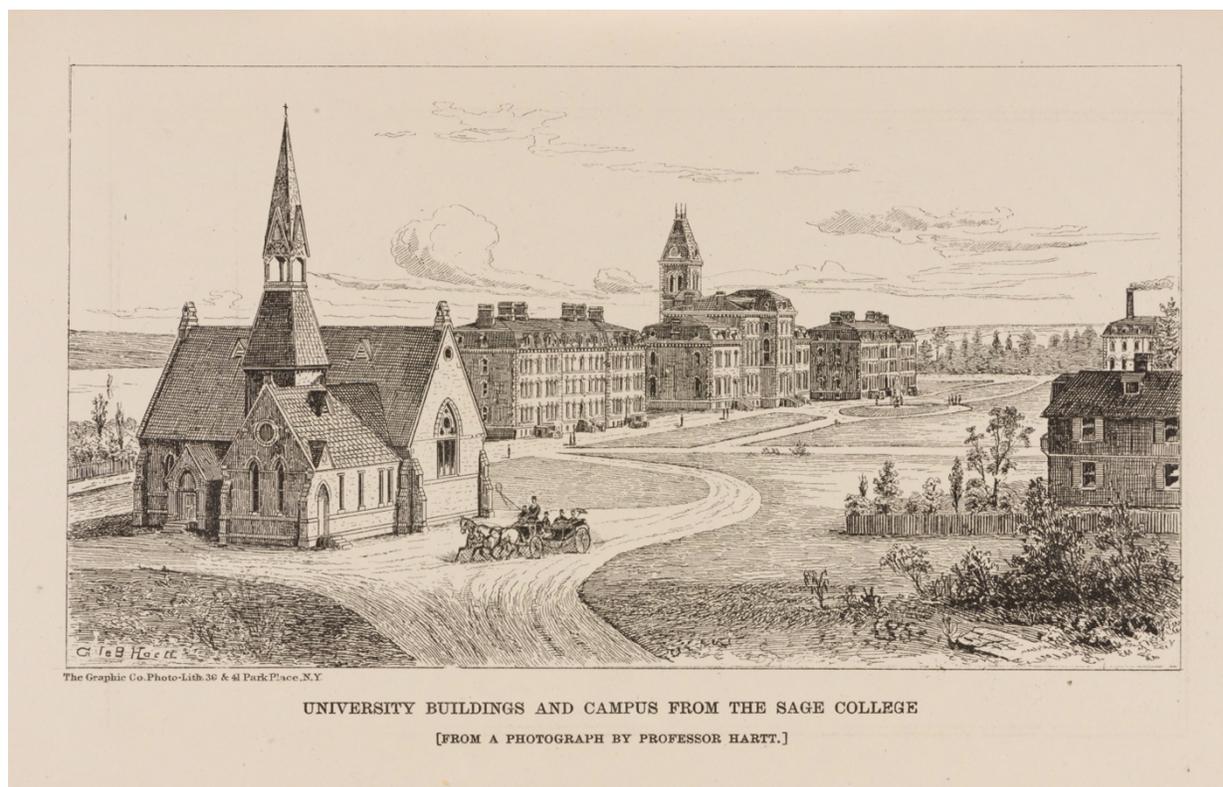


## MATHEMATICS AT CORNELL: STORIES AND CHARACTERS, 1865-1965

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### PART I: BIOGRAPHIC NOTES

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Agnes Sime Baxter; Abram Rogers Bullis; William Elwood Byerly;  
Henry Turner Eddy; Evan William Evans; George Egbert Fisher;  
Rollin Arthur Harris; Arthur Hathaway; Edward Wyllys Hyde;  
George William Jones; Annie Louise MacKinnon; James McMahan;  
John Hiram Messenger; Ida Martha Metcalf; James Edward Oliver;  
Anna Helene Palmié; Ziba Hazard Potter; Ernst Ritter; Paul Louis Saurel;  
Charles Ambrose Van Velzer; Lucien August Wait.

## AGNES SIME BAXTER

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(March 18, 1870—March 9, 1917)



Agnes Baxter was born in Halifax, Nova Scotia on March 18, 1870 to a fairly affluent family. Her parents had emigrated to Nova Scotia from Scotland, where her father, Robert, had been manager of an electric light company. In Halifax, Robert became foreman, and then manager of the Halifax Gas Light Company. Agnes attended Dalhousie University and graduated with a BA in 1891, First Class Honors in Mathematics and Mathematical Physics with the Sir William Young Gold Medal. She earned an MA in 1892. That year she enrolled as a graduate student at Cornell and was the Erastus Brooks Fellow in mathematics for the academic year 1894/95. She received her Ph.D. from Cornell University in 1895 with the dissertation *On Abelian integrals, a resume of Neumann's 'Abelsche Integrale' with comments and applications*. One of the first Canadian women to earn a

Ph.D. in mathematics, she was a student of James Oliver who died the year of her Ph.D. graduation. Baxter edited his mathematical notes for publication (although we do not know of any actual publication of these notes).

In 1896 Baxter married Albert Ross Hill, 1892 Dalhousie graduate and 1895 Cornell Philosophy Ph.D. They moved to Lincoln where he became a professor at the University of Nebraska, and then to Missouri. After a brief appointment at Cornell as Dean of Arts & Science and Director of the School of Education, Hill was asked in 1908 to return to Missouri and accept the position of President of the University. During his thirteen years as president, Hill is credited with pulling together the individual schools of the university into a more unified institution. Baxter did not teach at the different institutions where her husband served. At her death at the age of 47 in 1917, Hill stated that his wife had given her life “to assist in my educational work instead of making an independent record for herself.” They had two daughters born in 1897 and 1903.

Sources:

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## ABRAM ROGERS BULLIS

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(September 4, 1854—January 20, 1928)

Abram R. Bullis III was the son of Dr. Abraham Rogers Bullis and Lydia Porter Lapham, who had seven children. Dr. Bullis practiced in Farmington, Ontario County, and in Macedon, near Rochester, NY. Abram Bullis III was born on September 4, 1854, in Farmington. At the age of eight, his mother died and he went to live with his grandfather at the old family homestead in Macedon. After attending Macedon Academy 1868-1869, he taught for a few years in various schools, including Macedon Union School. He left teaching in 1877 to enter Cornell University. He graduated with a Bachelor of Science in Mathematics in 1881. The following year, he earned a Civil Engineering Bachelor, also at Cornell. His family reports that he was offered many positions from various governments and colleges but would not take the jobs, because it would take him away from Macedon. He worked as a surveyor in Wayne County and held many other important positions in the Macedon area. In 1884, he married Josephine Breese, daughter of J. D. Breese, of Macedon. Their's son, Charlie, was born October 13, 1891, in Macedon, and their daughter, Jeanette (Nettie) Aurelia Bullis, was born on March 23, 1893.



Abram Bullis was an early member of the New York Mathematical Society which he joined in 1891. He remained a member of the American Mathematical Society for 26 years. During his time at Cornell and after returning in Macedon, Bullis was a regular contributor of solutions to mathematical problems for two periodicals published by Artemas Martin, *The Mathematical Visitor* (1879-1894), and *The Mathematical Magazine* (1882-1884). He owned an extraordinary book collection which is preserved to this day as part of the "Bullis Collection" in Macedon Public Library. He died on January 20, 1928.

The Abram R. Bullis Chair in the Department of Mathematics was created in 1989 through the estate of his daughter Nettie Bullis.

