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# A guide to the Robert and Esther Goddard papers

Worcester Polytechnic Institute

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# MS 14 Goddard Collection

## Robert H. and Esther Goddard Collection

MS 14

Personal Papers

### BIOGRAPHICAL SKETCH

Robert Hutchings Goddard was born in Worcester October 5, 1882. Soon after this, the family moved to Roxbury. Robert was often ill as a child, and missed a lot of school. He spent much of his time reading, and doing his own experiments. The family moved back to Worcester when he was sixteen. He often told a story later in his life of a pivotal moment in 1898 when, having climbed a cherry tree to prune it, he stopped and looked out at the field below and the idea came to him of making "some device which had even the possibility of ascending to Mars..." He said this experience changed his life and gave him a sense of purpose. In 1904, he graduated from Worcester's South High School and enrolled at Worcester Polytechnic Institute.

As early as 1907, Goddard was working to build a rocket at WPI, although at one point his efforts caused an explosion in the laboratory. After graduation, Goddard continued his studies in physics at Clark University, and received his doctorate degree. He taught at Clark, and continued his experiments. In 1914, he received two patents for rockets. In 1917, he received a \$5,000 grant from the Smithsonian Institution for research. During World War I, he developed a bazooka-type rocket, which was not manufactured. In the 1920s, Goddard tested his rockets at his aunt's farm in Auburn, MA. The last rocket flight there was in 1929, after which the fire marshal prohibited further flights.

In 1924, Goddard met and married Esther Kisk. Esther often filmed the rocket flights.

Goddard received more financial support from the Smithsonian Institution, and by the 1930s the Guggenheim Foundation was funding his research. He moved his research to the desert of New Mexico, and took a leave of absence from Clark to focus on developing rocket technology. He worked with the military, from 1941 until his death in 1945, on rocket projects at the Naval Experiment Station at Annapolis. He died of cancer August 10, 1945.

Esther Kisk was 17 and a secretary at Clark University, saving money for college, when she met Robert Goddard in 1920. She attended Bates College for a time, and they were married in 1924.

After Goddard's death in 1945, Esther Goddard devoted the next twenty years to getting recognition for Goddard's work. She edited and published his papers (published in 1970), and is widely credited with bringing his name and achievements into the public consciousness. NASA's Goddard Space Flight Center is but one of the prominent places named for Robert Goddard.

### SCOPE AND CONTENT

About half of the collection is comprised of Robert Goddard's papers, from his undergraduate days and later. Reports of undergraduate experiments, mainly in physics and electrical engineering, make up much of Goddard's own work in the collection. There is also a small amount of correspondence of Robert Goddard. These materials begin in 1904 and continue to 1943. Most of the rest of the collection is made up of articles about him and recognition of various kinds for his work. There is a considerable amount of WPI material, including correspondence with Mrs. Goddard, tributes to Goddard, information about the building and laboratory named for him, and the scrapbook kept by his classmate, H. Clayton Kendall. There are also many news clippings which the public relations department of WPI kept over the years. These materials range in date from 1950 to 1998, but the majority is from the 1960s.

Notes: There are also some materials in Goddard's alumni file. Robert Goddard's papers were given to Clark University.

**Container List**

Container	Folder	Date	Title
None			

**Series I - Biographical Information and Patents**

MS 14\_01

Personal Papers

**Container List**

Container	Folder	Date	Title
Box 01	Folder 01	c. 1960	Biographical Information for Robert H. Goddard
Box 01	Folder 02	1914-1956	Patents issued to Robert H. Goddard

