

# Finding Aid for the Francis E. Nipher Collection

---

## **Descriptive Summary**

Repository: University Archives, Department of Special Collections, Washington University Libraries, One Brookings Drive, Campus Box 1061, St. Louis, MO 63130, Telephone: (314) 935-5444 or (314) 935-9730, Fax (314) 935-8320, e-mail: [spec@wumail.wustl.edu](mailto:spec@wumail.wustl.edu), website: <http://library.wustl.edu/units/spec/archives>

Creator: Francis E. Nipher.

Title: Francis E. Nipher Collection.

Dates: 1872 – 1920.

Quantity: 3.5 linear feet.

Language: English.

## **Biographical Note**

*(Encyclopedia of the History of St. Louis, vol.3, 1899)*

Nipher, Francis E., scientist, was born December 10, 1847, at Fort Byron, New York. With his father he came west to Iowa City in 1864, where he entered the University of Iowa two years later, graduating in 1870 with such high honors that he was immediately called to a tutorship in that institution, remaining as an educator in scientific branches for a period of four years. He was then offered a professorship in Washington University, at St. Louis, and took the chair of physics. During the next few years, while attending to his duties at the University, he wrote and published a number of valuable papers on "Animal Mechanics." he also contributed to the St. Louis Academy of Science and to the "American Journal of Science" articles on the distribution of errors in numbers written from memory, "A New Form of Lantern Galvanometer", etc. On private means he conducted a magnetic survey of Missouri from 1878 to 1882. In 1877 he organized the Missouri Weather Service on the same system then prevailing in Iowa, and which was afterward adopted by most of the other states.

Professor Nipher was for several years president of the Academy of Science and also president of the Engineers' Club, writing the reports of the transactions of the former for five consecutive years ... He has also contributed numerous papers to scientific journals, American and European, on "Electricity", "The Steam Engine", etc. His "Theory of Magnetic Measurements," published by Van Nostrand in 1886, and "Electricity and Magnetism," 1895, are standard works on these subjects.

## **Scope and Content Notes**

The collection includes correspondence, diaries, photographs, and publications by Nipher and others, nine volumes of Missouri Weather Service data notebooks,

and four glass plate negatives. The publications are arranged alphabetical by author, then alphabetical by title.

### **Administrative Information**

#### **Source of Collection**

This material was donated to the University Archives on June 15, 1971. Additional material was added in October 1995 and September 1996.

#### **Accruals**

The accruals are interfiled with the collection.

#### **Processing Information**

Revised by Sarah Pabarcus in May 2005 and September 2006.

### **Restrictions**

#### **Access Restrictions**

There are no restrictions to access.

#### **Use Restrictions**

Users of the collection must read and abide by the Rules for the Use of University Archives Materials.

Users of the collection who wish to use items from this collection, in whole or in part, in any form of publication (as defined in the form) must sign and submit to the Washington University Archives a hard copy of the Notification of Intent to Quote from or Publish University Archives Materials form.

All publication not covered by fair use restricted to those who have permission of the copyright holder.

### **Collection Contents**

Box No.	Folder
---------	--------

---

01	Correspondence (Carnegie Foundation)
	Correspondence (Dept. of State)
	Correspondence (Nipher, C.)
	Correspondence (Thompson, S.)
	Diary 1, 1917
	Diary 2, 1910

Diary 3, 1913

Diary 4, 1911

Photos (Field Text and Boxes)

Photos (Lightning Flashes)

Photos (Nipher, F.)

Photos (Trans AC)

Newsclipping, "Professor Nipher for Head of National Weather Bureau?" May 11, 1913.

#### Publications

Program from The American Philosophical Society, Held at Philadelphia for Promoting Useful Knowledge, General Meeting in the Hall of the Society of Independence Square (104<sup>th</sup> South Fifth Street), April 24-26, 1919.

Arrhenius, S. "Development of the Theory of Electrolytic Dissociation," June 3, 1904.

Everett, J.D. "Illustrations of the Centimetre-Gramme-Second," London, 1875. (Signed on front "F.E. Nipher")

Hinrich, G. "The Method of Quantitative Induction in Physical Science," 1872. (Signed in front cover, "Frank E. Nipher, from G. Hinrich, Sept. 1872)

Homan, G. "A Sanitary Survey of St. Louis," 1885.

