and Notes 1969**
carton 7, folder 10	***Inelastic Response for Arbitrary Histories of Loads* 1969**

Subseries 3.20: ***Design Considerations for Dynamic Loads on Suspension Bridges,* 1979**

carton 7, folder 11	**Correspondence and Drafts 1979**
carton 7, folder 12	***Design Considerations for Dynamic Loads on Suspension Bridges* 1979**

Subseries 3.21: **Other Writings (Final Drafts Only), 1936-1975**

carton 7, folder 13	***Interaction between Rib and Superstructure in Concrete Arch Bridges* 1936**
carton 7, folder 14	***Torsion of Multiconnected Thin-Walled Cylinders* 1942**
carton 7, folder 15	***Analytical and Design Aspects of Structures* 1948**
carton 7, folder 16	***Inelastic Behavior of Structural Shapes* 1948**
carton 7, folder 17	***Properties and Behavior of a New Alloy Rivet Steel* 1950**
carton 7, folder 18	***Effect of Grip on the Fatigue Strength of Riveted and Bolted Joints* 1952**
carton 7, folder 19	***Static and Fatigue Properties of Carbon, Silicon, and High-Strength Low-Alloy Steel Having a Hole* 1952-1953**
carton 7, folder 20	***Effect of Certain Rivet Patterns on the Fatigue and Static Strengths of Joints* 1952-1955**
carton 7, folder 21	***Properties and Behavior of a High-Strength Rivet Steel* 1953**
carton 7, folder 22	***Public Benefits from Engineering in the Development of Natural Resources* 1954**
carton 7, folder 23	***Matrix Analysis of Structures Curved in Space* 1961**
carton 7, folder 24	***Design Loadings for Long-Span Highway Bridges* 1970**
carton 7, folder 25	***Seismic Characteristics of Long Multi-Span Highway Bridge Types* 1975**

Carton 7, Folders 26-32; Cartons 8-10; Oversize Folders 1-2

Series 4: **Consulting/Project Files, circa 1940-1994**

Scope and Content Note

Arrangement

Arranged alphabetically by project. Further arranged chronologically.

This series comprises Baron's consulting work for regional, national, and international projects. Included are reports, correspondence, notes, and calculations, as well as occasional articles and promotional materials. Baron held an international reputation as an authority on bridge design and structural mechanics, and participated in the planned construction and retrofitting of many bridges across northern California, including the Dumbarton, the proposed Southern Crossing, and the Golden Gate. He also assisted in planning the retrofit of the Al Khobar/Dhahran/Damman Dual Way Bridge in Saudi Arabia, the proposed Inter-Continental Peace Bridge (ICPB) joining Alaska and Siberia, and the proposed bridge across the Strait of Gibraltar joining Spain and Morocco. Baron's early work on reinforced concrete pavement for the United States Army, as well as his extensive work on the roof structure of St. Mary's Cathedral in San Francisco, is also included.

Subseries 4.1: **Al Khobar/Dhahran/Damman Dual Way Bridge, 1984-1985**

carton 7, folder 26	**Correspondence and Notes 1984**
carton 7, folder 27-32	**Reports 1984-1985**

Subseries 4.2: **Alexander Building, 1951-1953**

carton 8, folder 1-3	**Notes and Data 1951-1953**

Subseries 4.3: **Arizona State Fair Coliseum, 1964-1966**

carton 8, folder 4 — **Correspondence with T.Y. Lin, Report, and Notes 1964-1966**