**Series II - Notes and WPI Experiments of Robert H. Goddard**

MS 14\_02

Personal Papers

**Container List**

Container	Folder	Date	Title
Box 01	Folder 03	1904-1905	Notes - WPI course in Descriptive Geometry
Box 01	Folder 04	n.d.	WPI experiments - Physics - Summer Practice in Light
Box 01	Folder 05	n.d.	WPI experiments - Physics - Hooke's Law & Young's Modulus
Box 01	Folder 06	n.d.	WPI experiments - Physics - Rigidity & Constant of Torsion of a Wire
Box 01	Folder 07	n.d.	WPI experiments - Physics - Thermometer Testing
Box 01	Folder 08	n.d.	WPI Experiments - Physics -Temperature Coefficient of Expansion
Box 01	Folder 09	n.d.	WPI Experiments - Physics - Heat of Vaporization
Box 01	Folder 10	n.d.	WPI Experiments - Physics - Galvanometer Resistance - Shunt Method
Box 01	Folder 11	n.d.	WPI Experiments - Physics - Galvanometer Resistance - Kelvin's Method
Box 01	Folder 12	n.d.	WPI Experiments - Physics - Comparison of E.M.F.s and battery Resistance by Condensers
Box 01	Folder 13	1/5/1906	WPI Experiments - The Torsional Pendulum
Box 01	Folder 14	6/1906	WPI Experiments - The Gyroscope
Box 01	Folder 15	11/7/1906	WPI Experiments - Errors of Weights
Box 01	Folder 17	11/8/1906	WPI Experiments - Acceleration of Gravity Balance
Box 01	Folder 18	12/18/1906	WPI Experiments - Pressure of Saturated water Vapor
Box 01	Folder 19	1/24/1907	WPI Experiments - Electrical Engineering - Siemens Electro-dynamometer
Box 01	Folder 16	11/8/1906	WPI Experiments - Mohr's Specific Gravity Balance

Box 01	Folder 20	1/31/1907	WPI Experiments - Self and mutual Induction and Capacitu, A.C.
Box 01	Folder 21	2/1/1907	WPI Experiments - Photographic Lab - Wave Length of Light by Diffraction Grating
Box 01	Folder 22	2/5/1907	WPI Experiments - Electrical Engineering - Preliminary Power Measurements
Box 01	Folder 23	2/7/1907	WPI Experiments - Measurement of High Resistance (2)
Box 01	Folder 24	2/12/1907	WPI Experiments - Electrical Engineering - Inductance and Capacity
Box 01	Folder 25	2/15/1907	WPI Experiments - Calibration of Ammeter
Box 01	Folder 26	2/18/1907	WPI Experiments - Electrical Engineering - Experimental Study of the Electric Arc
Box 01	Folder 27	2/19/1907	WPI Experiments - Electrical Engineering - First Work with A.C. Transformer

### Series III - WPI Experiments, Thesis, Class Song, Articles, Correspondence

MS 14\_03

Personal Papers

#### Container List

Container	Folder	Date	Title
Box 02	Folder 01	2/25/1907	WPI Experiments - Electrical Engineering - The Series Transformer
Box 02	Folder 02	3/7/1907	WPI Experiments - Physics - Thermo-Electric Currents
Box 02	Folder 04	3/8/1907	WPI Experiments - Physics - Comparison of Capacities of Conductors
Box 02	Folder 03	3/12/1907	WPI Experiments - Physics - Coefficient of Self-Induction
Box 02	Folder 05	3/15/1907 and 3/21/1907	WPI Experiments - Front Physics -Permeability [magnetic]
Box 02	Folder 06	3/28/1907	WPI Experiments - Back Physics - Measurement of Low Resistances
Box 02	Folder 07	4/25/1907	WPI Experiments - Back Physics - Measurement of Very High Resistances
Box 02	Folder 08	5/9/1907	WPI Experiments - Rear Physics - Hysteresis
Box 02	Folder 09	5/12/1907	WPI Experiments - Back Physics - Comparison of Resistance by the Carey-Foster Method
Box 02	Folder 10	5/16/1907	WPI Experiments - Back Physics - Battery Resistance by Mance's Method
Box 02	Folder 12	6/3/1907	WPI Experiments - Back Physics - The Mechanical Equivalent of Heat by the Electrical Method
Box 02	Folder 13	June 1907	WPI Experiments - Physics - Melting Point of Alloys
Box 02	Folder 14	10/14/1907	WPI Experiments - Calorimeter Lab - Heat of Neutralization
Box 02	Folder 15	11/19/1907	WPI Experiments - Phys. Chem. - Effect of Concentration of E.M.F.
Box 02	Folder 16	12/3/1907	WPI Experiments - Phys. Chem. - Study of Electrolytic Conduction
Box 02	Folder 18	5/17/1908	WPI Experiments - Back Physics - Calibration of a Volt Meter
Box 02	Folder 19	6/4/1908	Thesis for B.S. - "A Study of the Conductivity of Selenium and Allied Anomalous Conductors"