James, George O. (Corresponding Secretary) "The Academy of Science of St. Louis," Reprinted from *Science* N.S. Vol. XXXVII, No. 951, page 460-461, March 21, 1913. [Tells Francis E. Nipher presented an abstract of a paper soon to be published by the academy entitled "A Local Magnetic Storm."] (stamped on front "From Francis E. Nipher, St. Louis, MO., USA")

Lindsay, Geo. A., and Nipher, Francis E., "The Annual Rainfall and Temperature of the United States," *Trans. Of Acad. Of Sc., St. Louis*, Vol. 21, #2, June 19, 1912. (Written on the front next to the author's name, "and Francis E. Nipher") (2 copies)

Nipher, Francis E., "The Academy of Science of St. Louis," 1890. (Signed on front, "Compliments of F.E. Nipher")

Nipher, Francis E., "An Address to the Alumni of the State University of Iowa on the Present Condition of the University," January 2, 1886.

Nipher, Francis E., "The Appreciation of Gold," Sound Currency, Vol. IV, No. 14, New York: July 15, 1897. (2 copies)

Nipher, Francis E., "The Appreciation of Gold," Sound Currency, Vol. V, No. 6, New York: March 15, 1898. (3 copies – one stamped, "Library of Mary E. Nipher")

Nipher, Francis E., "Can Electricity Destroy Gravitation," Electric Experimenter, March 1918.

Nipher, Francis E., "Choice and Chance," Kansas City Review of Science and Industry, March, 1880. (2 copies)

Nipher, Francis E., "Determination of the Mechanical Efficiency of a Gramme Generator and Motor," Journal of the Engineering Societies, Nov., 1884, p. 15. Report of the International Conference of Electricians, Philadelphia, 1884, p.112. (2 copies)

Nipher, Francis E., "Disruptive Discharges of Electricity Through Flames," Proc. Of American Phil. Society, Vol. L, 1911. (2 copies)

Nipher, Francis E., "Disturbances Impressed Upon the Earth's Magnetic Field," Trans of Acad. of Sc., St. Louis, Vol. XXIII, No. 4, July 28, 1916. (2 copies)

Nipher, Francis E., "Electrical Industries in St. Louis," President's Address before the St. Louis Engineer's Club. Journal of the Association of Eng. Societies, 1891. (2 copies)

Francis E. Nipher *Electricity and Magnetism: A Mathematical Treatise for Advanced Undergraduate Students* St. Louis, MO: John L. Boland Book and Stationery Co., 1895. (Signed front cover "Mary E. Nipher, From her Father")

Nipher, Francis E., "The Elements of Circular Motion," School Science and Mathematics, pp. 3-6, (no date). (2 copies)

Nipher, Francis E., "The Elimination of Velocity Effects in Measuring Pressures in a Fluid Stream," Proc. Of American Phil. Soc., Vol. VL, 1906.

Nipher, Francis E., "The Ether," Vice-President's Address Washington Meeting Proc. Am. Association for the Advancement of Science, Vol. XL., 1891. (2 copies)

Nipher, Francis E., "Evolution of the American Trotting Horse." Trans. of Acad. of Sc., St. Louis, Vol. IV, No. 3, p. 509. American Journal of Science, Vol. VI, pp. 20, 86, Vol. VII, p. 44. (2 copies)

Nipher, Francis E., "Evolution of the Divine Character in Man," delivered at Iowa City, IA, at a union service of all Protestant Churches, September 10, 1899, reprinted from *Christian Evangelist*, October 5 and 12, 1899. (4 copies—one stamped on front, "Library of Mary E. Nipher")

Nipher, Francis E., *Experimental Studies in Electricity and Magnetism*, Philadelphia: P. Blakiston's Sons & Co., 1914. (3 copies—one unbound, 2 bound with one signed, "Edwin J. Nipher, from his father")

Nipher, Francis E., "A Flash of Lightning," Popular Science Monthly, January 1912. (2 copies)

Nipher, Francis E., "Force and Matter," Bulletin of the Washington Univ. Association, March 1912. (2 copies)

Nipher, Francis E., "The Frictional Effect of Railway Trains Upon the Air," Trans. of Acad. of Sc., St. Louis, Vol. X, No. 10, November 12, 1900. (2 copies)

Nipher, Francis E., "Graphical Algebra," Trans. of Acad. of Sc., St. Louis, Vol. XXIII, No. 7, January 23, 1919; also reprinted from May Number, School Science and Mathematics, Vol. XIX, 1919. (2 copies & reprint)

Nipher, Francis E., "Graphical Algebra Involving Functions of the Nth Degree," Trans. of Acad. of Sc., St. Louis, Vol. XXIII, No. 6, May 9, 1918. (2 copies)

Nipher, Francis E., "Graphical Representation of Functions of the Nth Degree," Proc. Of American Phil. Society, Vol. LVIII, 1919.

