Collection Summary
Title: Claude Elwood Shannon Papers
Span Dates: 1932-1995
Bulk Dates: (bulk 1938-1989)
ID No.: MSS84831
Extent: 7,000 items
Extent: 20 containers plus 1 classified and 1 oversize
Extent: 8 linear feet
Extent: 10 digital files (211.9 KB)
Language: Collection material in English
Location: Manuscript Division, Library of Congress, Washington, D.C.
LC Catalog record: https://lccn.loc.gov/mmm2001084831
Summary: Mathematician, information theorist, and computer scientist. Correspondence, scientific papers, theorems, topical files, articles, notes, speeches, and miscellaneous material relating to Shannon's professional life.

Selected Search Terms
The following terms have been used to index the description of this collection in the LC Catalog. They are grouped by name of person or organization, by subject or location, and by occupation and listed alphabetically.

People
Andrew, Merle M., 1920-2007--Correspondence.
Ashby, W. Ross (William Ross), 1903-1972--Correspondence.
Berkeley, Edmund Callis--Correspondence.
Biunno, Vincent P.--Correspondence.
Bode, Hendrik W. (Hendrik Wade), 1905-1982--Correspondence.
Brown, Gordon Stanley, 1907-1996--Correspondence.
Casby, James U.--Correspondence.
Dowling, Kevin--Correspondence.
Elias, P. (Peter)--Correspondence.
Flanagan, Dennis, 1919-2005--Correspondence.
Flood, Merrill M. (Merrill Meeks), 1908-1991--Correspondence.
Gabor, Dennis, 1900-1979--Correspondence.
Hubbard, L. Ron (La Fayette Ron), 1911-1986--Correspondence.
Lasker, Edward, 1885-1981--Correspondence.
Levy, David N. L.--Correspondence.
Liversidge, Anthony--Correspondence.
McCarthy, John, 1927-2011--Correspondence.
Moore, Edward F.--Correspondence.
Pierce, John R. (John Robinson), 1910-2002--Correspondence.
Piore, Emanuel Ruben, 1908-2000--Correspondence.
Price, G. Baley (Griffith Baley), 1905-2006--Correspondence.
Sagan, Carl, 1934-1996--Correspondence.
Shneidman, Edwin S.--Correspondence.
Singmaster, David--Correspondence.
Stratton, Julius Adams, 1901-1994--Correspondence.
Uttley, A. M.--Correspondence.
Von Neumann, John, 1903-1957--Correspondence.
Weaver, Warren, 1894-1978--Correspondence.
Organizations
Bell Telephone Laboratories.

Subjects
Computer chess.
Computer games.
Computers.
Games--Data processing.
Information theory.
Telecommunication.

Occupations
Computer scientists.
Information theorists.
Mathematicians.

Provenance
The papers of Claude Elwood Shannon, mathematician, information theorist, and computer scientist, were given to the Library of Congress by Mary E. Shannon in 2001.

Processing History
The Shannon Papers were processed in 2003. The finding aid was revised in 2011 and again in 2014.

Additional Guides
Some of the writings in this collection are in the hand of Shannon's wife, Mary E. Shannon, to whom Claude Shannon often dictated his work. Samples of their handwriting provided by Mrs. Shannon are available for comparison in the Manuscript Division Reading Room. Consult reference staff for information.

Copyright Status
The status of copyright in the unpublished writings of Claude Elwood Shannon is governed by the Copyright Law of the United States (Title 17, U.S.C.).

Access and Restrictions
The papers of Claude Elwood Shannon 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.

Security Classified Documents
Government regulations control the use of security classified items in this collection. Manuscript Division staff can furnish information concerning access to and use of any classified items.
Digital Format

Digital files were received as part of the papers of Claude Elwood Shannon. Reference copies were created from the original digital media. Consult reference staff in the Manuscript Division for more information.

