

# Clinton Joseph Davisson Papers

## A Finding Aid to the Collection in the Library of Congress



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Washington, D.C.  
2012

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<http://hdl.loc.gov/loc.mss/eadmss.ms011202>

LC Online Catalog record:

<http://lcn.loc.gov/mm79017970>

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Revised by Melinda K. Friend

## Collection Summary

**Title:** Clinton Joseph Davisson Papers

**Span Dates:** 1908-1962

**Bulk Dates:** (bulk 1937-1946)

**ID No.:** MSS17970

**Creator:** Davisson, Clinton Joseph, 1881-1958

**Extent:** 3,000 items ; 13 containers plus 1 oversize ; 5 linear feet

**Language:** Collection material in English

**Location:** Manuscript Division, Library of Congress, Washington, D.C.

**Summary:** Physicist. Scientific papers, articles, and notes relating largely to Davisson's research on secondary emissions of electrons, electron optics, construction of instruments for electron focusing, and crystal physics while employed by Western Electric Company and Bell Telephone Laboratories, and also including lecture notes, personal correspondence, and photographs.

## Selected Search Terms

The following terms have been used to index the description of this collection in the Library's online catalog. They are grouped by name of person or organization, by subject or location, and by occupation and listed alphabetically therein.

### People

Davison family--Correspondence.

Davisson, Clinton Joseph, 1881-1958.

### Organizations

Bell Telephone Laboratories.

University of Virginia.

Western Electric Company.

### Subjects

Crystallography.

Electric circuits.

Electron optics.

Electrons--Diffraction.

Electrons--Emission.

Electrons.

Wave mechanics.

### Occupations

Physicists.

## Administrative Information

### Provenance

The papers of Clinton Joseph Davisson, physicist, were given to the Library of Congress in 1963 by his widow, Charlotte Sara Davisson.

### Processing History

The papers of Clinton Joseph Davisson were arranged and described in 1963. The finding aid was revised in 2012.

### Additional Guides

The Clinton Joseph Davisson Papers are described in *The Quarterly Journal of the Library of Congress* 21, no. 2 (July 1964): 191.

## Copyright Status

Copyright in the unpublished writings of Clinton Joseph Davisson in these papers and in other collections of papers in the custody of the Library of Congress has been dedicated to the public.

## Access and Restrictions

The papers of Clinton Joseph Davisson are open to research. Researchers are advised to contact the Manuscript Reading Room prior to visiting. Many collections are stored off-site and advance notice is needed to retrieve these items for research use.

## Preferred Citation

Researchers wishing to cite this collection should include the following information: Container number, Clinton Joseph Davisson Papers, Manuscript Division, Library of Congress, Washington, D.C.

## Biographical Note

<i>Date</i>	<i>Event</i>
1881, Oct. 22	Born, Bloomington, Ill.
1908	B.S., University of Chicago, Chicago, Ill.
1911	Ph.D., Princeton University, Princeton, N.J. Married Charlotte Sara Richardson (died 1984)
1911-1917	Instructor in physics, Carnegie Institute of Technology, Pittsburgh, Pa.
1917-1946	Member of technical staff, Western Electric Co. (later Bell Telephone Laboratories)
1927	Discovered with others the diffraction of electrons by crystals
1928	Awarded Comstock Prize in physics
1937	Shared Nobel Prize in physics with G. P. Thomson for discovery of the wave properties of the electron by electron diffraction
1947-1949	Visiting professor of physics, University of Virginia, Charlottesville, Va.
1958, Feb. 1	Died, Charlottesville, Va.

## Scope and Content Note

The papers of the Clinton Joseph Davisson (1881-1958) span the years 1908-1962, with the bulk of the material dating from 1937 to 1946. The papers are organized into the following series: [Correspondence](#), [Scientific Papers](#), [Miscellany](#), and [Oversize](#).

The [Correspondence](#) includes mostly letters received by Davisson from family members and are generally of a nonscientific nature. Included with the 1937 correspondence is a volume of letters and a scrapbook containing correspondence, photographs, clippings, and printed ephemera relating to Davisson's winning of the Nobel Prize in 1937. A few letters addressed to Davisson's wife, Charlotte Sara Davisson, and one of his sons, Owen Davisson, conclude the series.

The [Scientific Papers](#), consisting of articles, memoranda, and reports, encompass the major areas of Davisson's research while employed by the Western Electric Company and Bell Telephone Laboratories. Many of the papers relate to

Davisson's study of the secondary emission of electrons. His investigations into this subject led to his experimental demonstration of electron diffraction, thus confirming the wave properties of electrons. There are numerous papers relating to his interest in electron optics and the construction of instruments for electron focusing, as well as papers concerning crystal physics relevant to the development by Bell Telephone Laboratories of quartz crystal plates as circuit elements. Included with the papers are notes, statistics, blueprints, graphs, photographs, and other research material.

