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FURNAS, CLIFFORD COOK:
Papers, 1918-1969

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The papers of Clifford Cook Furnas, educator, engineer, Assistant Secretary of the Department of Defense for Research and Development, were deposited in the Eisenhower Library in October 1970, by Mrs. Sparkle M. Furnas. In April 1970, Mrs. Furnas executed an instrument of gift for these papers.

Linear feet shelf space occupied: 7.6
Approximate Number of pages: 15,200
Approximate number of items: 7,650

Literary rights in the unpublished writings of Clifford C. Furnas in these papers in the Eisenhower Library are dedicated to the people of the United States.

By agreement with the donor the following classes of documents will be withheld from research use:

1. Papers relating to the family and private business affairs.
2. Papers relating to the family and private business affairs of other persons who have had correspondence with Clifford C. Furnas.
3. Papers relating to investigations of individuals or to appointments and personnel matters.
4. Papers containing statements made by or to Dr. Furnas in confidence unless in the judgment of the Director of the Dwight D. Eisenhower Library the reason for the confidentiality no longer exists.
5. All other papers which contain information or statements that might be used to injure, harass, or damage any living person.

SCOPE AND CONTENT NOTE

The papers of Clifford Cook Furnas span the years 1926 to 1969, but the bulk and most significant parts cover the years 1952 to 1969, when Dr. Furnas was associated with various Department of Defense research activities.

The pre-Eisenhower Administration portion of the papers consists of speeches and articles written for various professional organizations, as well as business and social meetings. The subjects of these papers usually concern problems in chemical engineering techniques, procedures, and the role of science and technology in society.

Two-thirds of the papers concern Dr. Furnas' activities on various Defense Department science advisory panels and committees. This series of files includes correspondence, reports, Congressional testimony, minutes of meetings, along with speech and article files maintained while he was serving as Assistant Secretary of Defense for Research and Development, 1955-1957. They also pertain to his activities on various science advisory boards, as Chairman of the Defense Science Board, and as science advisor to the House of Representatives. This portion also includes some correspondence, reports, speeches, and articles concerning the activities of the National Academy of Engineering and other professional organizations.

Subjects in these papers include the role of science and technology in the Department of Defense; the impact of science and technology on regional development; problems in aircraft construction; a study of Department of Defense in House Labs; the appointment of Frank Newbury as Furnas' successor as Assistant Secretary of Defense; the relationship of the National Academy of Engineering to the National Research Council and the National Academy of Sciences; and various scientific and technological problems within the Department of Defense arsenals and laboratories. Correspondents include George B. Kistiakowsky, James R. Killian, Elwood P. Quesada, Donald A. Quarles, Senator Henry M. Jackson, T. Keith Glennan, Lt. General Arthur G. Trudeau, Thomas Gates, Lawson McKenzie, Major General Leslie E. Simon, Lt. General Don A. Prett, Edward L. Glodeck, Congressman Emilie Q. Daddaris, Dr. Chauncy Starr, Frederick Seitz, and Eric Walker.

Dr. Furnas was still actively engaged in the Defense Department science advisory programs after January 1961, and the correspondence after that date contains additional information on their activities and functions.

Approximately one hundred photographs and eight printed items received with the collection were separated and transferred to the Audio-Visual and Book collections of the Eisenhower Library.

BIOGRAPHICAL SKETCH

Born: October 24, 1900 at Sheridan, Indiana

Died: April 27, 1969 at Amsterdam, Holland

Married: Sparkle Moor Furnas

Education:

B.S., with honors, Purdue, 1922

Ph.D., University of Michigan, 1926

Honorary Doctor of Engineering, Purdue, 1946

Honorary Doctor of Engineering, University of Michigan 1957

Honorary Doctor of Laws, Alfred University, 1958

Honorary Doctor of Science, Thiel College, 1960

Degree Honoris Causa, University National de Asuncion, 1963

Olympic Games, Antwerp, 1920

Big 10 Conference Medal, 1922, for best combined scholastic and athletic record

Academic Career:

