

---

## **Finding Aid for the Robert T. Knapp papers 1860-1989**

Processed by Caltech Archives Staff.

Caltech Archives

Archives

California Institute of Technology

1200 East California Blvd.

Mail Code 015A-74

Pasadena, CA 91125

Phone: (626) 395-2704

Fax: (626) 793-8756

Email: [archives@caltech.edu](mailto:archives@caltech.edu)

URL: <http://archives.caltech.edu/>

©2007

California Institute of Technology. All rights reserved.

---

## **Descriptive Summary**

**Title:** Robert T. Knapp papers,

**Date (inclusive):** 1860-1989

**Collection number:** 10176-MS

**Creator:** Knapp, Robert T. 1899-1957

**Extent:** 3 linear feet

**Repository:** California Institute of Technology. Caltech Archives  
Pasadena, California 91125

**Abstract:** The working papers, correspondence, publications, photos, artifacts, and biographical materials of Robert Talbot Knapp form the collection known as the Papers of Robert T. Knapp in the Archives of the California Institute of Technology. Knapp attended the Throop College of Technology in Pasadena, the forerunner of Caltech, and became professor there from 1951 until his death in 1957. Knapp was widely known as a leader in the fields of hydrodynamics, fluid mechanics, and mechanical engineering.

**Physical location:** Archives, California Institute of Technology.

**Language of Material:**

**Languages represented in the collection:**

English

### **Access**

The collection is open for research. Researchers must apply in writing for access.

### **Publication Rights**

Copyright may not have been assigned to the California Institute of Technology Archives. All requests for permission to publish or quote from manuscripts must be submitted in writing to the Caltech Archivist. Permission for publication is given on behalf of the California Institute of Technology Archives as the owner of the physical items and, unless explicitly stated otherwise, is not intended to include or imply permission of the copyright holder, which must also be obtained by the reader.

### **Preferred Citation**

[Identification of item], Robert T. Knapp papers, 10176-MS, Caltech Archives, California Institute of Technology.

### **Acquisition Information**

The Robert T. Knapp papers were donated to Caltech in two installments in 2000 by Mr. Charles Briscoe, the second husband of Knapp's widow, Pearl Gilliland Knapp.

### **Biography**

Robert Talbot Knapp was born January 5, 1899, in Loveland, Colorado. He received his secondary education in Los Angeles public schools and studied for three and one-half years (fall 1916 through fall 1919) at Throop College of Technology in Pasadena, forerunner of the California Institute of Technology. Knapp continued his studies in mechanical engineering at MIT in the spring semester of 1920, and he received his bachelor of science degree from MIT in the same year. Knapp returned to Caltech in 1922 as an instructor. He subsequently earned his PhD there in 1929 and became a full professor in 1951.

Knapp became widely known for his work in hydrodynamics. At Caltech he designed and directed the Hydrodynamics Laboratory, colloquially known as the pump lab, where he conducted significant studies on hydraulic machinery, sedimentation, and high-velocity open-channel flow. He consulted for the Los Angeles Flood Control District, the Metropolitan Water District, and for the US Soil Conservation Service and the US Bureau of Reclamation on the Grand Coulee irrigation project. After World War II he built and operated a hydraulic structures laboratory in Azusa, east of Pasadena, for the study of harbor problems.

Knapp's investigations covered hydrodynamic problems of hydraulic turbines and centrifugal pumps; wave and wave surge problems of beaches and harbors; the mechanics of cavitation and cavitation damage; and problems of soil erosion, drainage and irrigation. During World War II he served as consultant to the US Army on underwater ballistics. Knapp received the Melville Medal from the American Society of Mechanical Engineers (ASME) in 1955 for his paper "Recent Investigations on the Mechanics of Cavitation and Cavitation Damage." At the time of his death, Knapp was working on a book on cavitation, which was subsequently completed by his coauthors, James W. Daily and Frederick G. Hammitt ( *Cavitation*, 1970), and which has become a standard text. In 1959 ASME established the Robert T. Knapp Award for outstanding work in the field of fluid mechanics.

---

Robert Knapp married Pearl Gilliland in Los Angeles in 1925. He died suddenly in Pasadena on November 7, 1957.

### **Scope and Content**

The Knapp collection is small but contains useful biographical material, some dating back to the Civil War. There is also selected material on Knapp's engineering projects, and here the photographs are the most valuable records. Some photos have been placed in documents boxes, but the majority reside in oversize boxes (boxes 4-6).

Knapp's Melville Medal, as well as a World War II medal issued by Columbia University, were also donated to Caltech by Charles Briscoe.

Interested researchers should consult memoirs of the pump lab: James W. Daily's "Pump Lab Reminiscences," originally published in *Engineering & Science* magazine, and other accounts in Historical Files (Engineering and Applied Sciences Division); and the oral history of Allan J. Acosta (Caltech Archives 1994). Photos of Robert and Pearl Knapp are located in the Archives' PhotoNet and are available for viewing at the [Archives' web site](#) .

[Allen J. Acosta Oral History with Shirley Cohen \(1998\)](#)

[Caltech Archives Historical Files](#)

### **Indexing Terms**

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

#### **Subjects**

California Institute of Technology

Fluid Mechanics

Hydraulics

Hydrodynamics

Mechanical Engineering

#### **Occupations**

Engineers

Mechanical Engineers

---

Box 1, Folder 1	<b>Correspondence and documents</b> <b>Note</b> Relocated from Historical Files.
Box 1, Folder 2	<b>Family photographs and memorabilia</b> <b>Note</b> Relocated from Historical Files.
Box 1, Folder 3	<b>Biographical: Throop College of Technology</b>
Box 1, Folder 4	<b>Biographical: MIT</b>
Box 1, Folder 5	<b>Biographical: General</b>
Box 1, Folder 6	<b>Publications lists</b> <b>Note</b> Corrected and annotated by Vito A. Vanoni
Box 1, Folder 7	<b>Reprints</b>
Box 2, Folder 1	<b>Hydrodynamics Laboratory</b>
Box 2, Folder 2	<b>Hydraulics Structures Laboratory, Azusa, CA ( See also: Box 6, photographs)</b> <b>Note</b> Also relates to Apra Harbor project, Guam
Box 2, Folder 3	<b>Apra Harbor, Guam ( See also: Box 6, photographs)</b>
Box 2, Folder 4	<b>Edison Company reports 1953</b>
Box 2, Folder 5	<b>Miscellaneous technical files</b>
Box 2, Folder 6	<b>Photographs: Terminal Island [?] ( See also: Box 6, photographs)</b>
Box 2, Folder 7	<b>Photographs: People, miscellaneous ( See also: Box 4, photographs)</b>

Box 2, Folder 8

**Illustrations: Technical ( See also: Box 5, photographs)**

**Note**

Including Russell Porter

Box 3, Items  
unfolded

**Slides, film, artifacts**

Box 4, Items  
unfolded

**Oversize box: Photographs and prints, miscellaneous**

**Note**

Includes portraits of engineers.

Box 5, Items  
unfolded

**Oversize box: Photographs, cavitation studies**

Box 6, Items  
unfolded

**Oversize box: Photographs including Terminal Island, Hydraulic Structures Laboratory (Azusa, CA), Apra Harbor Project, Guam aerials, unidentified**