Nipher, Francis E., "Gravitational Repulsion," *Trans. of Acad. of Sc., St. Louis*, Vol. XXIII, No. 5, November 8, 1917. (2 copies—on the front of one is written, "Faculty Refinement(?)" & 2 copies each of 2 different reprints)

Nipher, Francis E., *An Introduction to Graphical Algebra*, New York: Henry Holt & Co., 1898. (3 copies—one signed, "Mary E. Nipher, July 3, 1900)

Nipher, Francis E., "Isodynamic Surfaces of the Compound Pendulum," *Trans. of Acad. of Sc., St. Louis*, Vol. IV, No. 4, p. 644. *American Journal of Science*, Jan., 1886, p. 22. (2 copies)

Nipher, Francis E., "The Law of Contraction in Gaseous Nebulae," *Trans. of Acad. of Sc., St. Louis*, Vol. XIII, No. 5, October 1, 1903. (2 copies)

Nipher, Francis E., "The Law of Minimum Deviation of Light by a Prism," *Trans. of Acad. of Sc., St. Louis*, Vol. VII, No. 4, December 20, 1895. (2 copies)

Nipher, Francis E., "Local Magnetic Storms," *Trans. of Acad. of Sc., St. Louis*, Vol. XXII, No. 2, April 5, 1913. and "A Local Magnetic Storm" reprinted from *Science N.S.* Vol. XXXVII, No. 961, p. 836, May 30 1913. (2 copies—written on front of one, "Gift(?) of Professor Nipher Oct. 2, 1894)

Nipher, Francis E., "The Machine with Friction," *School Science & Mathematics*, December 1908. (2 copies—on the front of one is written, "The conclusions(?) are for this paper")

Nipher, Francis E., "Magnetic Survey of Missouri" with "On the Property of the Isentropic curve for a Perfect Gas as Drawn on the Thermodynamic Surface of Volume-Pressure-Temperature." *Trans. of Acad. of Sc., St. Louis*, Vol. IV, No. 3, p. 407. (2 copies)

Nipher, Francis E., "The Man of Science and His Duties," *Science N.S.*, Vol. XXXIII, No. 860, pp. 950-955, June 23, 1911. (2 copies—one signed on front, "Nipher")

Nipher, Francis E., "Matter in Its Electrically Explosive State," *Proc. Of American Phil. Society*, Vol. LII, 1913. (2 copies & reprint—one copy stamped, "Library of May E. Nipher")

Nipher, Francis E., "A Method of Measuring the Pressure at any Point on a Structure, due to Wind Blowing against that Structure,"

Trans. of Acad. of Sc., St. Louis, Vol. VIII, No. 1, 1898. (2 copies—one signed on front, “Compliments of Francis E. Nipher”)

Nipher, Francis E., “Missouri Rainfall,” The Missouri Weather Service, St. Louis, Mo., 1888. (Written on front, “Mrs. Wise, Many Publications in the St. Louis Trans. Academy of Sciences 1900-1920”) (2 copies)

Nipher, Francis E., “Nature of the Electric Discharge,” Trans. of Acad. of Sc., St. Louis, Vol. XX, No. 1, February 28, 1911. (2 copies) with “The Nature of Electrical Discharge-Positive Column Effects in a Metal Conductor,” Trans. of Acad. of Sc., St. Louis, Vol. XXI, No. 33, July 3, 1912. (2 copies)

Nipher, Francis E., “New Phenomena of Electrical Discharge,” reprinted from Science, N.S., Vol. XXXIII, No. 839, pp. 151-153, January 27, 1911.

