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FINDING AID TO THE MAURICE J. ZUCROW PAPERS, 1909-1976

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Descriptive Summary

Creator Information	Zucrow, Maurice J., 1899-1975
Title	Maurice J. Zucrow papers
Collection Identifier	MSF 428
Date Span	1909-1976, predominant 1940s-1960s
Abstract	The papers include Maurice J. Zucrow's writings, reference books, and lecture notes from "Principles of Jet Propulsion" course at the University of California for the "ESMWT" (Engineering, Science, and Management War Training) Program, along with correspondence including letters of appreciation from "Docs Boys" sent upon his retirement, and correspondence from family and friends sent for his 75 th birthday. There are also employment forms from throughout his career.
Extent	3.4 cubic feet (9 mss. boxes)
Finding Aid Author	Mary A. Segó
Languages	English
Repository	Virginia Kelly Karnes Archives and Special Collections Research Center, Purdue University Libraries

Administrative Information

Location Information:	ASC
Access Restrictions:	Collection is open for research.
Acquisition Information:	Eleven books from Zucrow's personal library were donated February 7, 2017, by Marc Cohen, grandson of Maurice J. Zucrow. Lecture notes binder 1, originally part of the Charles M. Ehresman papers, donated by Alecia A. Wiltgen, May 1, 2013. Lecture notes binder 2, originally part of the Purdue University Maurice J. Zucrow Laboratories Library reference materials, donated by Steven Heister, Director and Jennifer Ulutas, Secretary, July 11, 2016.

The three Engineering Experiment Station Bulletins were originally part of the Purdue Archives Faculty Folder collections (Box 34, MSF 428).

Some of the Zucrow publications were originally part of the Charles M. Ehresman papers, donated by Alecia A. Wiltgen, May 1, 2013.

Custodial History: The donation of 11 books from the personal library of Maurice Zucrow was delivered by Purdue Professor Michael G. Smith.

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Preferred Citation: MSF 428, Maurice J. Zucrow papers, Purdue University Archives and Special Collections, Purdue University Libraries

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Related Materials Information: Maurice J. Zucrow Oral History transcript:
<http://earchives.lib.purdue.edu/cdm/compoundobject/collection/mso2/id/5300/rec/21>
Charles M. Ehresman papers:
<https://apps.lib.purdue.edu/archon/index.php?p=collections/controlcard&id=1757&q=Ehresman>
Charles Ehresman Oral History, Part 1:
<http://earchives.lib.purdue.edu/cdm/ref/collection/oralhist/id/75>
Charles Ehresman Oral History, Part 2:
<http://earchives.lib.purdue.edu/cdm/ref/collection/oralhist/id/77>

Subjects and Genres

Persons

Zucrow, Maurice J. (Maurice Joseph), 1899-1975

Organizations

Aerojet-General Corporation

Zucrow Laboratories

Purdue University. School of Aeronautics and Astronautics

Flight Archives at Purdue University

Topics

Jet Propulsion

Mechanical engineering

Mechanical engineering--Study and teaching

Purdue University--Faculty

Purdue University. School of Aeronautics and Astronautics

Form and Genre Types

Books

Bulletins

Correspondence

Lecture notes

Marginalia

Publications

Occupations

Professor

Mechanical Engineering

Biography of Maurice Joseph Zucrow

Maurice J. Zucrow was born in Kiev, Russia in 1899. His family came to the United States in 1912. He enrolled at Harvard University and received his bachelor's degree in mechanical engineering in 1922 and his master's in 1923. Zucrow received Purdue University's first Mechanical Engineering Ph.D. in 1928 with a thesis titled, *Discharge Characteristics of Submerged Jets*.

After receiving his doctorate, Zucrow left Purdue in 1929 and acquired an outstanding reputation in industry, particularly in the areas of gas turbines and rocket propulsion. He played an important part in the research and development of the nation's first gas turbine, built by the Elliott Company in 1942. (Norberg, 2013, p. 46). During World War II, he also helped develop Aerojet Engineering Company's JATO rocket, used by seaplanes to assist takeoff under adverse conditions. While working at Aerojet, Zucrow was asked to teach a course in jet propulsion theory to engineers in the aircraft industry. The course, part of the Engineering, Science, and Management War Training Program (ESMWT) was taught at the University of California, Los Angeles, circa, 1943-1944.

