

**Guide to the Papers of Robert
Jemison Van de Graaff, 1928-1948
MC.0045**

Finding aid prepared by Page Edwards and Don Clayton

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Summary Information

Repository	Massachusetts Institute of Technology. Institute Archives and Special Collections
Creator	Van de Graaff, Robert Jemison, 1901-1967
Title	Robert Jemison Van de Graaff papers
Date [inclusive]	1928-1948
Extent	2.5 cubic feet in 2 record cartons, 1 manuscript box, 1 oversized drawing
Location	Materials are stored off-site. Advance notice is required for use.
Language	English
Abstract	The collection documents the career of Robert Jemison Van de Graaff, known for developing high-voltage electrostatic generators used for nuclear structure research, cancer therapy, and radiographic studies. Materials include correspondence, reports, contracts, drawings, and technical notes for major projects Van de Graaff worked on during his tenure at MIT, including projects for the US Office of Scientific Research and Development, as well as materials relating to the courses he taught in the MIT Department of Physics.

Citation

Robert Jemison Van de Graaff papers, MC 45, box X. Massachusetts Institute of Technology Institute Archives and Special Collections, Cambridge, Massachusetts.

Biography

Robert Jemison Van de Graaff, 1901-1967, BS 1922 and MS 1923, University of Alabama, BSc 1926 and PhD 1928, Oxford University, joined the MIT Department of Physics as a research associate in 1931. He became an associate professor in 1934, and retired in 1960 as professor emeritus. During World War II Van de Graaff was appointed the director of the MIT High Voltage Radiographic Project, sponsored by the Office of Scientific Research and Development.

After his graduate studies at the University of Alabama, Van de Graaff worked as a research assistant for the Alabama Power Company. Between 1924 and 1929 he studied in Europe, first at the Sorbonne (1924-1925), and later at Oxford University. During that period he became interested in designing a source of energetic particle beams for the study of atomic nuclei. His first working model of the high-voltage electrostatic generator was built in 1929, when Van de Graaff was a National Research Fellow at Princeton University's Palmer Physics Laboratory. The invention was reported at a meeting of the American Physical Society in 1931, and patented in 1935. In collaboration with John G. Trump and William W. Buechner, both of MIT, Van de Graaff continued working on his generator in an effort to achieve higher voltages, more homogeneous particle beams, and more compact designs. In 1946, together with Trump and Denis M. Robinson, a professor of engineering from England, Van de Graaff founded the High Voltage Engineering Corporation, where he served as chief physicist (later chief scientist) until his death in 1967. The company began its manufacturing operations in 1947, becoming a leading supplier of the particle accelerator systems used in cancer therapy, radiography, and studies of nuclear structure.

Van de Graaff published many scientific papers and received numerous patents, including those of the high-voltage electrostatic generator and the insulating-core transformer. His work on electrostatic generators was widely recognized within the scientific community. Van de Graaff received several honorary degrees and awards, including the 1947 Duddel Memorial Medal of the Physical Society of Great Britain and the 1966 Tom W. Bonner prize of the American Physical Society. In 1935 he was elected a Fellow of the American Academy of Arts and Sciences.

Scope and Contents of the Collection

The Robert Van de Graaff collection consists for the most part of papers that reflect his tenure at MIT from 1931 to 1946. The earliest papers are Van de Graaff's reprints from 1928, but the collection does not document his work at Oxford University or at Princeton under Karl T. Compton during the 1920s and early 1930s.

The bulk of the collection falls between 1943 and 1946, although there are some earlier notes from the MIT Department of Physics (box 2, folders 143-151). Of great significance are the sections of the collection which contain correspondence, drawings, and reports on the MIT generator at Round Hill

(box 2, folders 167-168), the early development of generators of higher voltage than 5 MV (boxes 1-2, folders 131-140), and the projects directed by Van de Graaff for the US Office of Scientific Research and Development (box 2, folders 169-174) and the US Navy (box 2, folder 177) during World War II.

Arrangement of the Collection

The collection is organized into the following series: Series 1. Correspondence, 1932-1948; Series 2. Subject File, 1928-1946.

Administrative Information

Publication Information

Massachusetts Institute of Technology. Institute Archives and Special Collections 1982

Revision Description

2009

Access note

The collection is open for research. Access to MIT records is governed by Institute record policy.

Intellectual Property Rights

Access to collections in the Institute Archives and Special Collections is not authorization to publish. Separate written application for permission to publish must be made to the Institute Archives. Copyright of some items in this collection may be held by respective creators, not by the creator of the collection.

Related Materials

Related Archival Materials note

High Voltage Engineering Corporation records, MC 153

Massachusetts Institute of Technology, Institute Archives and Special Collections

Controlled Access Headings

Corporate Name(s)

- British Central Science Office
- High Voltage Engineering Corporation
- High Voltage Radiographic Project
- Massachusetts Institute of Technology. Laboratory for Nuclear Science
- United States. Office of Scientific Research and Development

Personal Name(s)

- Beggs, George E. (George Erie), 1883-1939
- Bush, Vannevar, 1890-1974
- Cockcroft, John, Sir, 1897-1967
- Compton, K. T. (Karl Taylor), 1887-1954
- Failla, G.
- Killian, James Rhyne, 1904-1988
- Slater, John Clarke, 1900-1976
- Stratton, Julius Adams, 1901-1994
- Trump, John G.
- Van de Graaff, Robert Jemison, 1901-1967

Subject(s)

- Government consultants.
- Massachusetts Institute of Technology--Faculty.
- Particle accelerators--Research--1928-1948.
- Van de Graaff generator.
- World War, 1939-1945--Science.

Correspondence

Collection Inventory

Series 1. Correspondence 1932-1948

Scope and Contents note

This series includes correspondence, chiefly with physicists, engineers, government officials, and manufacturers. Of particular interest are the letters between Van de Graaff and the British Central Scientific Office (box 1, folder 18), the Vannevar Bush letters (box 1, folder 24), and the Karl T. Compton letters and memoranda (box 1, folder 36).

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Series 2. Subject File 1928-1946**Scope and Contents note**

This series consists of the records of major projects Van de Graaff worked on during his tenure at MIT. Included are correspondence as well as lecture and technical notes, photographs, drawings, patents, and reports. Van de Graaff supervised the construction of the 5 MeV electrostatic generator at Round Hill for MIT. Project notes and drawings are included (box 2, folders 167-168). He was also director of the High Voltage Radiographic Project for the National Defense Research Committee of the US Office of Scientific Research and Development during World War II, and relevant correspondence with G. E. Beggs and G. Failla, as well as technical notes, agreements, and contracts are included (box 3, folders 169-174).

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