1922-1924 Teacher of Mathematics, Shattuck School, Minnesota

1924-1925 Research Chemist, U.S. Steel Corporation

1926-1931 Physical Chemist, U.S. Bureau of Mines

1931-1941 Associate Professor of Chemical Engineering, Yale University

1941-1942 National Defense Research Committee, technical aide

1943-1946 Director of Curtiss-Wright Aeronautical Research Laboratory at Buffalo, New York

1946-1954 Director and Executive Vice President of Cornell Aeronautical Laboratory

1954-1962 Chancellor, University of Buffalo

1962-1966 President, State University of New York at Buffalo

1962-1966 President, Western New York Nuclear Research

1966-1969 President Emeritus, State University of New York at Buffalo

Government Career:

1952-1953 Chairman, Guided Missile Commission, Research and Development Board

1954-1957 Chairman, Department of Defense Advisory Panel on Aeronautics

1954-1969 Member, U.S. Army Science Advisory Panel

1955-1957 Member National Advisory Committee for Aeronautics

1955-1957 Assistant Secretary of Defense for Research and Development

1956-1957 Chairman, Air Navigation Development Board

1957-1969 Member, Defense Science Board

1958-1969 Member, Naval Research Advisory Committee

1961-1965 Chairman, Defense Science Board

1961-1969 Chairman, New York Advisory Council, Industrial Research and Development

1968-1969 Vice-Chairman, National Research Council

Author:

*America's Tomorrow (1932)

*The Unfinished Business of Science (1935)

*The Next Hundred Years (1936)

*Man, Bread and Destiny (1937)

Technological Trends and National Policy, section on metallurgy (1937)

*The Storehouse of Civilization (1939)

*The Individual and the World (1940)

*Excerpts from Our Intellectual World Sections 9-13, Division II of The Individual and the World (1940)

*Research in Industry (1948)

The Engineer (1966)

* In the Book Collection of the Eisenhower Library

DESCRIPTION OF SERIES

Box No. Series

1-14 Organizations, 1952-1969, 14 containers.

Letters and reports sent and received, alphabetically arranged by title of the government agency or professional organization. Committees and subcommittees are filed in alphabetical order under the agency or organization concerned with their work. Since most of Furnas' work was concerned with the Department of Defense, the Defense agencies, such as the Department of the Army, the Department of the Navy, and the Department of the Air Force have been listed as separate entries. Only when an agency, such as the Defense Science Board, is concerned with the whole Department of Defense is that agency listed under "Department of Defense." In most cases, the correspondence, in chronological order, is listed first and is followed by the reports of the agency, committee, or subcommittee.

15-18 Speeches, 1936-1969, 4 containers

Correspondence, copies of the speech, and, when present, printed/published copies of the speech, filed in chronological order.

19 Articles, 1926-1969, 1 container.

Chronologically arranged file of published articles. These articles are primarily concerned with chemical engineering techniques and problems, American missile development, and the role of science and research in society. At the end of the series there is a folder containing a biography and obituary of Dr. Furnas.

CONTAINER LIST

Box No. Contents

ORGANIZATIONS

- 1 A.F. Air Research and Development Command (ARDC), 1960
- A.F. Air University-Board of Visitors, 1955-60
- A.F. Air University Pamphlets
- A.F. Scientific Advisory Board, 1963
- Army. Ordnance Advisory Com., 1952-53
- Army. Ordnance Advisory Com., 1954
- Army. Ordnance Advisory Com., 1955
- Army Scientific Advisory Panel (ASAP). Gen. Corr., 1958
-
- 2 Army. Scientific Advisory Panel (ASAP). Gen. Corr., 1960-63
- Army. Army Scientific Advisory Panel (ASAP). Gen. Corr., 1964-65
- Army. Army Scientific Advisory Panel(ASAP). Gen. Corr., 1966-68
- Army. Army Scientific Advisory Panel (ASAP). Gen. Corr., 1969
- Army. Army Scientific Advisory Panel (ASAP). Ad Hoc Com., 1963-64
- Army. Army Scientific Advisory Panel (ASAP). Executive Com., 1954
- Army. Army Scientific Advisory Panel (ASAP) Executive Com., 1955
- Central Intelligence Agency (CIA)
- Defense, Department of, Gen. Corr., 1954
- Defense, Department of, Gen. Corr., 1955
- Defense, Department of, Gen. Corr., 1956

