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Collection Overview

Repository: Smithsonian Institution Archives, Washington, D.C., osiaref@si.edu
Title: Robert Stanton Avery Papers
Identifier: Record Unit 7068
Date: 1855-1894
Extent: 2.93 cu. ft. (2 record storage boxes) (1 document box) (1 12x17 box) (1 oversize folder)
Creator:: Avery, Robert Stanton, 1808-1894
Language: Language of Materials: English

Administrative Information

Preferred Citation
Smithsonian Institution Archives, Record Unit 7068, Robert Stanton Avery Papers

Historical Note
Robert Stanton Avery (1808-1894) graduated from Harvard Divinity School in 1846, but soon turned his
attention to mathematics and its application to the physical sciences. Avery taught school in the South,
and in 1853 joined the United States Coast Survey (USCS) where he became chief of the Tidal Division.
His duties included receiving observer reports taken from tide gauges established on the coasts of the
United States and computing tide estimates based on the data received. When Avery retired from the
USCS in 1885, he devoted his remaining years to the development of the techniques of phonetic spelling.

Introduction
This finding aid was digitized with funds generously provided by the Smithsonian Institution Women's
Committee.

Descriptive Entry
These papers consist of correspondence with members of the United States Coast Survey chiefly
concerning tide gauges; descriptions and drawings of working parts of clocks and tide gauges;
mathematical equations and tables; records of data connected with Coast Survey work; office notes and
vouchers; drafts for articles written and collected by Avery; USCS mathematical and scientific publications;
and Avery's phonetic alphabet primers. Also included is correspondence concerning a proposal to print
Avery's primers in Great Britain and an obituary of Avery.
Notations within the papers are frequently done in stenography. Knowledge of stenography will be helpful in understanding this material. Correspondents include: Robert Stanton Avery, Alexander Dallas Bache, John Batchelder, Thomas Craig, Julius Erasmus Hilgard, Samuel P. Langley, Macmillan & Co., Levi W. Meech, Benjamin Peirce, Charles Anthony Schott, William Wesley and Son, and B. Westermann & Co.

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Names and Subject Terms

This collection is indexed in the online catalog of the Smithsonian Institution under the following terms:

Subjects:
- Mathematics
- Tide-waters

Types of Materials:
- Clippings
- Drawings
- Manuscripts

Names:
- Avery, Robert Stanton, 1808-1894
- B. Westermann & Co.
- Bache, A. D. (Alexander Dallas), 1806-1867
- Bachelder, John, 1791-1871
- Craig, Thomas, 1855-1900
- Harvard Divinity School
- Hilgard, J. E. (Julius Erasmus), 1825-1891
- Langley, S. P. (Samuel Pierpont), 1834-1906
- Macmillan & Co.
- Meech, Levi W. (Levi Witter)
- Peirce, Benjamin, 1809-1880
- Schott, Charles A. (Charles Anthony), 1826-1901
- U.S. Coast and Geodetic Survey
- United States Coast Survey
- William Wesley and Son
### Container Listing

Series 1: CORRESPONDENCE. ARRANGED ALPHABETICALLY 1856-1894.

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| Box 1 of 4 | Astronomical |
| Box 1 of 4 | Astronomical |
| Box 1 of 4 | Astronomical, oversize (see Box 3) |
| Box 1 of 4 | Lunar, Paris, Greenwich, Alcyone, 1850-1860 |
| Box 1 of 4 | Lunar, Boston, 1855, 1857 |
| Box 1 of 4 | Lunar, 1870-1873 |
| Box 1 of 4 | Lunar, Honolulu, Hawaii, 1877-1878 |
| Box 1 of 4 | Lunar, Sausalito, California, 1878 |
| Box 1 of 4 | Meteorological |
| Box 1 of 4 | Tide, San Diego, California, 1854-1874 |
| Box 1 of 4 | Tide, Baltimore, Philadelphia, 1855 |
| Box 1 of 4 | Tide, Sitka, Alaska Territory, 1867 |
| Box 1 of 4 | Tide, Sandy Hook, New Jersey, 1875 |
| Box 1 of 4 | Tide, Tahiti, 1878 |
| Box 1 of 4 | Tide, oversize (see Box 3) |
| Box 1 of 4 | Notes, figures, and tables (3 folders) |

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Series 3: MATHEMATICAL EQUATIONS AND TABLES.