In April 1946, Zucrow accepted Purdue's offer to return to West Lafayette, and he immediately began forming a course in jet propulsion. Since power plants had always played an important role in the Mechanical Engineering curriculum, the School of Mechanical Engineering proposed to hire Zucrow to take the lead in developing the jet propulsion field at Purdue. Since the knowledge of jet-propelled engines was essential for Aeronautical Engineering graduates at the time, Professor Bruhn proposed that Professor Zucrow be a member of both the Mechanical Engineering and Aero facilities, and that jet propulsion education and research be a cooperative program between the two schools. The proposal was accepted by the administration. (Grandt, Gustafson, Cargnino, 1995, p. 65)

In 1947 Professor Zucrow's main efforts were devoted to developing the undergraduate and graduate courses in gas turbines and jet propulsion, and he prepared the initial sets of notes for these courses, with the exception of the laboratory course. By 1948, his groundbreaking text, *Principles of Jet Propulsion and Gas Turbines*, was published. The first textbook in the field, it extended Zucrow's influence to engineering students throughout the world. By 1950 Zucrow and his associates from both the Aero and M.E. Schools had completed the first and second units of the rocket engine laboratory which was located near the west boundary of the Purdue Airport, and graduate study and research were well underway. (Grandt, Gustafson, Cargnino, 1995, p. 94) Professor Zucrow's efforts led to one of the most complete university laboratory's in the United States. Professor Zucrow continued to make many valuable contributions to the School of Aeronautics, until he decided to join the Purdue Mechanical Engineering faculty full time in 1953.

At the time of his retirement from Purdue University in 1968, Professor Zucrow was responsible for the education of many students who have contributed much to rocket propulsion technology.

Zucrow passed away in 1975.

Sources:

Grandt, A.F.; Gustafson, W.A.; Cargnino, L.T. (1995). One small step: The history of aerospace engineering at Purdue University. Purdue University: West Lafayette, IN.

Norberg, John, ed. (2013). Full Steam Ahead: Purdue Mechanical Engineering Yesterday, Today and Tomorrow. West Lafayette, IN: Purdue University Press.

Collection Description

Scope

The Maurice J. Zucrow papers (1909-1976; 3.4 cubic feet) document aspects of Zucrow's career in the areas of gas turbines and rocket propulsion. Included among the papers are his authored or co-authored reports, papers, books, and Purdue University Engineering Experiment Station bulletins. Many of the books include his annotations or copies Zucrow designated as "master copy," with extensive marginalia. Also included are some of the textbooks Zucrow used as a student, and other reference books he used in his career. There are three reference books by colleagues, Nobel Laureate, Herbert C. Brown and Raymond Cohen and include author inscriptions to Maurice and Lillian Zucrow.

Among the papers are lecture notes from Zucrow's time at the University of California, Los Angeles, where he taught "ESMWT" (Engineering, Science, and Management War Training) courses on jet propulsion and gas turbines, introducing hundreds of aeronautical engineers in the Los Angeles area to the critical technology of propulsion.

Lastly, the correspondence is comprised of letters of appreciation from his former students, "Doc's Boys," sent upon his retirement, and other personal letters from family and friends sent for Zucrow's 75th birthday. There are also employment forms and related correspondence from throughout his career.

Types of materials include: books, bulletins, correspondence, lecture notes, marginalia, publications, and reference books.

Arrangement

The papers are organized into four series:

Series 1. Writings and Research, 1925-1976 (2.0 cubic feet). This series is comprised of Purdue University Engineering Experiment Station bulletins, reports, papers, and books authored or co-authored by Zucrow. Many include his annotations or are copies Zucrow designated as "master copy." There is also one article, featuring Zucrow from *Campus Copy*; "Pioneer in Jet Propulsion."

Materials in the series are arranged by type of publication and chronologically within each type.

Series 2. Reference Books, 1909-1941 (0.8 cubic feet). The first part of this series contains textbooks Zucrow most likely used as a student, and many include his

notations in the marginalia. Eleven books are from Zucrow's personal library. Three books are by colleagues, Nobel Laureate, Herbert C. Brown and Raymond Cohen and include author inscriptions to Maurice and Lillian Zucrow.