Source:

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## WILLIAM ELWOOD BYERLY

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(December 13, 1849—December 20, 1935)

William Elwood Byerly was born in Philadelphia, Pennsylvania, on December 13, 1849. He graduated from Harvard in 1871. Most of the following details are from “William Elwood Byerly—In Memoriam” by J.L. Coolidge.



As an undergraduate, Byerly was interested in gymnastics and, all his life, he was an out-of-doors man devoted to horseback riding, camping, and especially golf. After graduating, he stayed at Harvard to attend graduate school. He studied two years under Benjamin Peirce and, in 1873, earned one of the first two degrees of doctor of philosophy ever granted at Harvard. His thesis dealt with the heat of the sun. It was based on the changes of energy induced by the sun's substance coming in from infinity. Having completed his Ph.D., he accepted a position of Assistant Professor of Mathematics at Cornell University. Cornell's Chair at the time, Evan W. Evans, is said to have introduced Byerly to the modern technique in analytic geometry. After three years, in 1876, Byerly returned to Harvard as Assistant Professor. He became Professor in 1881 and Perkins Professor of Mathematics 1906-1913. He resigned his position in 1913 on the advice of his doctor because he was

losing his eyesight. He died from a cerebral hemorrhage on December 20, 1935. He was a Fellow of the American Academy of Arts and Sciences. Byerly Hall,<sup>1</sup> a 1932 building on the historic Radcliffe Yard is named after him.

We quote the obituary by J.L. Coolidge, in particular, to capture Byerly's work in relation to Radcliffe College.

*Byerly's professional life is largely explained by the influence of two unusual men. The first and greater of these was Benjamin Peirce, who towered above his mathematical contemporaries as a mountain peak in a level plain. He was Byerly's teacher both in college and in the graduate school and undoubtedly settled his pupil's career. Byerly summed up his attitude towards Peirce by saying, "Although we rarely could follow him, we sat up and took notice." We may credit Peirce with deciding Byerly to give his life to mathematical teaching, although the special branches which interested the pupil were not those favored by the teacher. The other man who influenced him similarly was his predecessor in the Cornell professorship, Evan W. Evans. He introduced Byerly to the modern technique in analytic geometry. Very soon after the latter's appointment at Harvard he initiated a course in this subject which he taught regularly until his resignation.*

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<sup>1</sup> <http://www.goodyclancy.com/projects/byerly-hall/>

*An important part of Byerly's life work was his service in promoting the higher education of women. When, in 1879, members of the Harvard faculty were asked by a committee of women whether they would offer private instruction of collegiate grade for women students, the first affirmative reply received came from him... When, in 1882, the Cambridge Society for the Collegiate Instruction of Women was formally incorporated, Byerly was one of the incorporators. He remained a member of the corporation, and of its executive board, called the Council, for forty-two years, till 1924. Byerly as Chairman of Radcliffe's Academic Board was in fact, as regards the instruction given at Radcliffe and the degrees to which this instruction led, the most authoritative official of the College. He was also the official spokesman of Radcliffe in the not invariably friendly forum of the Harvard faculty.*



Byerly Hall at Radcliffe

Publications of W. Byerly:

- Sailing to Windward. *Amer. Math. Monthly* 23 (1916).
- Approximate representation. *Ann. of Math. (2)* 12 (1911).
- The in-and-circumscribed quadrilateral. *Ann. of Math. (2)* 10 (1909).
- Elements of the Differential Calculus (1879, many editions) Ginn and Company, <https://archive.org/details/elementsdiffere01byergoog>
- Harmonic Functions (1896,1906) Ginn and Company,

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- An Elementary Treatise on Fourier's Series and Spherical, Cylindrical and Ellipsoid Harmonics, (1894) Ginn and Company,

<https://archive.org/details/in.ernet.dli.2015.160895>

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- Obituary by J. L. Coolidge, Bulletin of the American Mathematical Society, 42, 1936.

## HENRY TURNER EDDY

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(June 9, 1844—December 11, 1921)

Henry Turner Eddy was born in Stoughton, Massachusetts, on June 9, 1844. He was the son of



Henry Eddy, Yale '32, Congregational minister, and Sarah Hayward (Torrey) Eddy, a graduate and teacher of mathematics at Holyoke Seminary. Eddy studied at Yale where he earned the first 3 degrees of his collection, A.B. '67, Ph.B. '68, A.M. '70. He was instructor in Latin and Mathematics at the University of Tennessee, 1868-9, before joining Cornell University as Assistant Professor, 1869-73. At Cornell, Eddy earned a Civil Engineer degree 1870, and a Ph.D. in applied mathematics in 1872, the first Ph.D. ever awarded at Cornell. He spent a year at Princeton as adjunct professor before joining the University of Cincinnati where he was successively Professor of Mathematics and Astronomy and Civil Engineering, 1874-90, Dean of the Academic Faculty, 1874-77, and President-elect in 1890.

The following year he was named President of Rose Polytechnic Institute, Terre Haute, Indiana, where he stayed until 1894 when he resigned to take a position at the University of Minnesota as Professor of Engineering and Mechanics in the College of

Engineering. In 1906, he was elected Dean of the Graduate School and stayed until his retirement from university work in 1912 as Professor and Dean Emeritus. Eddy Hall on the old Campus of the University of Minnesota is named after him. Along the way, he earned an LL.D. from Central College, Kentucky. After his retirement from teaching, Eddy formed an association with C. A. P. Turner, consulting engineer, of Minneapolis. They spent several years researching the properties of reinforced concrete floor slabs and published a book on the subject. Eddy served as Vice-President of the American Association for the Advancement of Science, 1884, and as President of the Society for the Promotion of Engineering Education 1896-97. He was a speaker at the 1893 International Chicago Congress of Mathematics and at 1904 St. Louis Mathematics Congress.

In 1870 He married Sebella Elizabeth Taylor, of New Haven, Connecticut, who died on September 5, 1921, only three months prior to the death of her husband. They had four daughters and one son.



Eddy Hall, on the old campus of the University of Minnesota

Publications of H.T. Eddy:

- On the Two General Reciprocal Methods in Graphical Statics. Amer. J. Math. 1 (1878).
- The Elastic Arch. Amer. J. Math. 1 (1878).
- The Theorem of Three Moments. Amer. J. Math. 1 (1878).
- On the Lateral Deviation of Spherical Projectiles. Amer. J. Math. 2 (1879).
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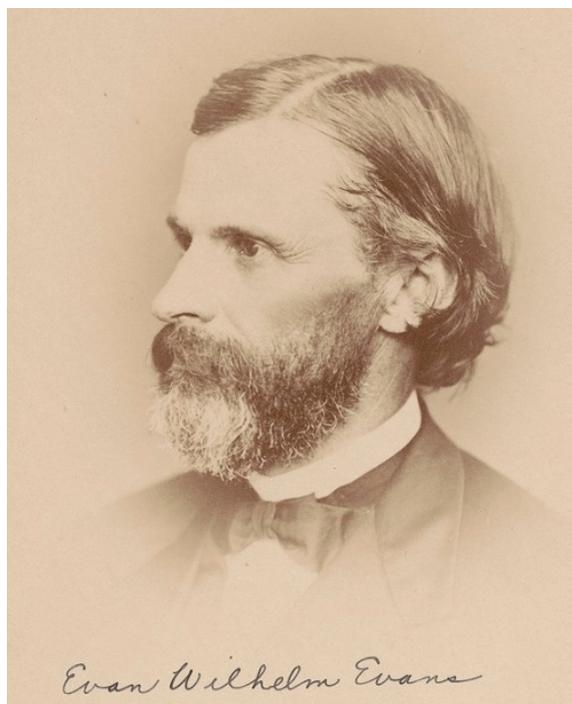
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- <http://campusmaps.umn.edu/eddy-hall>