- Defense, Department of, Gen. Corr., 1957 (1)
- Defense, Department of, Gen. Corr., 1957 (2)
- 3 Defense, Department of, Gen. Corr., 1958
- Defense, Department of, Gen. Corr., 1959 [Furnas to Senator Jackson, dtd. Nov. 18, 1959 re “The relationship of science and technology to the national security policy process.”]
- Defense, Department of, Gen. Corr., 1960
- Defense, Department of, Gen. Corr., 1961
- Defense, Department of, Gen. Corr., 1962
- Defense, Department of, Gen. Corr., 1963
- Defense, Department of, Miscellaneous Reports
- Defense, Department of, Ass. Sec. of defense for Research and Development. 1955-61
- Defense, Department of, Ass. Sec. of Defense. Newspaper Clippings, 1955-58
- 4 Defense, Department of, Defense Science Board (DSB). Gen. Corr., 1962
- Defense, Department of, Defense Science Board (DSB). Gen. Corr., 1963
- Defense, Department of, Defense Science Board (DSB). Gen. Corr., 1964-66
- Defense, Department of, Defense Science Board (DSB). Executive Com., 1963-64 (1)
- Defense, Department of, Defense Science Board (DSB). Executive Com., 1963-64 (2)
- Defense, Department of, Defense Science Board (DSB). Gen. Corr., Subcommittee on DOD Research Policy, 1963-65
- Defense, Department of, Defense Science Board (DSB). Gen. Corr., Subcommittee on DOD Research Policy. Reports
- 5 Defense, Department of, Defense Science Board (DSB). Subcommittee on In-House Labs, 1960-61

- Defense, Department of, Defense Science Board (DSB). Subcommittee on In-House Labs, 1961 (1)
- Defense, Department of, Defense Science Board (DSB). Subcommittee on In-House Labs, 1961 (2)
- Defense, Department of, Defense Science Board (DSB). Subcommittee on In-House Labs, 1962-64
- 6 Defense, Department of, Defense Science Board (DSB). Subcommittee on In-House Labs, Reports (1)
- Defense, Department of, Defense Science Board (DSB). Subcommittee on In-House Labs, Reports (2)
- Defense, Department of, Defense Science Board (DSB). Subcommittee on Scientific and Tech. Info. (STINFO), 1962
- Defense, Department of, Defense Science Board (DSB). Subcommittee on Scientific and Tech. Info. (STINFO), 1963
- Defense, Department of, Tech. Advisory Panel on Aeronautics, 1954
- Defense, Department of, Tech. Advisory Panel on Aeronautics, 1955
- 7 Executive Office of the President. Office of Science and Technology, 1962-65
- Executive Office of the President. President's Science Advisory committee (PSAC), 1960-68
- Executive Office of the President. Office of Science and Technology 1962-65
- Executive Office of the President. National Council on Marine Resources and Engineering Development, 1968-69
- House of Representatives. Committee on Appropriations. Reliability Study Group, 1958-59. (1) (2) [re guided missile systems]
- House of Representatives. Committee on Government Operations, 1958. [Testimony re scientific research and development]
- House of Representatives. Committee on Government Operations. Reports.

- 8 House of Rep. Com. on Science and Astronautics (Miller Com.). Advisory Panel, 1960
- House of Rep. Com. on Science and Astronautics (Miller Com.). Advisory Panel, 1961
- House of Rep. Com. on Science and Astronautics (Miller Com.). Advisory Panel, 1962
- House of Rep. Com. on Science and Astronautics (Miller Com.). Advisory Panel, 1963
- House of Rep. Com. on Science and Astronautics (Miller Com.). Advisory Panel, 1964
- House of Rep. Com. on Science and Astronautics (Miller Com.). Advisory Panel, 1965
- House of Rep. Com. on Science and Astronautics (Miller Com.). Advisory Panel, 1966
- House of Rep. Com. on Science and Astronautics (Miller Com.). Advisory Panel, 1967
- House of Rep. Com. on Science and Astronautics (Miller Com.). Advisory Panel, 1968
- House of Rep. Com. on Science and Astronautics (Miller Com.). Advisory Panel, 1969
- House of Rep. Select Com. on Astronautics and Space Exploration Hearing, 1958
- House of Rep. Com. on Ways and Means [1958]
- House of Rep. Select Com. on Government Research [1963]
- Institute for Defense Analyses [pamphlets]
- 9 National Academy of Engineering (NAE). Gen. Corr., 1967
- National Academy of Engineering (NAE). Gen. Corr., 1968 (1)
- National Academy of Engineering (NAE). Gen. Corr., 1968 (2)
- National Academy of Engineering (NAE). Gen. Corr., 1969