Subseries 4.4: **Arrowhead Bridge, 1987**

carton 8, folder 5 — **Correspondence and Report 1987**

Subseries 4.5: **Bay Bridge, circa 1989**

carton 8, folder 6 — **Notes and Articles circa 1989**

Subseries 4.6: **Benicia-Martinez Bridge, 1987**

carton 8, folder 7 — **Correspondence and Report 1987**

Subseries 4.7: **Concrete Pavement, U.S. Army, 1942-1947**

carton 8, folder 9 — ***Formulas and Methods for Interpreting Test Data of Concrete Runways Supporting Static Loads* 1942**
carton 8, folder 10 — ***Variables in the Design of Concrete Runways of Airports* 1942-1943**
carton 8, folder 11 — ***Effects of Differential Settlements and Changes in Temperature on Moisture Conditions on Resulting Strains of Concrete Pavements* 1943**
carton 8, folder 12 — ***Some Notes on the Progressive Cracking of Concrete Pavement due to Repeated Wheel Loads* 1944**
carton 8, folder 13 — ***Uncertainties in Design of Concrete Pavements Due to Differential Settlements and Volumetric Changes* 1944**
carton 8, folder 14 — **Correspondence 1944**
carton 8, folder 15 — ***Minimum Requirements of Cover for Corrugated Metal Pipe Culverts* 1946**
carton 8, folder 16 — ***Mathematical Study of Shearing Stresses Produced in a Pavement by the Locked Wheels of an Airplane during the Warm-up of its Engines* 1947**

Subseries 4.8: **Cowboy Stadium Roof Structure, 1968**

carton 8, folder 17 — **Correspondence with T.Y. Lin 1968**

Subseries 4.9: **Dumbarton Bridge, 1971-1976**

carton 8, folder 18-20 — **Correspondence and Reports 1971-1976**

Subseries 4.10: **Golden Gate Bridge, 1960-1994**

carton 8, folder 21-23 — **Correspondence and Notes 1960-1992**
carton 8, folder 24-25 — **Articles 1971-1975**
carton 8, folder 26 — **Calculations and Readouts circa 1974**
carton 8, folder 27 — ***The Effects of Seismic Disturbances on the Golden Gate Bridge* 1976**
carton 8, folder 28 — **Notes and Review of *The Effects of Seismic Disturbances on The Golden Gate Bridge* 1977**
carton 8, folder 29 — **Draft of *Dynamic Characteristics of the Golden Gate Bridge* 1977**
carton 8, folder 30 — **Notes circa 1977**
carton 9, folder 1 — **Correspondence regarding Charles Ellis 1987-1994**
carton 9, folder 2 — ***San Francisco Examiner Image*; May 31, 1992 1992**

carton 9, folder 3	**Notes on Suspension Bridge Towers undated**
carton 9, folder 4-7	**Calculations undated**
carton 9, folder 8	**Notes undated**

Subseries 4.11: **Hood Canal Bridge, 1978-1980**

carton 9, folder 9	**Report and Notes 1978-1980**

Subseries 4.12: **Inter-Continental Peace Bridge, 1974**

carton 9, folder 10	**Report and Drafts of *Use of Prestressing in Substructure and Superstructure of the Proposed Inter-Continental Peace Bridge (ICPB) joining Alaska and Siberia* 1974**
carton 9, folder 11	**Notes 1974**

Subseries 4.13: **Replenishment Vessel Booms, U.S. Navy, 1952-1955**

carton 9, folder 12-13	**Correspondence, Notes, and Photographs 1952-1955**
Oversize folder 1 C	**Plans 1955**

Subseries 4.14: **Saint John's Bridge, 1976**

carton 9, folder 14	**Correspondence 1976**

Subseries 4.15: **Saint Mary's Cathedral, 1965-1968**

carton 9, folder 15	**Reports and Notes: *Instituto Sperimentale Modelli E Struture (ISMES)* circa 1965**
carton 9, folder 16	**Report 1966**
carton 9, folder 17	**Structural Computations 1966**
carton 9, folder 18	**Correspondence and Report 1966-1967**
carton 9, folder 19	**Sketches and Notes 1966-1967**
Oversize folder 1 C	**Plans 1966-1968**
carton 9, folder 20-23	**Report 1967**
carton 9, folder 24-25	**Data: Service Bureau Corporation (SBC) circa 1967**
carton 9, folder 26-27	**Notes circa 1967**
carton 10, folder 1-4	**Notes circa 1967**
carton 10, folder 5	**Correspondence and Photographs 1967-1968**

Subseries 4.16: **San Diego County Bridge Retrofit, 1984**

carton 10, folder 6	**Correspondence 1984**

Subseries 4.17: **Skew Highway Bridges, circa 1964**

carton 10, folder 7	**Proposal to State of California circa 1964**

Subseries 4.18: **Southern Crossing Cable Stayed Girder Bridge, 1971**

carton 10, folder 8-9 **Report 1971**

Subseries 4.19: **Steel Strain, 1948**

Oversize folder 1 C **Plans for American Bridge and Iron Company 1948**

Oversize folder 2 A **Plans for American Bridge and Iron Company 1948**

Subseries 4.20: **Strait of Gibraltar, 1980-1982**

carton 10, folder 10 **Promotional Materials 1980**

carton 10, folder 11 **Draft of *Design Considerations for Dynamic Loads on Long Bridge Structures* 1980**

carton 10, folder 12-15 **Correspondence 1980-1982**

carton 10, folder 16-17 **Plans and Notes 1982**

carton 10, folder 18-20 ***Influence of Dynamic Effects on the Concept of a Bridge across the Strait of Gibraltar* 1982**