The Miscellany is mostly comprised of the lecture notes Davisson used while a visiting professor in physics at the University of Virginia in Charlottesville. He taught undergraduate and graduate courses and directed doctoral thesis research work. Included also are nonscientific articles, biographical material, certificates and awards, photographs, and speeches.

## Arrangement of the Papers

This collection is arranged in four series:

- [Correspondence, 1916-1957](#)
- [Scientific Papers, 1928-1952](#)
- [Miscellany, 1908-1962](#)
- [Oversize, 1935-1946](#)

## Description of Series

*Container*

*Series*

BOX 1-3

**Correspondence, 1916-1957**

Mostly personal and family correspondence.  
Arranged by name of person and therein chronologically by year.

BOX 4-10

**Scientific Papers, 1928-1952**

Articles, memoranda, and reports, in both holograph and typescript form, on scientific research written and cowritten by Davisson and accompanied by research notes, statistics, drawings, graphs, blueprints, and photographs.  
Arranged alphabetically by title or subject matter.

BOX 11-13

**Miscellany, 1908-1962**

Nonscientific articles by Davisson, biographical material, certificates and awards, financial records, lecture notes, photographs, printed matter, speeches, and other material.  
Arranged alphabetically by type of material.

BOX OV 1

**Oversize, 1935-1946**

Award and photograph.  
Arranged and described according to the series, containers, and folders from which the items were removed.

# Container List

<i>Container</i>	<i>Contents</i>
<b>BOX 1-3</b>	<b>Correspondence, 1916-1957</b> Mostly personal and family correspondence. Arranged by name of person and therein chronologically by year.
<b>BOX 1</b>	Davisson, Clinton Joseph
<b>BOX 1</b>	1916-1937 (5 folders)
<b>BOX 2</b>	1938-1955 (14 folders)
<b>BOX 3</b>	1956-1957, undated (4 folders)
<b>BOX 3</b>	Davisson, Charlotte Sara (wife), 1913, 1926, 1934-1958, undated (4 folders)
<b>BOX 3</b>	Davisson, Owen (son), 1936, undated
<b>BOX 3</b>	Unidentified, 1944
<b>BOX 4-10</b>	<b>Scientific Papers, 1928-1952</b> Articles, memoranda, and reports, in both holograph and typescript form, on scientific research written and cowritten by Davisson and accompanied by research notes, statistics, drawings, graphs, blueprints, and photographs. Arranged alphabetically by title or subject matter.
<b>BOX 4</b>	"Are Electrons Waves?", 1928
<b>BOX 4</b>	"The Arrangement of Atoms in $\alpha$ -Quartz," undated (4 folders)
<b>BOX 4</b>	"Calculation of the Force Acting on a Charged Insulating Slab Situated between the Plates of a Charged Parallel Plate Condenser," 1936
<b>BOX 4</b>	"Calculation of System of Coils of Rectangular Cross-Section for Gyromagnetic Experiment," 1952
<b>BOX 4</b>	"Coefficients of Reflections of Metals," undated
<b>BOX 4</b>	Crystal physics, 1948
<b>BOX 4</b>	"Destruction of Symmetry Axes in Structure of Crystal of Symmetry P3," 1946
<b>BOX 4</b>	Determination of reflection coefficient, undated
<b>BOX 4</b>	Diffraction, undated
<b>BOX 4</b>	"The Diffraction of a Divergent Beam of Waves by a Plane Grating," undated
<b>BOX 4</b>	"Diffraction of Electrons by a Crystal of Nickel" 1928
<b>BOX 4</b>	"Diffraction of Plane Waves by Space Arrays of Scattering Elements," 1929
<b>BOX 4</b>	"The Discovery of Electron Waves," 1937-1938
<b>BOX 4</b>	"The Dispersion of $\beta$ -Rays in Energy by a Uniform Magnetic Field," 1938
<b>BOX 4</b>	"Distribution of Current and Voltage in Ladder Network," 1942
<b>BOX 4</b>	"Double Bragg Reflections in Quartz," 1944 (3 folders)
<b>BOX 5</b>	(2 folders)