- National Academy of Engineering (NAE). Com. on Public Eng. Policy (COPEP), 1967-69
- National Academy of Engineering (NAE). Com. on Technological Assessment, 1967-69
- National Academy of Engineering (NAE). Com. on Transportation, 1968
- National Academy of Engineering (NAE). Council, 1968-69
- National Academy of Engineering (NAE). Symposium at Ann Arbor, 1967
- 10 National Academy of Sciences (NAS). Gen. Corr., 1967-69
- National Academy of Sciences (NAS). Com. on Science, Eng., and Regional Development (Alpert Com.), 1967
- National Academy of Sciences (NAS). Com. on Science, Eng., and Regional Development (Alpert Com.). 1968-69
- National Academy of Sciences (NAS). National Research Council (NRC), 1968-69
- National Advisory Com. for Aeronautics (NACA). Gen. Corr., 1958 [after July 1958 see NASA]
- National Advisory Com. for Aeronautics (NACA) Com. on Aircraft Construction, 1952 (1) [after July 1958 see NASA]
- National Advisory Com. for Aeronautics (NACA) Com. on Aircraft Construction, 1952 (2)
- National Advisory Com. for Aeronautics (NACA) Com. on Aircraft Construction, 1953 (1)
- National Advisory Com. for Aeronautics (NACA) Com. on Aircraft Construction, 1953 (2)
- 11 National Advisory Com. for Aeronautics (NACA) Com. on Aircraft Construction, 1954 (1)
- National Advisory Com. for Aeronautics (NACA) Com. on Aircraft Construction, 1954 (2)

- National Advisory Com. for Aeronautics (NACA) Com. on Aircraft Construction, 1954 (3)
- National Advisory Com. for Aeronautics (NACA) Com. for Aircraft Construction, 1955 (1)
- National Advisory Com. for Aeronautics (NACA) Com. for Aircraft Construction, 1955 (2)
- National Advisory Com. for Aeronautics (NACA) Com. for Aircraft Construction, 1955 (3)
- National Aeronautics and Space Admin. (NASA). Gen. Corr., 1963-66 [before July 1958 see NACA]
- 12 National Science Foundation Gen. Corr., 1968-69
- Navy. Office of Naval Research. Gen. Corr., 1962, 1967, 1969
- Navy. Naval Research Advisory Com. (NRAC). Gen. Corr., 1961-64
- Navy. Naval Research Advisory Com. (NRAC). Gen. Corr., 1965-66
- Navy. Naval Research Advisory Com. (NRAC). Gen. Corr., 1967
- Navy. Naval Research Advisory Com. (NRAC). Gen. Corr., 1968 (1)
- Navy. Naval Research Advisory Com. (NRAC). Gen. Corr., 1968 (2)
- Navy. Naval Research Advisory Com. (NRAC). Gen. Corr., 1969
- 13 Navy. Naval Research Advisory Com. (NRAC). Ad Hoc Com. on Naval Applied Science Laboratories (NASL), 1967
- Navy. Naval Research Advisory Com. (NRAC). Subcom. on Basic Research and Exploratory Development (6.1-6.2 Com.), 1967-68
- Navy. Naval Research Advisory Com. (NRAC). Subcom. on Basic Research and Exploratory Development (6.1-6.2 Com.), Reports
- Navy. Naval Research Advisory Com. (NRAC). Subcom. on Laboratory Advisory Boards, 1967 (1)

Navy. Naval Research Advisory Com. (NRAC). Subcom. on Laboratory Advisory Boards, 1967 (2)

Navy. Naval Research Advisory Com. (NRAC). Subcom. on Laboratory Advisory Boards, 1967 (3)

Navy. Naval Research Advisory Com. (NRAC). Subcom. on Laboratory Advisory Boards, 1968

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SPEECHES

List of Addresses, Printed Articles, Books, and Photographs

March 30-April 3, 1931. American Chemical Society, Indianapolis, Ind.