## EVAN WILLIAM EVANS

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(January 6, 1827—May 22, 1874)

E.W. Evans, son of William and Catharine (Howell), was born Jan. 6, 1827 in Llangyfelach, near Swansea, South Wales. His parents moved to Bradford County, Pa., in 1831, where Evan obtained his early education (see history of the Welsh Settlement in the township of Pike). He graduated from Yale College in 1851. He studied theology at New Haven for about a year, and then became principal of the Delaware Literary Institute, in Franklin, New York. He then accepted a tutorship at Yale, of which he resigned after one year's service (1855-6). In 1857 he was appointed Professor of Natural Philosophy and Astronomy at Marietta College, Ohio, and filled that place until 1864. For three years he was then occupied in Mining Engineering, and spent a fourth year travelling in Europe. In 1867, he was the first professor appointed in Cornell University and from the opening in the fall of 1868, until his death on May 22, 1874, filled the chair of Mathematics. He had been in poor health since at least 1864 when he had left Marietta, suffering from tuberculosis. He was gravely sick during his last two years at Cornell.



He was interested in Welsh studies, contributed papers on Welsh matters to the American Philological Society, and left behind him an unfinished work on the history of Wales. He was married, August 6, 1856, to Helen E., daughter of Rev. Dr. Tertius S. Clarke, then of Franklin, New York, and the sister of a Yale classmate. She survived him, with several children.

Publications of W.E. Evans:

- On the action of oil-wells, *The American Journal of Sciences and Arts*, Vol. XXXVIII, No113, September 1864 (Silliman's Journal).
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## GEORGE EGBERT FISHER

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(April 20, 1863—March 28, 1920)

George Egbert Fisher was born at Westerlo, New York, on April 20 1863, the son of Farley and Harriett Matilda Fisher. He took his first two college years at Union College (1880-82) and enrolled at Cornell University in 1886. He graduated from Cornell in 1887 with an Arts Bachelor. For the next two years he was an instructor in mathematics at Cornell before accepting in 1889 a position at the University of Pennsylvania as an Assistant Professor. He remained at the University of Pennsylvania for the rest of his career. He earned his Ph.D., *Some Points in the Theory of Invariants and Covariants*, in 1895. It was the second mathematics Ph.D. awarded at the University of Pennsylvania. In 1903, he became Full Professor of Mathematics and in 1909 was made Dean of the College, resigning that position in 1912. He also served as Chair of the Department of Mathematics. He was Fellow of the American Academy for the Advancement of Science. He died on March 28, 1920 in Atlantic City.

Publications of G.E. Fisher:

- Text-book of algebra; with exercises for secondary schools and colleges, Part I. (with Isaac J. Schwatt). <https://catalog.hathitrust.org/Record/000420828>
- Elements of algebra, with exercises, 1899 (with Isaac J. Schwatt). <https://catalog.hathitrust.org/Record/012313083>
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- The Cornell Alumni News, Volume 22, 1920.

## ROLLIN ARTHUR HARRIS

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(April 18, 1863—January 20, 1918)

Rollin Arthur Harris was born in Randolph, New York in 1863, the son of Francis Eugene Harris,



ROLLIN A. HARRIS

of Vermont, and Lydia Helen Crandall, of New York. He had four sisters and one brother. He entered Cornell in the sophomore year in 1882 and graduated with a Ph.B. in 1885 with Honors for General Excellence and Special Honors in Mathematics with a dissertation titled *The Theory of Projectiles in a Resisting Medium*. Two of his siblings, Gilbert Dennison and Florence Bell Flory, also graduated from Cornell.

Rollin Harris spent the next year, 1885-86, teaching at the Cayuga Lake Military Academy in the village of Aurora. He then returned to Cornell for graduate study. He was a Sage Fellow in 1886-87 and earned his Ph.D. in 1888 with a thesis on *The Theory of Images in the Representation of Functions*.

Harris spent 1889-90 as a fellow in mathematics at the newly created Clark University where he pursued special studies in mathematics and lectured. In 1890, he took a position with the Tidal Division of the U. S. Coast and Geodetic Survey as “computer” (at the time, human being served as

“computers”). He became involved in surveying the literature on tidal records and predictions. Over the years, his work led to the publication of the monumental *Manual of Tides*, a text of 1,200 quarto pages containing a large amount of original contributions. It was originally published as eight separate appendices to the Coastal and Geodesic Survey annual reports of 1894, 1897, 1900, 1904, and 1907. In addition to the *Manual of Tides*, Harris published numerous research articles in mathematics and in more applied sciences, and also some expository articles. Harris was a fellow of the American Association for the Advancement of Science. On June 13 1890, he married Emily J. Doty. He died suddenly of heart disease in the streets of Washington DC, on January 20, 1918. More details on his work can be found in the main text in the chapter *Intermezzo: Rollin Arthur Harris (1863—1918)*.

Publications of R.A. Harris:

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- Numerals for Simplifying Addition. Amer. Math. Monthly 12 (1905).
- On Harmonic Functions. Amer. J. Math. 34 (1912).
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- On the Feasibility of Measuring Tides and Currents at Sea, Science, 19, 1904.
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- Monthly Weather Review, Vol. 45, No 12, December 1917.  
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## ARTHUR HATHAWAY

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(September 15, 1855—March 11, 1934)



Arthur S. Hathaway was born September 15, 1855 in Keeler, Van Buren County, Michigan. He graduated from Decatur High School in 1869 and entered Cornell in 1875. At Cornell, Hathaway, who was a trained typist and stenographer, served as A.D. White's personal secretary. In 1878-79, he represented Cornell at the fourth and fifth annual intercollegiate contests in New York City and placed second and first, respectively, in Mathematics. In December 1878, he married fellow Cornell student Susan Hoxie from Scipio, Cayuga County, NY. Susan Hoxie was the first woman elected member of Cornell Agricultural Club and the first woman to enroll in the Agriculture course of study at Cornell (1875-78). She was born in 1848 and taught at Blooming Grove School, Buffalo Normal School and Schodack School before attending Cornell. Both Arthur and Susan were Quakers.

In 1879, Hathaway graduated with a Bachelor of Science in Mathematics. During the summer, he and his wife moved to Baltimore where Arthur would teach at the Friends High School while attending classes in the Theory of Numbers given by Professor J. J. Sylvester at The Johns Hopkins University. In a very sad turn of events, in March 1880, Susan and their son died in childbirth. The son was named Edward Oliver Hathaway (after James Edward Oliver). Arthur stayed in Baltimore where he worked as a court stenographer (1881-82) while attending Sylvester's classes and seminars at Johns Hopkins. In 1882-84, he was a Fellow in Mathematics. In 1885, Arthur married Ada Jackson with whom he had four children. He left Johns Hopkins (without of doctorate) and accepted an instructorship at Cornell where he was promoted Assistant Professor in 1890. He left Cornell in the summer of 1891 to become Professor of Mathematics at Rose Polytechnics where H.T. Eddy had just become President. Hathaway stayed at Rose Polytechnics until his retirement in 1920.