Box 02	Folder 20	1908	Class Song - "Old Tech" by Robert H. Goddard
Box 02	Folder 21	1907 - 1929	Articales and Papers by Robert H. Goddard
Box 02	Folder 22	2/1943	Correspondence between Robert H. Goddard and Dean Francis Roys
Box 02	Folder 11	6/3/1907	WPI Experiments - Back Physics - Horizontal Component of the Earth's Magnetism
Box 02	Folder 17	12/17/1907	WPI Experiments - Phys. Chem. - Velocity of Ions

### Series IV - Article about a Goddard Patent

MS 14\_04

Personal Papers

#### Container List

Container	Folder	Date	Title
Box 03	Folder 01	1976	Article by Arvid E. Anderson <i>"Robert H. Goddard: Original Inventor - Patentee of the High Frequency Vacuum Tube Oscillator"</i>

### Series V - Correspondence

MS 14\_05

Personal Papers

#### Container List

Container	Folder	Date	Title
Box 03	Folder 01	1921-1971	Correspondence re. Robert Goddard <i>[includes copies of correspondence between Robert Goddard and Edwin Aldrin, 1921 &amp; 1930]</i>
Box 03	Folder 02	1950 - 1982	Correspondence re. Robert Goddard
Box 03	Folder 03	n.d.	Correspondence from Esther Goddard to Steven C. Trabbic <i>re. requests for books by and about Robert Goddard, February - April 1964</i>

### Series VI - Recognition of Robert Goddard - Class of 1908

MS 14\_06

Personal Papers

#### Container List

Container	Folder	Date	Title
Box 03	Folder 04	1960-1966, 1985	Scrapbook of H. Clayton Kendall, Class of 1908
Box 03	Folder 05	1964, n.d.	Class of 1908 tributes to Robert H. Goddard

### Series VII - Recognition of Robert Goddard

MS 14\_07

Personal Papers

#### Container List

Container	Folder	Date	Title
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Box 03	Folder 06	1/21/1948	Exhibit - Robert H. Goddard Rocket Exhibit - Museum of Natural History <i>Sponsored by Guggenheim Foundation</i>
Box 03	Folder 07	4/25/1959	Collection - Roswell Museum - Rocert Huchings Goddard Collection opening
Box 03	Folder 08	4/29/1959	Articles - WPI Tech News articles re. dedication of Goddard Memorial
Box 03	Folder 09	1962 - 1965	Buildings - WPI's Goddard Hall - building project and dedication
Box 03	Folder 10	1962 - 1976	Exhibits, honors, and memorials - for Robert H. Goddard and honors for Esther Goddard
Box 03	Folder 11	1963	Books - The Early Years: Goddard Space Flight Center - NASA
Box 03	Folder 12	1966 - 1973	Goddard Space Flight Center - includes colloquium by Esther Goddard, 1973
Box 04	Folder 01	1969 - 1976	Clark University - Goddard Stamp, Papers, Library, honors
Box 04	Folder 02	1969 - 1998	Recognition - miscellaneous - includes International Space Hall of Fame, Goddard Exhibit
Box 04	Folder 03	10/5 - 7/1982	Worcester's Goddard Centennial Celebration

### Series VIII - Articles about Robert Goddard and Esther Goddard

MS 14\_08

Personal Papers

#### Container List

Container	Folder	Date	Title
Box 04	Folder 04	1950s & 1960s	Magazine Articles
Box 04	Folder 05	1955-1971 , n.d.	List of Newspaper Clippings about Goddards
Box 04	Folder 06	1917-1965	News Articles
Box 04	Folder 07	1966, n.d.	News Articles
Box 04	Folder 08	n.d.	News Articles - originals