March 4, 1936. Annual Meeting of the American Ceramic Society, Buffalo, N.Y.

March 3, 1937. American Institute of New York City, New York, N.Y.

May 13, 1937. Purdue Club of New York City Annual Dinner, New York, N.Y.

October 10, 1937. American Institute of New York City. New York, N.Y.

November 1, 1937. Teachers' College, Columbia University, New York, N.Y.

May 9-11, 1938. American Institute of Chemical Engineers. White Sulphur Springs. Md.

October 8, 1938. Regional Meeting of the Soc. for the Promotion of Eng. Education. Orono, Maine

Feb. 28, 1939. Joint Session National Association for Research in Science Teaching and Society for Curriculum Study. Cleveland, Ohio

Feb. 27, 1939. Central Penn. Seventh Dist. Dental Society. Altoona, Pa.

Nov. 24, 1939. Central Assoc. of Science and Mathematics Teachers. Chicago, Ill.

Dec. 5, 1939. Greater N.Y. Dental Meeting. New York, N.Y.

May 20-22, 1940. American Gas Assoc. New York, N.Y.

April 11, 1941. Radio Talk-Sta. WGY. Schnectady, N.Y.

June 6, 1941. Eastern States Blast Furnace and Coke Oven Association. Pittsburgh, Pa.

Oct. 4, 1941. American Chemical Society. Rochester, N.Y.

Feb. 14, 1946. Thursday Club. Buffalo, N.Y.

Nov. 12, 1946. 26th Annual Meeting of the American Petroleum Institute. Chicago, Ill.

Jan. 30, 1948. Commencement Address, Buffalo Seminary. Buffalo, N.Y.

May 3, 1948. Radio Talk - Sta. WVBR. Ithaca, N.Y.

April 29, 1949. Aircraft Safety Talk. Wichita, Kansas

April 29, 1949. Sixth Annual Personal Aircraft Meetings, Wichita, Kansas

May 7, 1949, A.I.C. Annual Meeting. Chicago, Illinois

Nov. 25, 1949. Central Assoc. of Science and Mathematics Teachers. Chicago, Illinois

May 4, 1950. 1950 Niagara Dinner of the Newcomen Society of England. Buffalo, N.Y.

Dec. 27, 1950. Annual Meeting of AAAS (Eng. Section) and Cleveland Eng. Society. Cleveland, Ohio

March 7, 1951. Annual Meeting of Bituminous Coal Research, Inc. Columbus, Ohio

June 27, 1951. Aeronautical Div., American Society for Eng. Education. Lansing, Michigan

June 26, 1952. Annual Meeting of the American Society for Eng. Education

Sept. 5, 1952. Eng. College Research Council. Chicago, Ill.

Sept. 5, 1952. Cornell Society of Eng. Chicago, Ill.

Jan.27, 1953. Institute of the Aeronautical Sciences 21st Meeting. New York, N.Y.

Feb. 12, 1953. Thursday Club. Buffalo, N.Y.

Feb. 24, 1953. Controllers Institute of America. Buffalo, N.Y.