Preferred Citation

Researchers wishing to cite this collection should include the following information: Container or digital ID number, Claude Elwood Shannon Papers, Manuscript Division, Library of Congress, Washington, D.C.

Biographical Note

Date  Event
1916, Apr. 30  Born, Petoskey, Mich.
1936  B.S., University of Michigan, Ann Arbor, Mich.
1940-1941  Fellow, Institute for Advanced Study, Princeton, N.J.
1948  Published “A Mathematical Theory of Communication,” Bell System Technical Journal
1949  Married Mary E. Moore
1941-1958  Research mathematician, Bell Telephone Laboratories, Murray Hill, N.J.
1985  Awarded Kyoto Prize

Scope and Content Note

The papers of Claude Elwood Shannon (1916-2001) span the years 1932-1995, with the bulk of the material dating from 1938 to 1989. Shannon established the field of information theory with several seminal scientific papers, including “A Mathematical Theory of Communication,” published in 1948. He was first to realize that the bit, expressed mathematically with only two symbols, ones and zeros, could serve as the basic unit of any kind of electronically generated information in communications and computer systems. His papers are organized in Correspondence, Speeches and Writings, Miscellany, Oversize, Digital File, and Classified series. A few documents are in French, German, Russian, or Japanese. Some of the writings in the collection, particularly in the Speeches and Writings series, are in the hand of Shannon’s wife, Mary E. Shannon, to whom Claude Shannon often dictated his work.

The Correspondence series, grouped in general and postcard files, documents the promulgation of ideas based on information theory, not only in mathematics, computer science, electrical engineering and other scientific and technical fields, but in sociology, law, economics, psychology, linguistics, and literature as well. The correspondence also relates to areas in which Shannon’s professional and avocational interests converged, such as programming computers and automata to play chess and other games, run mazes, juggle, and solve puzzles. There is also additional material on these topics in the Miscellany series. Scientific papers attached to general correspondence have been filed in the Miscellany series. The postcards are related mostly to the distribution of Shannon’s scientific papers during 1948-1951.


Articles and scientific papers among the Speeches and Writings series, including theorems, are organized in alphabetical and chronological files. Dated articles and scientific papers are arranged chronologically, while the undated material...
is organized alphabetically by title. Shannon's articles and papers published under the auspices of his employer, Bell Telephone Laboratories, Murray Hill, New Jersey, and meant for general dissemination are part of the Speeches and Writings, but technical memoranda, Shannon's work produced at the company, are part of the Bell Telephone Laboratories file in the Miscellany series.

**Organization of the Papers**

The collection is arranged in six series:

- Correspondence, 1938-1995
- Speeches and Writings, 1938-1987
- Miscellany, 1932-1993
- Oversize, 1949-1953
- Digital File, 1993
- Classified, 1940-1943
## Description of Series

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<tr>
<th>Container</th>
<th>Series</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>BOX 1-5</td>
<td><strong>Correspondence, 1938-1995</strong></td>
<td>General correspondence with attached material and postcards between Shannon and colleagues, professional associates, scholars, friends, and the public relating to information theory, mathematics, artificial intelligence, computer technology, and other professional interests. Arranged in files of general correspondence and postcards and thereunder chronologically.</td>
</tr>
<tr>
<td>BOX 6-11</td>
<td><strong>Speeches and Writings, 1938-1987</strong></td>
<td>Scientific papers, articles, theorems, speeches, lecture notes, interviews, poems, songs, bibliographies, book reviews, and a television program script. Arranged alphabetically by type of material and alphabetically or chronologically thereunder.</td>
</tr>
<tr>
<td>BOX 11-20</td>
<td><strong>Miscellany, 1932-1993</strong></td>
<td>Subject files, notes, drawings, diagrams, graphs, technical memoranda, patents, scientific papers, printed matter, and miscellaneous material. Arranged alphabetically by subject or type of material and chronologically thereunder.</td>
</tr>
<tr>
<td>BOX OV 1</td>
<td><strong>Oversize, 1949-1953</strong></td>
<td>Diagrams and drawings. Arranged and described according to the series, containers, and folders from which the items were removed.</td>
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<td>DF</td>
<td><strong>Digital File, 1993</strong></td>
<td>Computer game. Text and executable files relating to the computer game <em>Word for Word</em>. The material is <em>Microsoft Word</em> document and application files. The series consists of ten files and 211.9 KB of data.</td>
</tr>
<tr>
<td>BOX CL 1</td>
<td><strong>Classified, 1940-1943</strong></td>
<td>Documents containing security information removed from the collection. Arranged and described according to the series and folders from which the items were removed.</td>
</tr>
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## Container List