He was a fellow of the American Association for the Advancement of Science. Upon his retirement, he moved to Boerne, Texas, and died there on March 11, 1934.

Publications of A. Hathaway:

- Some papers on the theory of numbers, *American Journal of Mathematics* 6 (No. 1/4; 1883 – 1884).
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## EDWARD WYLLYS HYDE

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(October 17, 1843—November 3, 1930)

Hyde was born in Saginaw, Michigan, on October 17, 1843, the son of Harvey Hyde of Brooklyn, Connecticut and Julia Dwight. From November, 1862, to February, 1866, he served in the Union Army as an officer in the 33rd Regiment, United States Colored Troops. After the close of the Civil War, he accompanied his father to Virginia, and in 1869 enrolled at Cornell to pursue an engineering degree. He graduated with a bachelor in Civil Engineering in June, 1872. Two years later he took a second degree, CE, with a thesis on *skew arches*. For two years he was one of the engineering instructors at Cornell and taught mathematics for one year in the Pennsylvania Military Academy at Chester, Pennsylvania. He then spent a year studying and working, back in Ithaca. In 1875 he was elected to an Assistant Professorship in Mathematics and Engineering in the University of Cincinnati. He later served as Professor of Mathematics, Dean of the College of Liberal Arts, and President of the University. He was forced from his faculty position when President Howard Ayres, in an academic bloodbath that came to be known as the "Upheaval of January 12," completely reorganized the faculty in 1900. He became an actuary and served as Actuary and Treasurer of Columbia Life Insurance Company, Cincinnati. Professor Hyde was married to Sarah J. Rowe, of Cincinnati. He was a Fellow of the Association for the Advancement of Science and served as Secretary of Section A and Vice-President. He died in Cincinnati, November 3, 1930.

Publications of E.W. Hyde:

- Centre of Gravity of Surface and Solid of Revolution. *Amer. J. Math.* 3 (1880).
- The directional theory of screws. *Ann. of Math.* 4 (1888).
- Geometric division of non-congruent quantities. *Ann. of Math.* 4 (1888).
- On the construction of the parabolas given by four points. *Ann. of Math.* 5 (1890)
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## GEORGE WILLIAM JONES

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(October 14, 1837—October 29, 1911)

George William Jones was born in East Corinth, Maine on October 14, 1837, the son of George William and Cordelia Allen Jones. He graduated at Yale College in 1859 where he captured mathematical prizes during his first two years and received the degree of master of arts there in 1862.

He married Miss Caroline Barber in 1862 in New Haven and they had a daughter. He taught mathematics in the Collegiate and Commercial Institute, New Haven, while pursuing his graduate studies at Yale. From 1862 to 1868 he was a teacher in the Delaware Literary Institute in Franklin, NY, serving as principal of the school for four years. During the next five years, he was Professor of Mathematics at Iowa State College. In addition to being Head of Mathematics and Civil Engineering, he had varied administrative duties. He was Acting President from December, 1868, to March 15, 1869, while President Welch was in Washington, D.C. finishing his term as U.S. Senator from Florida. From 1874 to 1876, in Des Moines, Iowa, he was the publisher of the *Western Farmer and Patrons' Helper* which was the official organ of Iowa State Grange.



He joined Cornell University in 1877, was promoted to Associate Professor in 1893 and to Professor in 1895. He retired in 1907. He was considered one of the outstanding teachers of mathematics at Cornell and a large number of successful math teachers received training under him. He was one of the co-authors of a series of text books known as the "O.W.J." (Oliver, Wait and Jones). For thirty years, he was president of the Ithaca Society for the Prevention of Crime.

Publications of G.W. Jones:

- Universal interest tables at 4, 5, 6, 7, 8, and 10 per cent, 1882.  
<https://archive.org/details/universalinteres00jone>
- A Treatise on Algebra, Oliver, Wait and Jones, published by D. F. Finch, 1882, 1887.  
<https://archive.org/details/atreatiseonalge02jonegoog>
- A treatise on trigonometry, Oliver, Wait and Jones, New York: J. Wiley & sons, 1881, 1883. <https://archive.org/details/atreatiseontrig02waitgoog>
- A treatise on projective geometry (with A. Hathaway), Ithaca, N.Y., Dudley F. Finch, 1888  
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- A drill-book in algebra, 1892  
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- The Cornell Daily Sun, Volume XXXII, Number 31, 30 October 1911.
- The Cornell Alumni News - Volume 14 - Page 52, 1912.
- The Yale Alumni Weekly - Volume 21, Page 195, 1912.
- The Iowa Engineer - Volume 12 - Page 91, 1911.
- A history of some early Iowa farm journals (before 1900), by Gerald LeRoy Seaman, 1942,  
<https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=17940&context=rtd>
- A history of the Iowa state college of agriculture and mechanic arts, by Earle D. Ross,  
chairman of the Committee on history of the college, 1942. Page 61, 93-95  
<https://catalog.hathitrust.org/Record/002015723>
- History of Story County, Iowa; a record of organization, progress and achievement,  
by Payne, William Orson, 1911, page 13.  
<https://archive.org/details/historyofstoryco02payn>

## ANNIE LOUISE MACKINNON

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(June 1, 1868—September 12, 1940)

Annie Louise MacKinnon was born in Woodstock, Ontario, Canada, in 1868, the daughter of Annie Louise (Gilbert) (1834–1919), and Malcolm MacKinnon (1838–1903), natives of Ontario. She spent most of her youth in Concordia, Kansas, where she graduated from high school. She earned her B.S. (1889) and M.S. (1891) degrees in mathematics from the University of Kansas, in Lawrence. While working on her master's degree, she taught high school mathematics in Lawrence. She attended Cornell University as a graduate student from 1892 and earned her Ph.D. in 1894, with a dissertation on *Concomitant Binary Forms in Terms of the Roots*. That same year she was awarded the Association of Collegiate Alumnae European Fellowship to study mathematics at Göttingen University. After being at Göttingen for two years, she returned in 1896 to become Professor of Mathematics at Wells College, NY, where she was also the college's registrar. She became a member of the American Mathematical Society in 1897. In 1901, MacKinnon left Wells College to marry Edward Fitch, a professor of Greek and later Dean, at Hamilton College. She devoted much time and energy to encouraging women to take a public spirited interest in their local, state and national communities. In addition to her membership in the American Mathematical Society, she was also a member of the American Association for the Advancement of Science and the League of Women Voters.

Publications of A.L. MacKinnon:

- Concomitant binary forms in terms of the roots. *Annals of Math.* 9, (1895).
- Concomitant binary forms in terms of the root. *Annals of Math.* 12, (1898).

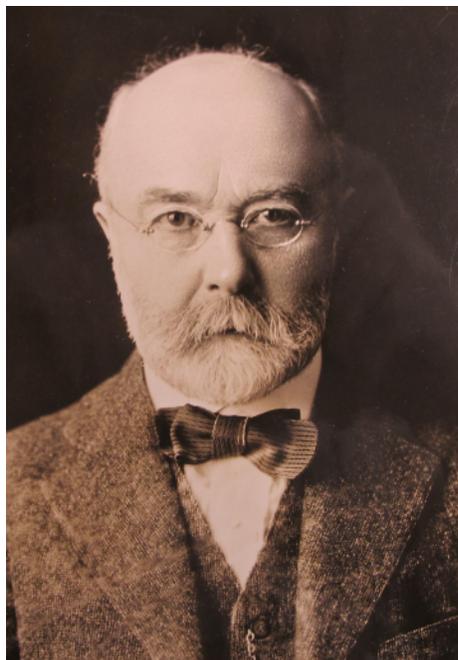
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- <https://www.agnesscott.edu/lriddle/women/fitch.htm>
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- The Emergence of the American Mathematical Research Community, 1876-1900, J. J. Sylvester, Felix Klein, and E. H. Moore (pp 249-250), American Mathematical Society, Karen Hunger Parshall and David E. Rowe.