- Aug. 25, 1954. Cornell Aeronautical Lab, Inc. Lab League Testimonial. Buffalo, N.Y.
- Oct. 21, 1954. Medical Participating Fund Dinner. Buffalo, N.Y.
- Dec. 3, 1954. National Assoc. Of Mfgs. , New York, N.Y.
- Jan. 7, 1955. Inaugural Address as Chancellor, University of Buffalo, Buffalo, N.Y.
- May 6, 1955. Hutchinson Central Tech. High School, Buffalo, N.Y.
- June 5, 1955. Commencement Day Address, University of Buffalo, Buffalo, N.Y.
- Dec. 2, 1955. Cornell Aeronautical Laboratory. Buffalo, N.Y.
- 15 Jan. 11, 1956. Army-Navy-Air Force Elastomer Conference, Washington, D.C.
- March 3, 1956. Science Talent Search. Washington, D.C.
- March 9, 1956. Institute of the Aeronautical Sciences. Cleveland, Ohio
- March 15, 1956. American Society of Mechanical Engineers. Los Angeles. California
- March 22, 1956. Division 15 Alumni Group of ORSD. New York, N.Y.
- March 23, 1956. National Association of Mfgs. New York, N.Y.
- March 27, 1956. Naval Research Lab. Washington, D.C.
- April 2, 1956. U.S. Naval Powder Factory. Indian Head, Md.
- April 11, 1956. U.S.A.F. Scientific Advisory Board. Elgin AFB, Florida
- April 17, 1956. 7th Tripartite Armaments Explosives and Propellants Conference. Naval Ordnance Lab. White Oak. Md.
- April 17, 1956. Am. Society of Mech. Engineers, Washington, D.C.
- April 19, 1956. National Ind. Research Conference. Chicago, Ill.
- April 19, 1956. Chemical Progress Week. Chicago, Ill.
- May 10, 1956. National Security Ind. Assoc. New York, N.Y.
- May 19, 1956. Armed Forces Day Com. of Buffalo. Buffalo, N.Y.

- May 25, 1956. National Resources Council, Buffalo, N.Y.
- May 28, 1956. Material Officers Reserve Group. Washington, D.C.
- June 11, 1956. 7th Annual Conference on Industrial Research, Columbia University, Harriman, N.Y.
- June 15, 1956. Armed Forces Chemical Assoc., Boston, Mass.
- June 21, 1956. National Com. for the Div. of Scientists and Eng. and the Thomas Alva Edison Foundation. West Orange, N.J.
- June 28, 1956. Am. Society for Eng. Education Annual Banquet. Ames, Iowa
- June 29, 1956. Am. Institute of Chemists. Buffalo, N.Y.
- Sept. 11, 1956. Am. Institute of Chemical Eng. Pittsburgh, Pa.
- Sept. 25, 1956. Am. Rocket Society. Buffalo, N.Y. (1)
- 16 Sept. 25, 1956. American Rocket Society, Buffalo, N.Y. (2)
- Oct. 4, 1956. Joint Civilian Orientation Conference #23. Washington, D.C.
- Oct. 9, 1956. Los Alamos Scientific Laboratory. Los Alamos, N.M.
- Oct. 9, 1956. Inter-Range Instrumentation Group. Cloudcraft, N.M.
- Oct. 11, 1956. Hughes Aircraft Management Club. Los Angeles, California
- Oct. 17, 1956. Industrial College of the Armed Forces. Washington, D.C.
- Nov. 2, 1956. British Aircraft Industry and Government Officials. Washington, D. C.
- Nov. 9, 1956. Buffalo Chapter of the Am. College of Surgeons and the Buffalo Surgical Society. Buffalo, N.Y.
- Nov. 25, 1956. B’Nai B’rith Interfaith Dinner. Niagara Falls, N.Y.
- Nov. 26, 1956. The Canadian Aeronautical Institute and the Institute of the Aeronautical Sciences. Toronto, Canada
- Dec. 7, 1956. Army War College. Carlisle Barracks, Pa.

- Dec. 10, 1956. Worcester Polytechnic Institute. Worcester, Mass.
- Dec. 11, 1956. National Security Industrial Assoc., Washington, D.C.
- Dec. 17, 1956. Comments on the Wright Bros. Lecture, 1956, Washington, D.C.
- Jan. 7, 1957. Am. Institute of Chemical engineers. Washington, D.C.
- Jan 9, 1957. National Security Industrial Association. Washington, D.C.
- Jan. 21, 1957. Assoc. for Applied Solar Energy Meeting. Phoenix, Arizona
- Jan. 31, 1957. 9th Annual College-Industry Conference. Los Angeles, California
- March 31, 1957. 8th Annual N.Y. State Assoc. for Supervision and Curriculum Development. Buffalo, N.Y.
- June 3, 1957. Meeting of the American Society of Civil Engineers. Buffalo, N.Y.
- June, 1957. Commencement Address, University of Buffalo. Buffalo, N.Y.
- May 8, 1957. Buffalo Chamber of Commerce. Buffalo, N.Y.
- May 16, 1957. The Age of Space. Birmingham, Ala.
- Sept. 25, 1957. Regional Technical Meeting of American Iron and Steel Institute. Buffalo, N.Y.
- Sept 27, 1957. Associated Industries of New York State, Inc. Lake Placid, N.Y.
- Oct. 14, 1957. Economic Club of Detroit. Detroit, Mich.
- Nov. 22, 1957. "The Next Hundred Years" Scientific Symposium. New York, N.Y.
- 17 Jan. 27, 1958. New York State Society of Newspaper Editors. Elmira, N.Y.
- Feb. 6, 1958. Joint Meeting of the Chemical Buyers' Group of N.A.P.A. and the Chem. Mkt. Research Assoc. Washington, D.C.
- Feb. 11, 1958. Address to N.Y. Section SAE. New York, N.Y.
- April 23, 1958. AIChE "Future Sources of Energy" Symposium. Montreal, Canada.
- April 28, 1958. Second Annual AFOST Astronautics Symposium. Denver, Colorado.