Box 1

Box 1 of 4  Geometric theories, equations, and solutions (3 folders)
Box 1 of 4  Logarithmic tables
Box 1 of 4  Metric system
Box 1 of 4  Tidal formulas
Box 1 of 4  Table of Products of All Integer Numbers Up to 100 Multiplied by 100, by Robert S. Avery
Box 1 of 4  Table of Products of Numbers up to 100, by Robert S. Avery
Box 1 of 4  Table of squares to 1000 squared
Box 1 of 4  Table of the Values of Sin Q, Sin 2Q, Sin 3Q, Cos Q, Cos 2Q, Cos 3Q in Time, by Robert S. Avery
Box 1 of 4  Tables of Factors for Reduction of Transit Observation
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Series 4: CLOCKS AND TIDE-GAUGES.

Box 1

Box 1 of 4  Drawings and descriptions of working parts of clocks and tide-gauges. See Box 3.

Box 1 of 4  Papers relating to tide-gauges, and meters

Box 1 of 4  Papers relating to clocks for tide-gauges

Box 1 of 4  Plans for putting up tide-gauges; transportation and accommodations, 1874-1876

Box 1 of 4  Avery's report of his visit to clock dealers, October 1870

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Series 5: OFFICE NOTES.

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- Box 1 of 4  Circular concerning working hours, 1867
- Box 1 of 4  Travel expense vouchers
- Box 1 of 4  Office notes miscellaneous

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Series 6: PHONETIC ALPHABET PROJECT.

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Box 1 of 4  
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Series 7: HANDWRITTEN ARTICLE DRAFTS AND NOTES.

Box 1

Box 1 of 4  A Brief History of Intemperance and Temperance, by William M. (?) Meech.
Box 1 of 4  A First Cause Proved from the Nature of Chance, by L. W. Meech.
Box 1 of 4  A Tabular Statement of Results Computed for Tide Tables for Charts of the Western Coast of the United States, by R. S. Avery.
Box 1 of 4  A Tide-gauge with Heating Apparatus, by R. S. Avery.
Box 1 of 4  Barometer
Box 1 of 4  Character Essential to Success in Life, author unknown.
Box 1 of 4  Clock
Box 1 of 4  Clock and Watchwork
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Box 1 of 4  Description of a Heating Apparatus to use with a Tide-gauge
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Box 1 of 4  Dipleidoscope (extract)
Box 1 of 4  Direction for Starting the Tide-gauge at Fox Island - For the use of the observer
Box 1 of 4  Discussion by R. S. Avery of the Height of the Tides Observed at San Francisco in 1855
Box 1 of 4  Discussion by R. S. Avery of the Sidereal Time of Tides Observed at San Francisco in 1855
Box 1 of 4  Experiments with Spiral Springs
Box 1 of 4  Extracts from Historical Recollections of Connecticut, author unknown
Box 1 of 4  For Tide-gauge, Float and Tubes
Box 1 of 4  Forms for Some Computation in Harmonic Analysis, by R. S. Avery
Box 1 of 4  (No title) Logarithms
Box 1 of 4  Magnetic Survey, by Alexander Dallas Bache, circa 1862, pp. 3-51
Box 1 of 4  Magnetic Survey, by Alexander Dallas Bache, circa 1862, pp. 52-101
| Box 1 of 4 | Magnetic Survey, by Alexander Dallas Bache, circa 1862, pp. 102-161 |
| Box 1 of 4 | Mode of Forming a Brief Tidal Table for a Chart, by R. S. Avery |
| Box 1 of 4 | Mode of Forming a Brief Prediction Tide Table, by R. S. Avery |
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| Box 1 of 4 | Observing Current, by R. S. Avery |
| Box 1 of 4 | Of the Tide at Papeete, Tahiti, by R. S. Avery, February 13, 1860 |
| Box 1 of 4 | On Recording Tidal Observations, by R. S. Avery |
| Box 1 of 4 | (No title) relating to origin of language, author unknown |
| Box 1 of 4 | Plan for a Box Tide-gauge, 1879 |
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| Box 1 of 4 | Self-registering tide gauge |