## JAMES MCMAHON

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(April 22, 1856—June 1, 1922)



James McMahon was born in Ireland, on April 22, 1856, the son of Robert McMahon and Mary Hewitt. In 1881, he graduated A.B. from Trinity College, Dublin, with two gold medals and highest honors in Metaphysics and Classical Studies and was awarded the Wray Prize (Metaphysical studies) and Trinity's Brooke Prize (Classical Studies). He received the degree of A.M. in 1890 (when already in Ithaca) and an honorary D.Sc. in 1918, both from Trinity College. McMahon arrived in Ithaca, New York, in January 1883, serving as an examiner in the Mathematics Department and as an instructor in Logic for Andrew Dickson White's "Correspondence University," a distance learning initiative. McMahon became Instructor in 1884, Assistant Professor in 1890 and Professor of Mathematics in 1904. On June 26, 1890, McMahon married Katharine Crane, the daughter of a Cornell professor. After James Oliver's death in 1895, McMahon and his wife moved into his cottage at 7 Central Avenue where they lived until McMahon's death in 1922. In 1916, while Chair of the

Mathematics Department at Cornell University, Professor McMahon supplied the Democratic National Committee with three reasons to favor the re-election of President Woodrow Wilson (N.Y. Times, Oct. 1, 1916). McMahon was active in the American Mathematical Society and in The Association for the Advancement of Sciences, serving the latter as General Secretary in 1899 and Vice-President in 1901. He was also one of the early organizers of Sigma Xi, The Scientific Research Honor Society for scientists and engineers which was founded in 1886 at Cornell. He died on June 1, 1922.

### Publications of J. McMahon:

- On the Expression for the Hessian of a Binary Quantic in Terms of the Roots, *Annals of Mathematics* 1889.
- On the Descending Series for Bessel's Functions of Both Kinds, *Annals of Mathematics* 1893.
- On the General Term in the Reversion of Series, *Bull. NY Math. Soc.* 1894.
- On the Roots of the Bessel and Certain Related Functions, *Annals of Mathematics* 1894.
- Notes on the expression for a velocity-potential in terms of functions of Laplace and Bessel, *Bull. Amer. Math. Soc.* 2, 1986.
- Hyperspherical Geometry; and its Application to Correlation Theory for N Variables, *15 Biometrika* 173–208 1923.
- Elements of Differential Calculus, Cornell Mathematical Series, 1898 (With V. Snyder) <https://catalog.hathitrust.org/Record/006577702>

- Some recent applications of function-theory to physical problems, address before the Section of Mathematics and Astronomy, American Association for the Advancement of Science. <https://babel.hathitrust.org/cgi/pt?id=uc1.b4248463;view=1up;seq=293>
- Elementary Plane Geometry, Cornell Mathematical Series, 1903. <https://archive.org/details/elementarygeome00mcmagoog>
- Hyperbolic functions, 1906. <https://catalog.hathitrust.org/Record/100765496>

McMahon supervised four Cornell Ph.D. dissertations:

- Rollin Arthur Harris, 1888, The Theory of Images in the Representation of Functions.
- Francis Sharpe, 1907, The General Circulation of the Atmosphere.
- Stanley Brasefield, 1912, A Study of Certain Force Fields.
- Carl West, 1915, On Certain Formulas for Representing Statistical Data.

Sources:

- Daily Democrat (Ithaca, N.Y.) (July 8, 1884)
- Cornell alumni news, Vol. 24, page 410. <https://books.google.com/books?id=HKtDAQAAMAAJ>
- Record of the first convention of Sigma Xi. Sigma Xi Quarterly, Vol. 7, No. 3 (September, 1919), pp. 77-82. [https://www.jstor.org/stable/27824112?seq=1#metadata\\_info\\_tab\\_contents](https://www.jstor.org/stable/27824112?seq=1#metadata_info_tab_contents)

## HIRAM JOHN MESSENGER

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(July 6, 1855—December 15, 1913)

Hiram John Messenger was born in Bora, Canandaigua, New York, on July 6, 1855, the son of Hiram John Messenger and Luana Heaton. His father was a business man and banker active in the Cortland area. Messenger studied at Cortland Normal School and graduated from Cornell in 1880, B. Litt. He served as professor of mathematics at the State Normal School in Cortland, 1880-81, and also at Napa College, Napa California, 1881-83. He returned to Cornell for graduate study, was a Fellow in 1885-86 and earned his Ph.D. in Mathematics at Cornell in 1886 with a dissertation *Modern Methods in Geometric Conics* under the supervision of James Oliver. He served as Associate Professor of Mathematics at the University of the City of New York and was one of the first sixteen members of the New York Mathematical Society, the society that later became the American Mathematical Society. In 1890, he spent one year at the Institute of Actuaries London. Upon his return, he became an actuary for the Metropolitan Life Insurance Company and, in 1898, for the Traveler's Insurance Company. He died at his home in Hartford, Connecticut, on December 15, 1914.

Cornell's Messenger Lecture series<sup>2</sup> was established in 1924 by a gift from Dr. Hiram Messenger. The terms of the original gift established "a fund to provide a course of lectures on the Evolution of Civilization for the special purpose of raising the moral standard of our political, business, and social life."

Publications of H.J. Messenger:

- On Different Methods Proposed for Valuing the Marketable Securities held by Life Insurance Companies, Transactions, Actuarial Society of America – 1893.
- The Nation's Health, 1910, <https://catalog.hathitrust.org/Record/001581664>
- The Rate of Sickness. Transactions, Actuarial Society of America 10 (1909).
- The undeveloped field in the life insurance business, 1911, <https://catalog.hathitrust.org/Record/001129246>
- Mortality Experience of the Travelers Insurance Company, According to Age at Death, Cause of Death and Geographical Distribution, Actuarial Society of America – 1918.

Sources:

- Biographical Catalogue of the Chancellors: Professors and Graduates of the of the Department of Arts and Science of the University of the City of New York.
- Obituary, The Weekly Underwriter.
- Obituary, The Society of Actuaries.
- Obituary, Cornell Alumni News.

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<sup>2</sup> <https://theuniversityfaculty.cornell.edu/dean/messengeruniversity-lectures/>

## IDA MARTHA METCALF

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(August 26, 1857 – October 24, 1952)



Ida Metcalf was born in Texas to Charles A. and Martha C. (Williams) Metcalf. After her father's death, she moved to New England with her mother and siblings. By 1870, she was living in Massachusetts, where she taught school for several years. In 1883, Ida began studying at Boston University where she received a Bachelor's in Philosophy (Ph.B.) in 1886. From 1888 to 1889, she was a graduate student at Cornell University, earning a master's degree in mathematics. After teaching at the Bryn Mawr School in Baltimore, she returned to Cornell and received her Ph.D. in 1893.