## Scientific Papers, 1928-1952

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BOX 5	"Double Bragg Reflections of X-Rays in a Single Crystal," 1944-1945
BOX 5	Electro-magnetic theory, undated (2 folders)
BOX 5	Electron images of 200 mesh wire gauze and double crosswires, undated
BOX 5	"Electron Lenses," 1931-1932 (4 folders)
BOX 5	"Electron Microscope," 1944-1945
BOX 5	"Electron Optics," 1934-1935 (2 folders)
BOX 5	"Electron Scattering Coefficients of Metals," 1941
BOX 5	"Electrons and Quanta," 1929
BOX 5	"Equilibrium of Electrons in Potential Field," 1930
BOX 5	"Fourteen Crystal Lattices in Terms of Primitive Vectors," 1946
BOX 5	"Generalized Curvilinear Orthogonal Coordinates," circa 1942
BOX 5	"An Hypothesis of Crystal Detwinning," 1947
BOX 5	Lattices, 1948
BOX 6	"Laue Reflection of Divergent X-Rays by a Thin Crystal Plate," 1944
BOX 6	"Liouville's Theorem and Electric Current Densities," undated
BOX 6	Magnetism Theory, III, undated
BOX 9	"Modulation in Television Receiving Tube, T9," 1937-1938
BOX 6	"A New Consequence of Electron Diffraction," 1952
BOX 6	"A New Experimental Arrangement for Measuring Coefficients of Secondary Electron Emission," 1941-1942 (12 folders) (5 folders)
BOX 7	"A New Variation of the Rotation-by-Magnetization Method of Measuring Gyromagnetic Ratios," undated
BOX 7	"New Ways of Using Electrons in the Laboratory," 1936
BOX 8	"The Non-Existence of Intensity Maxima in Electrostatic Fields," 1943
BOX 8	"A Note on Space Current Densities," 1937
BOX 8	"A Note on the Design of Television Receiver Tubes," 1936-1938
BOX 8	"On the Relation between Structure and Handedness in $\alpha$ -Quartz," 1945
BOX 8	"The Orientation of Certain Reeves Crystal Plates," 1944
BOX 8	Orthogonal directions, undated
BOX 8	"Oscillating Cylindrical Electro-Magnetic Fields," undated
BOX 8	"A Proposed Electric Velocity Selector," 1942
BOX 8	Radiographic screen, undated
BOX 8	"Random Occurrences," 1945
BOX 8	"The Reciprocal Lattice of Quartz and Its Uses," 1944
BOX 8	"Reciprocal Lattices," 1946
BOX 8	"The Reflection and Transmission of Light Incident Obliquely on an Optical Flat," 1948
BOX 8	"The Reflection of Light by a Transparent Dielectric Slab (Normal Incidence)," 1942
BOX 8	"Reflection of Low-Energy Electrons from Metal Surfaces," undated
BOX 8	"Reflection of Low Speed Electrons from Polycrystalline Platinum," 1948
BOX 8	"The Reflection of X-Rays by a Perfect Crystal," 1945
BOX 8	"Repulsion in Cylindrical Beam of Electrons," 1936
BOX 8	"The Rotational Axes of a Hexagonal Lattice," 1946

## Scientific Papers, 1928-1952

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BOX 8	"Rotational Symmetry of Planar Arrays of Points," 1946
BOX 8	"The Scattering of Electrons by Crystals," 1927-1929
BOX 8	"Secondary Electron Emission Measurements," 1941
BOX 8	"Solution of the General Cubic with Real Coefficients," 1936
BOX 9	"Standing Waves in Cylindrical Cavities," 1942-1943 (2 folders)
BOX 9	The structure of quartz, undated
BOX 9	Television receiver tube T-1, 1935-1938
BOX 9	Television receiver tube T-9-2, 1936
BOX 9	"Testing the Resolving Power of Television Receivers by Sinusoidal Modulation," 1936
BOX 9	"A Theory of the Piezoelectric Effect in Quartz," 1945-1946 (7 folders)
BOX 10	(3 folders)
BOX 10	"Theory of Secondary Measurements at Low Bombarding Potentials," 1941
BOX 10	"The Theory of the Transverse Doppler Effect," 1938
BOX 10	"Transmission of Waves through a Set of N Equally Spaced Reflecting and Absorbing Planes," 1942-1945
BOX 10	"Venable's Experiment," 1949-1950
BOX 10	"The Wave Properties of Electrons," 1930
BOX 10	"What Electrons Can Tell Us about Metals," 1937
BOX 10	Loose items, undated
BOX 11-13	<b>Miscellany, 1908-1962</b> Nonscientific articles by Davisson, biographical material, certificates and awards, financial records, lecture notes, photographs, printed matter, speeches, and other material. Arranged alphabetically by type of material.
BOX 11	Articles, 1936-1937, 1956, undated (2 folders)
BOX 11	Biographical material, 1934-1940, 1956, 1962, undated
BOX 11	Certificates and awards, 1908, 1929-1940, 1947-1948 <i>See also Oversize</i> (3 folders)
BOX 11	Financial records, 1921, 1937, 1943-1948, 1954-1955
BOX 11	General, 1926, 1942-1947, undated
BOX 11	Lectures in physics, 1947-1948 (2 folders)
BOX 12	(11 folders)
BOX 13	Photographs and silhouette, 1937-1941, 1946, undated <i>See also Oversize</i>
BOX 13	Printed matter, 1941, 1946-1956
BOX 13	Speeches, 1937-1938, 1948-1952 (2 folders)
BOX OV 1	<b>Oversize, 1935-1946</b> Award and photograph. Arranged and described according to the series, containers, and folders from which the items were removed.
BOX OV 1	Miscellany

## Oversize, 1935-1946

### *Container*

### *Contents*

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BOX OV 1	Certificates and awards
BOX OV 1	Award, 1935 (Container 11)
BOX OV 1	Photographs and silhouette
BOX OV 1	Photograph, 1946 (Container 13)