### Series IX - Goddard Burial Plot

MS 14\_09

Personal Papers

#### Container List

Container	Folder	Date	Title
Box 04	Folder 09	n.d.	Map - Showing Goddard Burial Plot, Hope Cemetary, Worcester

### Series X - Photographs

MS 14\_10

Personal Papers

#### Container List

Container	Folder	Date	Title
Box 04	Folder 10	1918	Photographs - WPI

**Series XI - Framed Letter**

MS 14\_11

Personal Papers

**Container List**

Container	Folder	Date	Title
Box 04	Folder 12	8/29/1938	Framed letters from Robert H. Goddard to Robert Karakoosh re. job inquiry

**Series XII - Medal and Commemorative Plate**

MS 14\_12

Personal Papers

**Container List**

Container	Folder	Date	Title
Box 05	Folder 01		Medal  <i>robert Hutchings Goddard 1882 - 1945. On reverse: In Honor of Robert Hutchings Goddard by Act of Congress of the United States of America 1959; In Recognition of His Pioneering Research in Rocket Propulsion. Rocket Design is in Center, with "First Rocket March 16, 1926" under and the words around the rocket: "The Dream of Yesterday is the Hope of Today and the Reality of Tomorrow" [rounds 2 3/4 medal in case]</i>
Box 05	Folder 02		Commemorative Plate  <i>Auburn Cooperative Bank, Auburn, MA: "50th Anniversary of the first liquid propelled rocket launched in Auburn, Mass., March 16, 1926 by Dr. Robert H. Goddard . This plate created for the 25th anniversary of the Auburn Cooperative Bank, Auburn, Mass."</i>

**Series XIII - Goddard Medals and Misc.**

MS 14\_13

Personal Papers

**Container List**

Container	Folder	Date	Title
Box 06			Langley Medal (1960)  <i>Reads "PER ORBEM" on front Reads "For the increase and diffusion of knowledge among men" Langley Medal - Aerodynamics - Robert Hutchings Goddard MCMLX - Smithsonian Institution Washington 1946</i>
Box 06			1959 Medal of Congress  <i>Reads "Robert Hutchings Goddard 1882-1945" on front Reads "In Honor of Robert H. Goddard by Act of Congress of the United States of America, 1959 In Recognition of his pioneering research in rocket propulsion" circled around the edge, and in the center has a picture of a rocket that says "The dream is the hope of yesterday and the reality of tomorrow" "First Rocket March 16, 1926" with Robert Goddard's Signature under the quote.</i>
Box 06			The Daniel Guggenheim Medal in a black case
Box 06			1959 Medal of Congress in blue case  <i>Reads "Robert Hutchings Goddard 1882-1945" on front Reads "In Honor of Robert H. Goddard by Act of Congress of the United States of America, 1959 In Recognition of his pioneering research in rocket propulsion" circled around the edge, and in the center has a picture of a rocket</i>

*that says "The dream is the hope of yesterday and the reality of tomorrow" "First Rocket March 16, 1926" with Robert Goddard's Signature under the quote.*

Box 06

Autobiography of Robert H. Goddard

*Front says "Robert Hutchings Goddard, Father of the Space Age"*

Box 06

Folder 1

Miscellaneous

*First Day of Issue stamp featuring Goddard with first liquid fuel rocket shot March 16, 1926*

*First Day of Issue Stamp featuring Goddard with Dr. Robert Goddard checking rocket*

*First Day of Issue Stamp featuring Goddard with saying he "launched the world's first supersonic rocket"*

*The Program for the March 16. 1965 National Goddard Day, A centennial year event of Worcester Polytechnic Institute*

*An excerpt from a paper by Arvid E. Anderson, WPI Class of 1920 about Robert Goddard and the Vacuum Tube*