She taught at different schools for a number of years and wrote *The pampered children of the poor*, (*International Journal of Ethics* 13:87–98, 1902). In this article, she writes, “*The explicit statements in this essay are based on personal experience in high-school teaching in a great city with a very large foreign population, and on the testimony of others engaged in the same work.*”

She also worked for a banking house in New York as a securities analyst. In 1909, she had printed a nine-page pamphlet entitled *A demonstration of Fermat's Theorem concerning the equation  $x^n + y^n = z^n$* . The error in her argument was pointed out in a 1910 review of the pamphlet in *Archiv der Mathematik und Physik*.

In October 1910 Metcalf was appointed a monitor and in December 1910, at the age of fifty-three, she became a civil service examiner. Pearson Hunt reported that she was the first woman to take such an examination, and was appointed because of her performance despite being female. In 1912, she became a statistician for the Department of Finance for New York City. She attempted to take the examination for statistician in the Education Department but was not permitted to do so “though she had three college degrees, had taught public and private school most of her life and had been statistician in the department of finance over two years” (Report of an Investigation of the Municipal Civil Service Commission). She remained in the Department of Finance until her retirement at the end of 1921.

In his 1952 letter, Pearson Hunt noted that “*In view of her own hard struggles to find positions commensurate with her ability, Miss Metcalf throughout her life had a very cynical view of higher education for women. Nevertheless, ...Miss Metcalf made a gift [to Cornell] which was earmarked for the assistance of women students.*” Metcalf also wrote letters to the editor of the *New York Times* indicating her feminist beliefs. On January 25, 1914, the headline read “The rule of brute

force” and the letter following it critiqued an article by William T. Sedgwick, a professor of biology at MIT.

*Prof. Sedgwick told us complacently ... that if women persist in claiming the same rights as other citizens, men will exert their superior muscular force and reduce them to literal slavery. ... Are we to understand that all the men unable to hold their own against a prizefighter will be forcibly subdued and held in subjugation if they ask for fair play and venture upon economic competition with their stronger fellow beings? Apparently the dictum of science, as expressed by this prophet, is that we are evolving backward toward the ancestor we share with the gorilla.*

On October 11, 1922, Metcalf expressed her views on “discrimination in business circles against women of middle age, a condition the existence of which is readily admitted by employers.”

*The thinking women of today of any age are asking for our sex not privilege but “a fair field and no favor,” and intelligent employers, if they would bring their business acumen and judgment to bear upon the matter, would ... seek the most competent and conscientious worker quite irrespective of such incidental qualities as age, sex, complexion, political affiliation or religious creed.*

Dissertations of I.M. Metcalf:

- 1886: The origin and development of styles of architecture. PhB thesis, Boston University.
- 1889: The theory of illumination by reflected and refracted light. MS thesis, Cornell University.
- 1893: Geometric duality in space. PhD dissertation, Cornell University, directed by James Edward Oliver.

Sources:

- Supplementary material for the book “*Pioneering Women in American Mathematics: The Pre-1940 PhD's*” by Judy Green and Jeanne LaDuke, 2008.  
<http://www.ams.org/publications/authors/books/postpub/hmath-34>

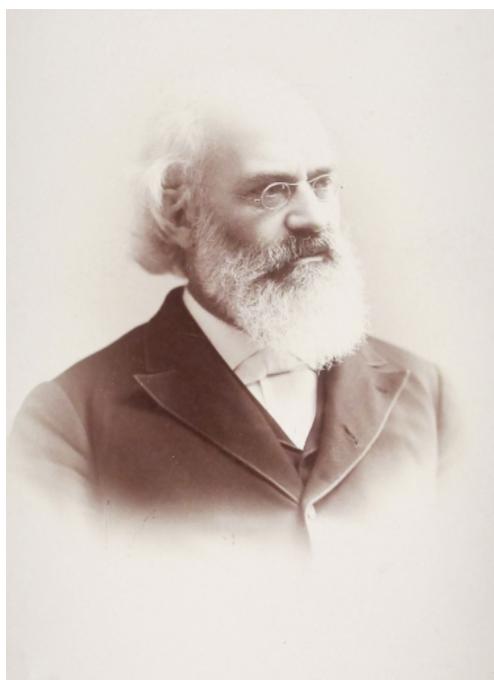
## JAMES EDWARD OLIVER

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(July 27, 1829—March 27, 1895)

*On March 27th, 1895, after an illness of ten weeks, died Professor J. E. Oliver, of Cornell University, universally honored and beloved. For more than twenty years he has been at the head of the department of mathematics in this great institution. (Science, May 17, 1895).*

James Oliver the central character in the first thirty years of the mathematics department at Cornell and more information on his life can be found in main text. The establishment of a research program in mathematics at Cornell was his life work and his efforts shaped the evolution of the department long after his death.



James E. Oliver was born in Portland, Maine, on July 27, 1829, the third child of James Oliver, of Lynn, Massachusetts, and Olivia Cobb, of Portland. The family lived in Lynn where Oliver grew up. Because of a weak constitution, he was educated at home by his mother, a school teacher before her marriage, until the age of seven when he attended the Lynn Academy in preparation for College. In 1846, at the age of seventeen, he entered Harvard College, passing into the sophomore class. His roommate at Harvard, Horace Davis—later the President of the University of California—said: “*Oliver was a remarkable man in many respects. He had a strong individuality, amounting almost to eccentricity. He was sturdy and independent in his thought, determined and conscientious in his conviction, yet he was modest, retiring in his demeanor, and his extreme nearsightedness increased this tendency... His first love, of course, was mathematics, and next to that came ethics and moral philosophy...*”

The following paragraph is taken from G. Hill’s NAS memorial dedicated to the life of J.E. Oliver.

*“Oliver graduated in 1849 and his teacher, Professor Peirce, suggested he accept an assistantship in newly created the Nautical Almanac Office. Although unhappy with the work, he remained in his position until the Nautical Almanac Office was moved from Cambridge to Washington in 1867. After spending time in New York and Philadelphia, and teaching thermodynamics at Harvard, he accepted an assistant professorship at Cornell and moved to Ithaca in the fall of 1871. At Professor Evans’ death in 1874, he became Professor and Chair, a position he kept until his death in 1895. At Cornell, Oliver taught such diverse subjects as: Analytic Geometry, Infinitesimal Calculus, Quaternions, Definite Integrals, Spherical Harmonics, Elliptic Functions, Theory of Probabilities, Theory of Functions, Abelian and Automorphic Functions, Finite Differences, Factorials and Difference Equations, Differential Equations, Non-Euclidean Geometry, Celestial Mechanics, Mathematical Optics, Mathematical Theory of Electricity and Magnetism,*

*Mathematical Pedagogy. He was fond of applying mathematics to other subjects. Thus he attempted the illustration of the science of economics by the employment of algebraic formulas, studied the relation between the theory of probabilities and economic laws and established a seminarium in economics.”*

In 1888, Oliver married Miss Sarah T. Van Petten, a teacher of Oswego. The following year the couple travelled to Europe, spending time in Cambridge and Göttingen. At Göttingen, Oliver and Klein became friends and Oliver wrote: “My work here is likely to be of great service to me, including the trains of thought and plans it suggests, no very radically new plans, only as to the spirit, the aims, and the details of my Cornell work.” Upon his return to Ithaca, influenced by Klein’s seminar in Göttingen, Oliver organized a Mathematical Club, the first meeting of which took place at eight o’clock, Saturday evening, January 24, 1891, at his home on Cornell campus. After Oliver’s death in 1895, the club stopped functioning for a few years before it reappeared in 1898 bearing the name “Oliver Mathematical Club of Cornell University.” The first “Oliver Club,” *Some theorems concerning the Hessian of a cubic surface*, was given by J. I. Hutchinson on October 10, 1898.