May 21, 1958. 66th General Meeting of Am. Iron and Steel Institute. New York, N.Y.

June 8, 1958. Commencement Address, University of Buffalo. Buffalo, N.Y.

June 9, 1958. Commencement Address, State University Teachers College. Brockport, N.Y.

June 17, 1958. Conference of Institutes and Community Colleges. Farmingdale, N.Y.

July 2, 1958. National Education Association. Cleveland, Ohio.

Sept. 19, 1958. Amherst Central Adult School. Amherst, Mass.

Sept. 23, 1958. Niagara Falls Industrial Management Club. Niagara Falls, N.Y.

Oct. 11, 1958. Faculties Assoc. Conference. Syracuse, N.Y.

Oct. 13, 1958. General Electric Management Institute. Crotonville, N.Y.

Oct. 16, 1958. Energy Resources Conf. Denver, Colo.

Nov. 17, 1958. Midwest Research Institute. Kansas City, Missouri

Jan. 15, 1959. Printing Week Banquet. Buffalo, N.Y.

April 22, 1959. Address to the Urban League. Buffalo, N.Y.

June 1, 1959. Commencement Address, Wagner College. Grymes Hill, N.Y.

June 7, 1959. Commencement Address, University of Buffalo. Buffalo, N.Y.

June 16, 1959. Annual Convention of the Junior Chamber of Commerce. Buffalo, N.Y.

July 13, 1959. The American College Public Relation Assoc. French Lick, Ind.

Nov. 1, 1959. 45th Annual Meeting of the Assoc. of Urban Universities. Buffalo, N.Y.

Nov. 6, 1959. Pittsburgh Chapter AIME. Pittsburgh, Pa.

Jan. 7, 1960. Millard Fillmore Anniversary. Buffalo, N.Y.

Feb. 24, 1960. Annual Dinner, Engineering Council. Binghamton, N.Y.

June 8, 1960. Buffalo-Niagara Frontier Business Federation, Inc. Buffalo, N.Y.

June 12, 1960. Commencement Address, University of Buffalo. Buffalo, N.Y.

Sept. 15, 1960. 8th Annual Engineering Management Conference. Chicago, Ill.

Oct. 13, 1960. Honors Convocation, Thiel College. Greenville, Pa.

Jan. 13, 1961. Ground breaking for Boettcher Center for Eng. and Research, University of Denver. Denver, Colo.

Jan. 23, 1961. Institute of the Aerospace Sciences. New York, N.Y.

March 27, 1961. Buffalo-Niagara Sales Executives and Purch. Agents Assoc. of Buffalo. Buffalo, N.Y.

April 4, 1961. Federal Placement Agency Conference, University of Buffalo. Buffalo, N.Y.

May 5, 1961. Buffalo Chap. of the Reserve Officers Assoc. of the United States. Buffalo, N.Y.

May 10, 1961. Polytechnic Institute of Brooklyn. Farmingdale, N.Y.

June 8, 1961. The Thousand Plus Club. Buffalo, N.Y.

June 11, 1961. Commencement Address, University of Buffalo. Buffalo, N.Y.

August 25, 1961 Talk to 6th Army, RandD Scientific Seminar. Davis, California

Oct. 20, 1961. 9th Annual CORE Conf. Buffalo, N.Y.