Series 3. Lecture Notes, circa 1943-1944 (0.50 cubic feet). This series contains the lecture notes from Zucrow's time at the University of California, Los Angeles, where he taught "ESMWT" (Engineering, Science, and Management War Training) courses on jet propulsion and gas turbines. Included is one binder of Zucrow's lectures (1-13) for his "Principles of Jet Propulsion" course, along with a second binder titled, "Course at University of California by Dr. M.J. Zucrow, Lectures 8-13."

Series 4. Correspondence, 1953-1974 (0.2 cubic feet). The correspondence is comprised of letters of appreciation from Zucrow's former students, "Docs Boys," sent upon his retirement from Purdue University, and others from family and friends sent for his 75th birthday. There are also miscellaneous employment forms and related correspondence from throughout his career.

Descriptive Rules

Describing Archives: A Content Standard

Processing Information

All materials have been housed in acid-free folders and acid-free boxes.

DETAILED DESCRIPTION OF THE COLLECTION

Series 1. Writings and Research, 1925-1976

(2.0 cubic feet)

Box 1 Zucrow Publications, 1938-1948

Folder

1. Bound Report, "Engine Lubrication and Deterioration," by Spitzglass and Zucrow, 1938
2. Bound Paper, "Jet Propulsion and Rockets for Assisted Take-Off," by Dr. M.J. Zucrow, Aerojet Engineering Corporation, Azusa, California, 1945
3. Bound Paper, "The Rocket Power Plant," by Dr. M.J. Zucrow, Aerojet Engineering Corporation, Azusa, California, 1946
4. Book, *Principles of Jet Propulsion and Gas Turbines*, New York: J. Wiley, 1948 (copy 1)
5. Book, *Principles of Jet Propulsion and Gas Turbines*, New York: J. Wiley, 1948 (copy 2, inscribed by Zucrow to Bess and Nat)

Box 2 Zucrow Publications, 1952-1956

Folder

1. Book, *Principles of Jet Propulsion and Gas Turbines*. New York: J. Wiley, 1952 (fourth printing)
2. Book, *Aerodynamics, Propulsion, Structures, and Design Practice*, by E.A. Bonney, M.J. Zucrow, C.W. Besserer. Princeton, New Jersey: D. Van Nostrand Company, Inc., 1956
3. Book, *Principles of Guided Missile Design*, by E. Arthur Bonney, Maurice J. Zucrow, and Carl W. Besserer. Princeton, New Jersey: D. Van Nostrand Company, Inc., 1956 ("Master Copy" on inside cover)

Box 3 Zucrow Publications, 1958

Folder

1. Book, *Aircraft and Missile Propulsion*, New York: J. Wiley, Volume I, 1958
2. Book, *Aircraft and Missile Propulsion*, New York: J. Wiley, Volume I, 1958 ("Master Copy" written on inside and includes notations)
3. Book, *Aircraft and Missile Propulsion*, New York: J. Wiley, Volume II, 1958
4. Book, *Aircraft and Missile Propulsion*, New York: J. Wiley, Volume II, 1958 ("Master Copy" written on inside and includes notations)

Box 4 Zucrow Publications, 1964-1976

Folder

1. Book, *Aircraft and Missile Propulsion*, New York: J. Wiley, Volume II, 1964 (second printing)
2. Book, *Aircraft and Missile Propulsion*, New York: J. Wiley, Volume II, 1964 (second printing, "Master Copy" written on inside and includes notations)
3. Book, Maurice J. Zucrow/Joe D. Hoffman. *Gas Dynamics, Volume I*. New York: J. Wiley, 1976