Oliver was a Fellow of the American Academy of Arts and Sciences (1866) and member of the National Academy of Sciences (1872). The following direct quote from G. W. Hill’s memorial text gives us a glimpse of Oliver’s strength as a scientist and mathematician.

*“But, although the penning of his thoughts was distasteful to Oliver, he was ready enough to talk about the matters he was conversant with. And how many of them there were. You could scarcely start any scientific or literary subject for discussion in his presence but he appeared as ready and equipped as if it had formed the sole object of his thoughts for years. It seemed that there was no way of explaining this but that he must have had a previous stage of existence, in which he had accumulated this vast store of information, and that in his passage to this life he had been allowed to retain it; but he had the rare faculty of seeing at a glance what are the salient and controlling elements of a subject and could thus dispense with learning the minute details.”*

In the journal *Science*, upon Oliver’s death, George B. Halsted of the University of Texas wrote:

*“...from his graduation in 1849, he ranked as a mathematical genius, one of the most remarkable America has produced. But he seemed to have no ambition to leave an adequate record of his mental life in print. In personal character he resembled Lobachevski, whom he intensely admired. He was spontaneously loyal to the good and the true, enthusiastic, thorough, painstaking. He loved poetry; he loved Shakespeare; he was averse to religious creeds. For Professor Oliver goodness was spontaneous. He did the right not because it was right, but because he intensely wished to do just that. The spring of action seemed a combination of sympathy, perception, knowledge, scientific logic.*

*In mathematics Professor Oliver worked for the love of it and because he was deeply convinced that mathematics affords that fine culture which the best minds seek for its own sake. He was a pronounced believer in the non-Euclidean geometry. I vividly recall how he came up after my lecture on Saccheri at Chicago, and expressing his interest in the most charming fashion, proceeded unhesitatingly to give me a profound lecture on stellar parallax, the measurement of*

*the angles of astronomical triangles and the tests of the quality of what Cayley called “the physical space of our experience.” Again, after the Brooklyn meeting of the American Association, he took up the same subject with me, explained a plan for combining stellar spectroscopy with ordinary parallax determinations, and expressed his disbelief that C. S. Peirce had proved our space to be of Lobachevsky's kind, and his conviction that our universal space is really finite, therein agreeing with Sir Robert Ball.”*

Ph.D. theses supervised by James Oliver:

- Hiram John Messenger, *Modern Methods in Geometric Conics*, 1886.
- Cadwallader Edwards Linthicum, *On the Rectification of Certain Curves, and Certain Series Involved*, 1888.
- Ida Metclaf, *Geometric Duality in Space*, 1893
- Annie Louise McKinnon, *Concomitant Binary Forms in Terms of the Roots*. 1894.
- Agnes Sime Baxter, *Abelian integrals, a resume of Neumann's ‘Abelsche Integrale’ with comments and applications*, 1895.

Publications of J.E. Oliver:

- A treatise on trigonometry. By Profs. Oliver, Wait and Jones. Ithaca: Finch & Apgar 1881, second edition, New York: J. Wiley & sons, 1883.
- A treatise on algebra. By Profs. Oliver, Wait and Jones of Cornell University. Ithaca, NY, 1882; second edition, Dudley F. Flinch, 1887.
- Demonstration of the Pythagorean Proposition: *Math. Monthly*, vol. i, 1 858.
- On Mr. Collins' Property of Circulates : *Ibid.*
- Introduction to a Treatise on Determinants: *Ibid.*, vol. iii, 1860.
- Partial Investigation on Best Approximate Representation of Mutual Ratios of k Quantities by those of Simple Integers: *Proc. Am. Acad. of Arts and Sciences*, vol. vi, 1864.
- On Some Focal Properties of Quadrics: *Ibid.*, vol. vii, November 8, 1865.
- On the Imperfect Whiteness of Snow: Read before the Am. Ass. Adv. Sci., 1869.
- On the Grouping of Aerolites: Read before the Am. Ass. Adv. Sci., 1869.
- Note on Query concerning a Ball held in a Jet of Water: *The Analyst*, vol. i, 1874.
- On the Law of Distribution for Certain Plant Numbers: *Proc. Am. Ass. Adv. Sci.*, vol. xxxi, 1882.
- A Method of Finding the Law of Linear Elasticity in a Metal: *Ibid.* vol. xxxi, 1882.
- A Protective Relation among Infinitesimal Elements: *Annals of Math.*, vol. i, 1884.
- A Singular Optical Phenomenon: *Science*, vol. iii, pp. 475, 563, 1884.
- On the General Linear Differential Equation: *Annals of Math.*, vol. iii, 1887.
- Elementary Notes. I. General and Logico-Mathematical Notation: *Ibid.*, vol. iv, 1888.
- Preliminary Paper on Sun's Rotation: Read before Nat. Acad. Sciences, 1888.
- Short Notes on the Soaring of Birds: *Science*, January 4, 1889.
- A Mathematical View of the Free-will Question: *Phil. Review*, vol. i, March, 1892.
- Estimates of Distance: *Science*, March 11, 1892.
- Some Difficulties in the Lesage-Thomson Gravitation Theory: *Proc. Am. Ass. Adv. Sci.*, 1892.

Sources:

- Memoir written by G.W. Hill and read before the National Academy of Science, April 1896.
- Sciences Vol. I, No 20, May 17, 1895, James Edward Oliver, by George Bruce Halsted. Pages 544-545.
- Carl Becker; Cornell University: Founders and the Founding, 1943.
- Morris Bishop; A History of Cornell, 1962.

## ANNA HELENE PALMIÉ

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(May 21, 1863—June 12, 1946)

Anna Helene Palmié was born in Brooklyn, New York, on May 26, 1863. She was one of three daughters of Edward Daniel and Theresa Thiel Palmié who attended Cornell. (Her sisters are Marguerite Thiel, A.B. '04, and Therese Katharine.) Anna came to Cornell in 1886 and she graduated with a bachelor's degree in philosophy in 1890 with a dissertation titled *The Fringes of Shadows*. The next year, she stayed as a graduate fellow in mathematics and was a member of the mathematical club created by J. Oliver. Among Cornell graduates, she is one of the first women who pursued a long term career in academia at the college level. In 1891, she accepted a position of Instructor in Mathematics and German at the College for the Training of Teachers in New York City (The Horace Mann School). In 1892, she joined the staff of the Western Reserve University College for Women (later known as Flora Stone Mather College and now part of Case Western Reserve university) as an instructor in mathematics. She was promoted to Associate Professor in 1893 and to Professor in 1895. She remained at this institution until her retirement in 1928.

*"Teaching mathematics is a wonderful way to know and study youth. In the early days, every girl studied it. I did all the teaching of it. So I knew every girl. Living in the dormitory, with my youthful appearance—though I was really much older than any of them—made me fully one with them. I think the thing that makes it less hard for me to resign is that the growth of classes has lessened this intimate relation<sup>3</sup>."*

Palmié joined the American Mathematical Society in 1897 and was an active member, attending meetings and giving talks. After taking her position at Western Reserve, she continued her studies in mathematics at the University of Chicago (summer 1896) and the University of Göttingen for two semesters (1898-1899).