Nipher, Francis E., “On Certain Properties of a Field of Force due to a Single Mass,” Trans. of Acad. of Sc., St. Louis, Vol. V, No. 4, p. 619, 1892. (2 copies)

Nipher, Francis E., “On Certain Properties of Light-Struck Photographic Plates,” Trans. of Acad. of Sc., St. Louis, Vol. X, No. 6, May 16, 1900. (3 copies—one signed on front, “Prof. Nipher” and another stamped on front, “Library of Mary E. Nipher”)

02 Nipher, Francis E., “On the Electrical Capacity of Bodies and the Energy of an Electrical Charge,” Trans. of Acad. of Sc., St. Louis, Vol. VII, No. 2, Jan., 1895. (2 copies)

Nipher, Francis E., “On Gravitation in Gaseous Nebulae,” Trans. of Acad. of Sc., St. Louis, Vol. IX, No. 4, May 1, 1899. (2 copies & a reprint)

Nipher, Francis E., “On the Nature of the Electric Discharge: The One-Fluid and the Two-Fluid Theories,” Trans. of Acad. of Sc., St. Louis, Vol. XIX, No. 1, February 18, 1910 and continued in No. 4, June 2, 1910. (2 copies of each)

Nipher, Francis E., “On the Predetermination of the Speed of the Trotting Horse,” Trans. of Acad. of Sc., St. Louis, Vol. XIII, No. 2, July 9, 1903. (2 copies)

Nipher, Francis E., "On Pressure Measurements in a Fluid Stream," Trans. of Acad. of Sc., St. Louis, Vol. XVI, No. 33, May 31, 1906. (2 copies)

Francis E. Nipher "On Rotational Motion of the Cathode Disc in the Crookes Tube" Issued May 8, 1896. *Transactions of The Academy of Science of St. Louis* Vol. VII, No. 7.

Nipher, Francis E., "On Temperatures in Gaseous Nebulae," Trans. of Acad. of Sc., St. Louis, Vol. IX, No. 7, June 14, 1899. (2 copies—written on front of one, "Dr. Chaplin, Dr. Nipher's Handwriting")

Nipher, Francis E., "An Optical Phenomenon," Proc. Of American Phil. Society, Vol. L, 1911. (2 copies)

Nipher, Francis E., "Phenomena of Forked Lightning," reprinted from Science, N.S., Vol. XXXIV, No. 875, p. 442, October 6, 1911.

Nipher, Francis E., "Physics During the Last Century," Trans. of Acad. of Sc., St. Louis, Vol. XI, No. 6, November 13, 1901. (2 copies)

Nipher, Francis E., "Plain Talk on the Silver Question," (name of publication not available), Iowa City, August 1896. (2 copies)

Nipher, Francis E., "A Plea for the Academy of Science," on the occasion of the unveiling of the portrait of Dr. George Engelmann, before the St. Louis Academy of Science, May 5, 1884. (2 copies)

Nipher, Francis E., "The Positive Ion in Electrical Discharge Through gases," reprinted from Science, N.S., Vol. XXXIV, No. 887, p. 917, December 29, 1911. (2 copies)

Nipher, Francis E., "Positive Photography, with Special Reference to Eclipse Work," Trans. of Acad. of Sc., St. Louis, Vol. X, No. 9, October 24, 1900. (2 copies)

Nipher, Francis E., "Present Problems in the Physics of Matter," address before the Physics Section of the International Congress of Arts and Science, September 1904. (2 copies)

Nipher, Francis E., "Primitive Conditions in the Solar Nebula," Trans. of Acad. of Sc., St. Louis, Vol. XIV, No. 4, May 18, 1904. (2 copies)

Nipher, Francis E., "The Relation of Direct to Reversed Photographic Pictures, " with "The Specific Heat of Gaseous Nebulae in Gravitational Contraction," Trans. of Acad. of Sc., St. Louis, Vol. XI, No. 4, June 7, 1901. (2 copies)

Nipher, Francis E., "Report of the Electrical Conference at Philadelphia," pp. 112-116, 1886.

Nipher, Francis E., "Report on Magnetic Determinations in Missouri, Summer of 1879," Oct. 6, 1879. (Signed on front "Nipher 1879)

Nipher, Francis E., "Report on Missouri Rainfall for Ten Years Ending December, 1887, Trans. of Acad. of Sc., St. Louis, Vol. V, No. 3, pp.383-433. (2 copies)

Nipher, Francis E., "Simple Lessons from Common Things," Popular Science Monthly, October 1909. (3 copies—on the front of one is written, "File under Miscellaneous from F.E. Nipher")

Nipher, Francis E., "Statement of Professor Nipher," St. Louis, Mo. January 4, 1912.