| Box 2 |
| Box 2 of 4 | Suggestions Relative to Tidal Discussion, December 1856 |
| Box 2 of 4 | The Historians of Persia, author unknown |
| Box 2 of 4 | The Time Argument for Tidal Computations, 1857 |
| Box 2 of 4 | Tide (extract, 1868) |
| Box 2 of 4 | Tide-gauge with a suspended balance tube glycerine |
| Box 2 of 4 | To Prof. A. D. Bache, Superintendent of the U. S. Coast Survey, from R. S. Avery, September 1, 1858 |
| Box 2 of 4 | To Prof. A. D. Bache, Superintendent of the U. S. Coast Survey, from R. S. Avery, April 5, 1859 |
| Box 2 of 4 | To Prof. A. D. Bache, Superintendent of the U. S. Coast Survey, from R. S. Avery, June 14, 1859 |
| Box 2 of 4 | To Prof. A. D. Bache, Superintendent of the U. S. Coast Survey, from R. S. Avery, September 22, 1859 |
Box 2 of 4  To Prof. A. D. Bache, Superintendent of the U. S. Coast Survey, from R. S. Avery, September 30, 1859

Box 2 of 4  To Prof. A. D. Bache, Superintendent of the U. S. Coast Survey, from R. S. Avery, December 23, 1859

Box 2 of 4  To Prof. A. D. Bache, Superintendent of the U. S. Coast Survey, from R. S. Avery, February 26, 1860

Box 2 of 4  To Prof. A. D. Bache, Superintendent of the U. S. Coast Survey, from R. S. Avery, August 23, 1860

Box 2 of 4  Transformation of Mr. Meech’s Formula for the Time of a Tide, by R. S. Avery, 1856

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Box 2 of 4
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Box 2 of 4
Catalogues

Box 2 of 4
Civil Service Reform Association

Box 2 of 4
Committee for the Purpose of Promoting the Extension, Improvement, and Harmonic Analysis of Tidal Observation, 1870

Box 2 of 4
Directions for the Observation of Tides, 1852

Box 2 of 4
Directions in Regard to the Operations of the Coast Survey, 1855-1856

Box 2 of 4
Fluctuations in the Moon's Mean Motion by Simon Newcomb, 1909

Box 2 of 4
Laws and Regulations relating to the Coast and Geodetic Survey of the United States, 1881

Box 2 of 4
The Mathematical Magazine, January-October, 1882

Box 2 of 4
The Mathematical Magazine, January-October, 1883

Box 2 of 4
The Mathematical Magazine, January-October, 1884

Box 2 of 4
The Mathematical Visitor, July 1880

Box 2 of 4
The Mathematical Visitor, January 1881

Box 2 of 4
The Mathematical Visitor, January 1882

Box 2 of 4
The Motion of a Solid in a Fluid, by Thomas Craig, 1879

Box 2 of 4
Nature, August 9, 1883

Box 2 of 4
Newspaper article, October 8, 1894
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<th>On a Method of Swinging Pendulums for the Determination of Gravity Proposed by M. Faye, by C. S. Peirce, 1879</th>
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<td>On Steady Motion in an Incompressible Viscous fluid, by Thomas Craig, 1880</td>
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<td>On the Tidal Current of New York Bay Near Sandy Hook, by A. D. Bache, 1868</td>
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<td>On Tides and Tidal Action in Harbor, by J. E. Hilgard, 1875</td>
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<td>Photograph of the Tycho region of the Moon</td>
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<td>Box 2 of 4</td>
<td>Report of the Committee Approved for the Purpose of Promoting the Extension, Improvement, and Harmonic Analysis of Tidal Observation, 1872</td>
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<tr>
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<td>Roberts' Tide Predicting Machine, December 1879</td>
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<td>Science, January 4, 1884</td>
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<td>Science of the Tide, by William Whewill, 1834</td>
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<td>Self-Registering Tide Gauge; Instruction for Observers, by A. D. Bache, November 26, 1859</td>
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<td>Box 2 of 4</td>
<td>Tidal Area of San Francisco Bay, 1881</td>
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<td>Box 2 of 4</td>
<td>Tide and Tidal Phenomena, by Henri Mitchell, 1868</td>
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<td>Box 2 of 4</td>
<td>Un Ensayo de Fotografia Lunar, Luis G. Leon, 1909</td>
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Box 3 of 4  Drawings and notes for working parts of clocks and tidal gauges

Box 3 of 4  Tables, miscellaneous

Box 4

Box 4 of 4  Tidal charts

Image(s): Tidal calculations document [Image no. SIA2012-1121]

Oversize

Oversize  Calculations (unidentified) - Likely tidal calculations and calculations of mathematical functions, circa 1857

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