Subseries 4.21: **Strait of Messina, 1982**

carton 10, folder 21 **Correspondence 1982**

Subseries 4.22: **Tacoma Narrows Bridge Towers, circa 1940**

carton 10, folder 22 **Notes circa 1940**

carton 10, folder 23-24 **Draft of Report, and Notes circa 1940**

Subseries 4.23: **Walt Whitman Bridge Towers, circa 1956**

carton 10, folder 25 **Notes circa 1956**

carton 10, folder 26 **Plans circa 1956**

Carton 11, Folders 1-17 Series 5: **Professional Records, 1940-1982**

Scope and Content Note

Arrangement

Arranged hierarchically. Further arranged chronologically.

This series comprises committee reports and memoranda stemming from Baron's participation on a number of university and association committees. It also includes the Moisseiff Award that Baron received from the ASCE in 1962, a report of the International Association for Bridge and Structural Engineering (IABSE) written by Baron, who was serving as chairman, and various paper reviews.

Carton 11, Folders 1-6

Subseries 5.1: **Academic Committees, 1940-1982**

Scope and Content Note

Arrangement

Arranged chronologically by academic institution.

This subseries includes reports, correspondence, memoranda, and other departmental committee materials from Yale University and the University of California, Berkeley.

5.1.1: **Yale University, 1940-1946**

carton 11, folder 1 — **Report of the Committee on the Undergraduate Curriculum 1940-1946**

5.1.2: **UC Berkeley, 1949-1982**

carton 11, folder 2 — **Civil Engineering Department 1949-1959**

carton 11, folder 3 — **Structural Engineering Laboratory 1953-1954**

carton 11, folder 4 — **Report of the Subcommittee on Research Programs in Structural Engineering 1955**

carton 11, folder 5 — **Civil Engineering Departmental Memoranda 1982**

carton 11, folder 6 — **Correspondence, Re: Matriculation 1982**

Carton 11, Folders 7-17

Subseries 5.2: **Professional Associations, 1942-1981**

Scope and Content Note

Arrangement

Arranged chronologically by professional association.

This subseries includes committee materials from various professional associations, including the American Road Builders Association, the American Society of Civil Engineers, the National Research Council, the International Association for Bridge and Structural Engineering, and the American Institute of Steel Construction.

5.2.1: **American Road Builders Association (ARBA), 1942-1943**

carton 11, folder 7 — **National Postwar Highway Committee 1942-1943**

5.2.2: **American Society of Civil Engineers (ASCE), 1953-1981**

carton 11, folder 8 — **Committee on Bridge Loadings, Structural Division 1953**

carton 11, folder 9 — **Moisseiff Award Certificate 1962**

carton 11, folder 10 — **Sub-Committee on Cable-Suspended Structures Task Committee on Special Structures Committee on Metals Structural Division 1971-1978**

carton 11, folder 11-12 — **Paper Reviews 1974, 1980-1981**

5.2.3: **National Research Council (NRC), 1954**

carton 11, folder 13 — **Highway Research Board 1954**

5.2.4: **International Association for Bridge and Structural Engineering (IABSE), 1958-1967**

carton 11, folder 14 — **Correspondence; and Statement of Chairman, *Civil Engineering* (July 1958) 1958-1967**

carton 11, folder 15 — **Conference Notes 1964**

5.2.5: **American Institute of Steel Construction (AISC), 1966-1971**

carton 11, folder 16 — **Space Forms in Steel Lectures 1966**

carton 11, folder 17 — **Structural Design in Steel Lectures 1971**

Carton 11, Folders 18-41; Cartons 12-15

Series 6: **Research Files, 1886-1983**

Scope and Content Note

Arrangement

Arranged alphabetically.