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<tr>
<td><strong>BOX 1</strong></td>
<td><strong>General</strong>&lt;br&gt;1938-1955 <em>See also Container 19, Scientific papers by others, Miscellany</em> (12 folders)</td>
</tr>
<tr>
<td><strong>BOX 2</strong></td>
<td><strong>1956-1958</strong> <em>See also Container 19, Scientific papers by others, Miscellany</em> (10 folders)</td>
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<tr>
<td><strong>BOX 3</strong></td>
<td><strong>1959-1979</strong> <em>See also Container 19, Scientific papers by others, Miscellany</em> (9 folders)</td>
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<td><strong>BOX 4</strong></td>
<td><strong>1980-1985</strong> (10 folders)</td>
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<td><strong>BOX 5</strong></td>
<td><strong>1986-1995, undated</strong> (6 folders)&lt;br&gt;Postcards regarding distribution of scientific papers, 1948-1951, undated (2 folders)</td>
</tr>
<tr>
<td><strong>BOX 6-11</strong></td>
<td><strong>Speeches and Writings, 1938-1987</strong>&lt;br&gt;Scientific papers, articles, theorems, speeches, lecture notes, interviews, poems, songs, bibliographies, book reviews, and a television program script.&lt;br&gt;Arranged alphabetically by type of material and alphabetically or chronologically thereunder.</td>
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<td><strong>BOX 6</strong></td>
<td><strong>Articles and scientific papers</strong>&lt;br&gt;Alphabetical file, undated A-L (9 folders)</td>
</tr>
<tr>
<td><strong>BOX 7</strong></td>
<td><strong>M-T</strong> (10 folders)</td>
</tr>
<tr>
<td><strong>BOX 8</strong></td>
<td><strong>U-Z and untitled</strong> (3 folders)&lt;br&gt;Chronological file 1938-1946 (7 folders)</td>
</tr>
<tr>
<td><strong>BOX 9</strong></td>
<td><strong>1948-1955</strong> (8 folders)</td>
</tr>
</tbody>
</table>
Speeches, lectures, and interviews
1947-1984, undated
(3 folders)

BOX 11
1985-1987, undated
(2 folders)
Television program, script, undated

BOX 11-20 **Miscellany, 1932-1993**
Subject files, notes, drawings, diagrams, graphs, technical memoranda, patents, scientific papers, printed matter, and miscellaneous material.
Arranged alphabetically by subject or type of material and chronologically thereunder.

BOX 11
American Academy of Achievement, Dallas, Tex., 1966-1967
Bell Telephone Laboratories, Murray Hill, N.J.
3-Relay Kit, undated
Diagrams and photographs
International Morse decoder, number display circuit, perpetual calendar, relay circuit analyzer, 1953, undated **See Oversize**
Miscellany, 1940, 1949-1953, undated **See Classified**
Miscellany, 1943-1956 **See also Classified**
Patents, 1946-1953, undated

BOX 12
Technical memoranda, 1940-1955
(5 folders)
Berkeley, Edmund C.
Miscellany, 1950-1954, undated
Probability and statistical kit, 1960, undated