Dec. 4, 1961. Eastern Assoc. of College and University Business Officers. Philadelphia, Pa.

Jan. 20, 1962. University of Buffalo Convocation. Buffalo, N.Y.

Feb. 12, 1962. The Twentieth Century Club. Pittsburgh, Pa.

March 25, 1962. Greek Independence Day. Buffalo, N.Y.

April 7, 1962. University of Buffalo. Buffalo, N.Y.

April 30, 1962. ASME Design Engineering Conference. Chicago, Ill.

- 18 May 15, 1962. Schoellkopf Medal Address. Niagara Falls, N.Y.
- June 10, 1962. Commencement Address, University of Buffalo. Buffalo, N.Y.
- June 30, 1962. Assoc. of Governing Boards Meeting. Portsmouth, N.H.
- July 19, 1962. Summer Institute, Bucknell University. Lewisburg, Pa.
- August 13, 1962. 1962 Pacific Energy Conversion Conference. San Francisco, Calif.
- Sept. 22, 1962 Capen Hall Junior Red Cross
- Sept. 26, 1962. Army War College. Carlisle Barracks, Pa.
- Dec. 29, 1962 Tau Beta Pi Lecture. Philadelphia, Pa.
- Feb. 14, 1963 Thursday Club. Buffalo, N.Y.
- March 7, 1963. The Advisory Council for the Advancement of Ind. Research and Dev. in N.Y. State and Polytechnic Inst. of Brooklyn. Long Island, N.Y.
- June 2, 1963. Commencement Address, University of Buffalo. Buffalo, N.Y.
- June 20, 1963. American Institute of Aeronautics and Astronautics. Los Angeles, California
- Nov. 7, 1963. Columbia University Advisory Council for the Advancement of Ind. Research and Dev. Conf. New York, N.Y.
- Nov. 25, 1963. Special Ceremony to Pay Respects to the Late President John F. Kennedy. Buffalo, N.Y.
- May 1, 1964. Executive Seminar Center. Kings Point, N.Y.
- May 31, 1964. Commencement Address, University of Buffalo. Buffalo, N.Y.
- June 18, 1964. First International Conf. of the Women Engineers and Scientists. New York, N.Y.
- Nov. 9, 1964. ACAIRD Conference. Rochester, N.Y.
- Jan. 28, 1965. National Newcomen Dinner. New York, N.Y.
- May 30, 1965. Commencement Address, University of Buffalo, Buffalo, N.Y.
- June 24, 1965. Governor's Library Conf. Albany, N.Y.

Oct. 6, 1965. Industrial and Commercial Power Systems Conference. Buffalo, N.Y.

Nov. 9, 1965. American Petroleum Institute, 45th Annual Meeting. Chicago, Illinois

Dec. 1, 1965. Citation Banquet of National Conference of Christians and Jews.
Buffalo, N.Y.

Dec. 14, 1965. The Third Institute on Administration: The Medical Center and the
University. Bal Harbour, Florida

Feb. 2, 1966. International Conference on Urban Transportation. Pittsburgh, Pa.

March 23, 1966. Twentieth Century Club. Buffalo, N.Y.

April 19, 1966. Testimonial Dinner. Buffalo, N.Y.

May 4, 1966. Society of Sigma XI.

May 29, 1966. Commencement Address, University of Buffalo, Buffalo, N.Y.

June 17, 1966. Conference on the Fresh Water of New York State

July 26, 1966. Presidents' Conference. Hamilton, N.Y.

Oct. 11, 1966. Akron Council of Engineers and Scientific Societies. Akron, Ohio.

May 17, 1967. Chamber of Commerce Luncheon. Buffalo, N.Y.

Sept. 21, 1967. National Academy of Engineering. Ann Arbor, Michigan

May 16, 1968. I.B.M. Institute Seminar. Buffalo, N.Y.

ARTICLES

- 19 1926. The Thermal Properties of Ferric Oxide
- May, 1929. Gas-Solid Contact in the Shaft of a 700-Ton Blast Furnace
- December, 1929. Controlling Furnace Burden by Gas Analysis
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Biography and Obituary

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