This series includes a broad collection of Baron's research materials, from his early investigation of reinforced concrete airport pavement and steel railways, to his later work on structural analysis and suspension bridges. It consists of articles, notes, calculations, blueprints, and occasional correspondence. It also includes a number of computation books from the late 1960's, containing notes and read-outs from programs designed to complement his research.

carton 11, folder 18-24	**Airport Pavement 1929-1945**
carton 11, folder 25-26	**Angle Changes undated**
carton 11, folder 27-31	**Arches 1939-1968**
carton 11, folder 32-33	**Bracing undated**
carton 11, folder 34	**Bridge Design circa 1979**
carton 11, folder 35	**Brown, Colin 1963-1964**
carton 11, folder 36-37	**Buckling 1936-1940**
carton 11, folder 38-41	**Building Code Specifications 1886-1981**
carton 12, folder 1	**Bus Transportation 1924-1934**
carton 12, folder 2	**Cable-Stayed Bridges circa 1966**
carton 12, folder 3-6	**City Planning 1899-1944**
carton 12, folder 7	**Columns undated**
carton 12, folder 8-17	**Computer Programs 1966-1970**
carton 12, folder 18-22	**Computer Programs: Structural Analysis Program (SAP) 1970**
carton 13, folder 1	**Computer Programs: SAP, Formula Translator/Translation (FORTRAN) 1974**
carton 13, folder 2	**Concrete 1943-1946**
carton 13, folder 3	**Conjugate Systems 1958**
carton 13, folder 4	**Critical Path Techniques 1963-1967**
carton 13, folder 5-7	**Deflected Structures 1970**
carton 13, folder 8-11	**Design (Structural) 1940-1975**
carton 13, folder 12	**Engineering (Definitions of) 1957-1977**
carton 13, folder 13-15	**Engineering Geography 1930-1950**
carton 13, folder 16	**Geometry of Motion undated**
carton 13, folder 17	**Highway Engineering 1922-1945**
carton 13, folder 18	**Highway Financing 1929-1947**
carton 13, folder 19	**Highway Location 1919-1945**

carton 13, folder 20 **Influence Lines 1947**
carton 13, folder 21 **Interaction Concept 1945-1946**
carton 13, folder 22 **Material Production circa 1940**
carton 13, folder 23-27 **Matrices 1958-1967**
carton 13, folder 28 **Natural Torsional Oscillations 1943**
carton 13, folder 29 **Offshore Platforms 1982**
carton 13, folder 30 **Pipeline Bridges undated**
carton 13, folder 31 **Railroad Cars circa 1944**
carton 13, folder 32-33 **Railway Bridge Specifications 1886-1970**
carton 14, folder 1-2 **Railway Consolidation 1921-1945**
carton 14, folder 3 **Railway, Freight 1926-1941**
carton 14, folder 4-6 **Railway Location 1886-1933**
carton 14, folder 7-8 **Railways (General) 1919-1932**
carton 14, folder 9 **Relative Ground Displacement undated**
carton 14, folder 10 **Relaxation Methods 1942-1943**
carton 14, folder 11 **Riveted Joints undated**
carton 14, folder 12 **Roads 1920-1940**
carton 14, folder 13-15 **Seismic Design 1973-1979**
carton 14, folder 16-19 **Shells 1959-1978**
carton 14, folder 20 **Slabs and Slices undated**
carton 14, folder 21 **Soil Mechanics 1936**
carton 14, folder 22 **Steel Production circa 1940**
carton 14, folder 23 **Steel Specifications 1890-1946**
carton 14, folder 24-27 **Stresses and Strains 1926-1953**
carton 14, folder 28-31 **Structural Analysis 1969-1975**
carton 15, folder 1-9 **Suspension Bridges 1941-1983**
carton 15, folder 10 **Suspension Bridges: Seismic Design 1970**
carton 15, folder 11-12 **Tensor Analysis (Mechanics of Solids) 1958-1960**
carton 15, folder 13 **Traffic 1929-1940**
carton 15, folder 14-16 **Valuation 1893-1939**

carton 15, folder 17-19	**Vibrations 1932-1977**
carton 15, folder 20	**Waterways 1922-1945**
carton 15, folder 21	**Wind Bracing undated**
carton 15, folder 22	**Wind Loading 1968**
carton 15, folder 23	**Wind Pressure 1947**
carton 15, folder 24	**Wind Stresses undated**