BOX 13
Biographical material, circa 1951, 1961-1989, undated
Brain, mind, and nervous system, undated
Notes
Typescripts
Cember, Richard P, *Word for Word*, computer game, 1993 **See also Digital File, same heading**
Computer memory, bits storage capacity, 1949
Ephemera, 1948, undated
Game playing and puzzle solving machines
Chess
Articles and scientific papers, 1950-1955, 1989, undated
Miscellany, undated
Condon, Edward U., Nim playing machine, 1940
Maze running
Miscellany, 1956, 1978-1979, undated
Theseus, undated
Miscellany, 1953-1955, undated

BOX 14
Rubik cube solving machines
## Miscellany, 1932-1993

<table>
<thead>
<tr>
<th>Container</th>
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</table>
|           | Miscellany, 1981-1982, undated  
            | Singmaster, David, 1981-1982  
            | Gaussian channels, undated  
            | Generalized central limit theorem, undated  
            | Harvard University, Cambridge, Mass., Whole Sky Search for Life project, 1982-1984, undated  
            | Harvey Prize, Israel Institute of Technology, Haifa, Israel, 1972, undated  
            | Information and communications quotations, undated  
            | Institute for Advanced Studies, Princeton, N.J., 1940, 1977  
            | Institute of Radio Engineers, Professional Group on Information Theory, 1955  
            | Juggling machines  
            | Articles  
            | By Shannon, undated  
            | By others, 1979-1982, undated  
            | Miscellany, 1980-1984, undated  |
| BOX 15 | Notes, undated  
            | (4 folders)  
            | Kolota, Gina, “A Math Image Problem,” 1986  
            | Lang, Serge, 1988  
            | Machine handwriting recognition, undated  
            | Massachusetts Institute of Technology, Cambridge, Mass.  
            | Mechanical hands, 1958-1960, undated  
            | Musical instruments, pitch meters, and metronomes, undated  |
| BOX 16 | Notes  
            | Diagrams, drawings, and tables, 1949-1951, undated  
            | (5 folders)  |
| BOX 17 | (7 folders)  |
| BOX 18 | (7 folders)  |
| BOX 19 | Notebooks and forms, undated  
            | Photographs of Shannon, undated  
            | Research proposals, 1957, undated  
            | Scientific papers by others  
            | Automata studies project, 1955, undated  
            | Miscellany, 1932, 1939-1942, 1952-1960, 1981, undated See also Containers 1-3, General  
            | (5 folders)  
            | Siforov, Vladimir L., 1966  |
| BOX 20 | Statistical English, codes, and translating machines, 1948-1949, undated  
            | Symposia and meetings  
            | “Skeleton Key to the Information Seminar--Notes,” undated  
            | (3 folders)  |
**Miscellany, 1932-1993**

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</table>
| BOX OV 1  | **Oversize, 1949-1953**
Diagrams and drawings.
Arranged and described according to the series, containers, and folders from which the items were removed. |
| BOX OV 1  | Bell Telephone Laboratories, Murray Hill, N.J.
Diagrams and photographs
International Morse decoder, number display circuit, perpetual calendar, and relay circuit analyzer, 1953, undated (Container 11)
Notes
Diagrams, drawings, and tables, 1949-1951, undated ([Container 16](#)) |
| DF        | **Digital File, 1993**
Computer game. Text and executable files relating to the computer game *Word for Word*. The material is *Microsoft Word* document and application files. The series consists of ten files and 211.9 KB of data.|
| BOX CL 1  | **Classified, 1940-1943**
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| BOX CL 1  | Bell Telephone Laboratories, Murray Hill, N.J.
Diagrams and photographs
Miscellany, undated (Container 11)
Miscellany
Analogue for the Vernam System for Continuous Time Series, Case 20878, 1943, May 10 ([Container 11](#))
Pulse Code Modulation, Case 20878, Dec. 1, 1943 ([Container 11](#))

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*See also Box 13, same heading*