Nipher, Francis E., "The State Weather Service," delivered by request of the State Board of Agriculture in Representative Hall, Jefferson City, Mo., January 15, 1891. (2 copies)

03 Nipher, Francis E., "A Study of the Properties of Integral Numbers: New Evidence of a Relation Between Gravitation and Electrical Action and of Local Changes in the Electric Potential of the Earth," Trans. of Acad. of Sc., St. Louis, Vol. XXVI, No. 9, March 2, 1920. (2 copies—one signed on front, "Edwin T. Nipher")

Nipher, Francis E., "Theories of Electrical Discharge," Science N.S., Vol XXXIV, No. 870, pp. 282-283, September 1, 1911. (3 copies—one signed "Nipher", two with Francis E. Nipher "Phenomena of Forked Lighting" Reprinted from *Science N.S.* Vol. XXXIV, No. 875, page 442, October 6, 1911.)

Nipher, Francis E., *Theory of Magnetic Measurements*, with an appendix on the Method of Least Squares, 1886. (2 copies—one signed, "Edwin Nipher" and the other signed, "Mary E. Nipher, July 3, 1900)

Nipher, Francis E., "Thoughts on our Conceptions of Physical Law. Kansas City Review of Science and Industry. Jan., 1879. (2 copies—one signed, "May E. Nipher, July 3, 1900")

Nipher, Francis E., "The Tornado of April 14, 1879," Wadsworth and Nipher, Trans. of Acad. of Sc., St. Louis (no date).

Nipher, Francis E., "The Traditions of our Schools," Bulletin of Washington Univ. Assn., Vol. V, pp. 150-157, 1907. (2 copies – one signed "Compliments of F. E. Nipher")

Nipher, Francis E., "Variations in the Earth's Magnetic Field," Trans. of Acad. of Sc., St. Louis, Vol. XXII, No. 4, November 3, 1913. (2 copies)

Nipher, Francis E., "Variations in the Electrical Potential of the Earth," Science N.S., Vol. L, No. 1279, pp.23-24, July 14, 1919. (2 copies)

Nipher, Francis E., "The Volt, the Ohm and the Ampere, Journal of the Association of Engineering Societies, March, 1888. Electrical World, N.Y., April, 1888. Electrical Review, London, April 2, 1888, p.439. (2 copies—one signed, "Nipher 1888")

Nipher, Francis E., "The Winding of Dynamo Fields," Journal of the Association of Engineering Societies, May, 1889. (2 copies)

Nipher, Francis E., "Wireless Transmission of Messages in the Olden Time," Trans. of Acad. of Sc., St. Louis, Vol. X, 1917. (3 copies—one presented at the celebration of the tenth anniversary of the founding of the Illinois Academy of Science February 23, 1917)

*Science* October 14, 1904 Vol. XX, No. 511

*Science* November 11, 1904 Vol. XX, No. 515

*Science* November 28, 1904 Vol. XIV, No. 361

US Coast & Geodetic Survey, *Methods and Results on a Chart of the magnetic Declination in the United States*, 1879.

WU Eclipse Party, *The Total Eclipse of the Sun, January 1, 1889*, 1889.

Scrapbook (Clara Nipher's Notes from Smith Academy)

Nipher, Francis E., Lab Notes

Nipher, Francis E., *Magnetic Survey of Missouri*, Vol. I, 1878.

Nipher, Francis E., *Magnetic Survey of Missouri*, Vol. II, 1879.

Nipher, Francis E., *Magnetic Survey of Missouri*, Vol. III, No. 1, 1880.

Nipher, Francis E., *Magnetic Survey of Missouri*, Vol. III, No. 2, 1880.

Nipher, Francis E., *Magnetic Survey of Missouri*, Vol. IV, No. 1, 1881.

Nipher, Francis E., *Magnetic Survey of Missouri*, Vol. IV, No. 2, 1881.

Nipher, Francis E., *Magnetic Survey of Missouri*, Vol. V, No. 1, 1882.

Nipher, Francis E., *Magnetic Survey of Missouri*, Vol. V, No. 2, 1882.

04 Missouri Weather Service data notebooks, in nine volumes as follows:

1. December 1877 – June 30, 1878
2. July 1878 – December 1878
3. February 1878 – December 1878
4. January 1879 – June 30, 1879
5. July 1879 – December 1879

05 Missouri Weather Service data notebooks, in nine volumes as follows (continued):

6. January 1879 – December 1879
7. January 1880 – June 31, 1880
8. July 1880 – December 1880
9. January 1880 – December 1880

06 Glass-Plate Negatives:

1. The Dynamite Column

2. The Dynamite Column
3. Magnetometer Table, 1914
4. Magnetometer Table, 1914