Box 5 Zucrow Publications, 1925-1976

Folder

1. Book, Maurice J. Zucrow/Joe D. Hoffman. *Gas Dynamics, Volume 2: Multidimensional Flow*. New York: J. Wiley, 1976
2. Bound Report [?], "Dynamics of Reciprocating Machinery," by M.J. Zucrow, Consulting Engineer, Chicago, Illinois, undated
3. Purdue University Engineering Experiment Station Bulletin No.20, "Characteristics of Sewage-Sprinkler Nozzles, by R.B. Wiley, F.W. Greve and M.J. Zucrow, June 1925
4. Purdue University Engineering Experiment Station Bulletin No. 21, "Commercial Carburetor Characteristics," August 1925 (2 copies)
5. Purdue University Engineering Experiment Station Bulletin No. 27, "Carburetion of Kerosene," by C.S. Kegerreis, H.A. Huebotter, and M.J. Zucrow, March 1927 (2 copies)
6. Purdue University Engineering Experiment Station Bulletin No. 31, "Discharge Characteristics of Submerged Jets," by M.J. Zucrow, June 1928 (2 copies)
7. Purdue University Engineering Experiment Station Bulletin No. 39, "Bibliography of the Vibration of Shafts Vibration Measurements and the Design of Crankshafts," by A.C. Bates and M.J. Zucrow, November 1931
8. Purdue University Engineering Experiment Station Bulletin No. 127, "Constant Pressure Combustion Charts for Gas Turbines and Turbojet Engines," by M.J. Zucrow and C.F. Warner, June 1956
9. Article, "Utilizing Low-Grade Fuels in Otto-Cycle Engines," by Dr. M.J. Zucrow, Vice-President in Charge of Engineering, Paragon Vaporizer Corporation, Chicago, 1932 (includes photographs of engines, 2 copies of article)
10. Decker, P. "Pioneer in Jet Propulsion." *Campus Copy*, March 1965, pp. 8-10.
11. Photocopies, Listing of Candidates for Advanced Degrees, Doctor of Philosophy, Maurice Joseph Zucrow, and Invitation, Commencement Exercises for 54th Commencement, 1928

Series 2. Reference Books, 1909-1941
(0.8 cubic feet)

Box 6 Books by Other Authors, 1909-1920

Folder

1. Book, William M. Hogle, *Internal Combustion Engines: A Reference Book for Designers, Operators, Engineers, and Students*, 1909
2. Book, Charles L. Hubbard, *Heating and Ventilation*, 1917
3. Book, Charles B. Breed and George L. Hosmer, *The Principles and Practice of Surveying, Volume I. Elementary Surveying*, 1918
4. Book, George E. Russell, *Text-Book on Hydraulics*, 1918
5. Book, G.A. Goodenough, *Principles of Thermodynamics*, 1920

Box 7 Books by Other Authors, 1924-1941

Folder

1. Book, Edward G. Mahin, *Quantitative Analysis*, 1924
2. Book, Arthur W. Judge, *Automobile and Aircraft Engines in Theory and Experiment*, 1924
3. Book, Herbert Addison, *Hydraulic Measurements*, 1941
4. Book, Raymond Cohen, *Introduction to Mechanical Vibrations*, 1958 (inscribed to Zucrow from Cohen)
5. Book, Herbert C. Brown, *Boranes in Organic Chemistry*, 1972 (inscribed by Brown to Zucrow and his wife)
6. Book, Herbert C. Brown, *Organic Syntheses Via Boranes*, 1975

Series 3. Lecture Notes, circa 1943-1944

(0.5 cubic feet)

Box 8 Lecture Notes, "Principles of Jet Propulsion" course at the University of California for the War Training program, circa 1943-1944

Folder

1. Binder 1, Zucrow lectures (1-13) "Principles of Jet Propulsion" course at the University of California for the War Training program, circa 1943-1944
2. Binder 2, Zucrow lectures (8-13) "Principles of Jet Propulsion" course at the University of California for the War Training program, circa 1943-1944

Series 4. Correspondence and Employment Information, 1953-1974

(0.2 cubic feet)

Box 9 Correspondence, 1953-1974

Folder

1. Employment Forms, 1948-1952, 1955-1956, 1965

2. Correspondence (photocopied) Zucrow to Elliott Ring, Vice-President, American Rocket Society, July 24, 1953
3. Letters of Appreciation from "Doc's Boys," 1966
4. Letters from "The Friends and Students of Maurice J. Zucrow," upon his 75th birthday celebration, 1974 (folder 1 of 2)
5. Letters from "The Friends and Students of Maurice J. Zucrow," upon his 75th birthday celebration, 1974 (folder 2 of 2)