Sources:

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- Woman's Who's who of America: A Biographical Dictionary of Contemporary ... 1914-1915. <https://catalog.hathitrust.org/Record/100322156>
- Pioneering Women in American Mathematics: The Pre-1940 PhD's. By Judy Green, Jeanne LaDuke, 2008.

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<sup>3</sup> Whitman, Betsey. "Women in the American Mathematical Society before 1900," AWM Newsletter, Vol. 13, No. 5 (Sept/Oct 1983), 7-9. (Quote, at the time of Palmié's retirement).

## ZIBA HAZARD POTTER

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(June 29, 1836—April, 1 1913)

Ziba Hazard POTTER was born in Potter, NY, on June 29, 1830, the son of Dr. Hazard A. Potter and Louisa S. Ballou. He graduated from Hobart College in 1857 where he also received an MA in 1860. He was trained as a doctor by his father and served four years as a surgeon in the army during the Civil War and was in charge of the Hospital at Fort Randall in the Dakota Territory until 1867. He received an MD at the Geneva Medical College in 1867. Potter served as Assistant Professor at Cornell from 1868 to 1882. During that time, he also served as medical examiner and earned a Law degree from Union College (Albany) and was admitted to the Bar of New York. After leaving Cornell in 1882, he worked as a lawyer for the Department of Interior. He died in Bethlehem, Pennsylvania in 1913.



A Cornell graduate, A. W. S. '78, writes: *"In 1874-5, I studied elementary mathematics in White Hall with Professor Ziba Hazard Potter. He was an excellent teacher, a man of fine human sympathy, and a lover of a joke. One day in class he spoke of the impossibility of squaring a circle. Then he said: "If you should hear of anybody trying to square a circle, tell him you have a better job for him; ask him how much he would charge a day to throw feathers over a barn." All my life this has been my standard of futility."*

Sources:

- An Elaborate History and Genealogy of the Ballous in America.  
<http://www.newyorkroots.org/yates/potter/potterbio2.htm>
- Obituary in Cornell Alumni News Vol XV, No 27, April 9 1913.
- Cornell Alumni News Vol XXXIII, No 5 October 23, 1930.
- The Journal of the American Medical Association, 1913.

## ERNST RITTER

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(January 9, 1867— September 23, 1895)

Ernst Ritter was born in Waltershausen (Thüringen), Germany, on January 9, 1867. When he died at the Government Hospital at Ellis Island from a typhus attack on September 23, 1895, he had just cross the Atlantic. He was on his way to Ithaca where he was to become Assistant Professor of Mathematics at Cornell. He was twenty-eight years old.



His arrival was the result of a long effort by the Department of Mathematics to bring a talented German Mathematician to Cornell, with the goal to help the university catch up with other American institutions including Harvard, Clark University and, most notably, the University of Chicago, who were making rapid progress in developing their mathematical research activities. Cornell recent graduate and young faculty John Henry Tanner had been sent to study in Göttingen (1894—96), with a mandate to find and convince a young German mathematician to accept a research oriented professorship at Cornell. It must be noted that the list of

European trained mathematicians who choose to emigrate to the United States at the time is very limited. The Englishman and Cambridge graduate Frank Morley (Professor at Haverford College (1887-1899) and later at Johns Hopkins University) and the German students of F. Klein, Oskar Bolza and Heinrich Maschke (both, Professors at the University of Chicago, starting in 1892), are perhaps the most significant other examples of that period.

Prior to accepting the Cornell position, Ernst Ritter was a Privatdozent at Göttingen and the closest associate of Felix Klein at the time. In Ritter's obituary, Klein describes Ritter's training as follows. *Starting in 1885, he studied for 2 years in Jena and after that for 4 years in Göttingen. In fall 1890, he obtained his Staatsexamen (teacher's license) and, in spring 1891, his doctorate in mathematics, He started in fall 1891 the two years of practical teacher training, which everyone in Prussia has to do, in Cassel and then continued in Frankfurt. In fall 1893, he returned to Göttingen as an assistant in the mathematics department and at the end of summer 1894, he obtained his "habilitation".*

Klein describes Ritter's mathematical work in the following terms: *Apart from an article which discusses the movements of 2 particles according to Weber's law and which was published in Schlömilch's Zeitschrift 3, his research concerns the theory of functions in one complex variable. I would like to mention here the 3 long articles in Mathematische Annalen volumes 41, 44 and 45, which will be followed by a forth article in volume 47. In these, Ritter developed the foundations of function theory, His point of view is similar to the one which I suggested earlier, but he develops this theory in great depth. Without doubt his work is a great advance in the theory of functions on Riemann surfaces. I want to mention here just his use of homogenous variables, multiplicative*

*forms and the continuity of functions under continuous change of the Riemannian surface and from his as yet unpublished article the general theorems about linear differential equations in a Riemannian class.*

Here is how Salomon Bochner describes Ritter's work: *In 1894, Ritter was one of the first who, except for one relatively minor flaw, gave a proof of the Riemann-Roch theorem even for so-called fractional divisors. And later on in Weyl's book (Die Idee der Riemannschen Fläche/The Concept of a Riemann Surface), in a footnote to page 147, Ritter is even credited with formulating an extension of the entire Riemann-Roch theorem from system of differentials and functions that are univalent on the closed Riemann surfaces to such differentials and functions that are defined on the covering space of the Riemann surface, but are reproduced by the elements of the Poincaré monodromy group by a fixed multiplicative character of the group. And Weyl adds that in a later paper in 1896 (Math. Annalen, vol. 47), E. Ritter even further generalizes this to solutions of certain types of differential equations on the Riemann surface.*

We will never know what impact Ritter might have had on the development of the mathematics program at Cornell.

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(May 10, 1871—January 21, 1934)

Paul Louis Saurel was born in New York City on May 10, 1871. He was of French descent. His grandfather, a teacher of mathematics in Pau, had emigrated in 1841. Saurel graduated from the College of the City of New York, B.S. '90, and attended graduate school at Cornell 1890-1896 where he served as the first secretary of the Mathematical Club created by J. Oliver in 1891. He was a tutor at City College 1896-98, earned his Ph.D. in Bordeaux, France in 1900 and returned to City College as Assistant Professor that summer. In Bordeaux, he met his wife, Gabrielle François. They married in 1901 in New York. His dissertation, *Sur l'Équilibre des Systèmes Chimiques*, was prepared under Pierre Duhem, a French scientist of high originality and an early advocate of the work of Gibbs. Duhem's career and influence were diminished by historical and personal circumstances. (Duhem was right-wing, royalist, deeply religious, stubborn and often contentious.) Saurel was promoted to Associate Professor in 1906, to Professor in 1914 and served as Head of the Department of Mathematics at City College from 1919 to his retirement. He died while vacationing in Paris on January 21 1934, not long after his retirement.

Publications of P. L. Saurel:

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## CHARLES AMBROSE VAN VELZER

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(September 2, 1851—November 19, 1945)

Charles Van Velzer was born in Baldwinsville New York on September 2, 1851. He attended Cornell from 1872 to 1876 when he graduated with a Bachelor of Science. He received first prize in mathematics at the intercollegiate contest in December of that year while he was an instructor at Cornell 1876-1877. He was a graduate fellow at Johns Hopkins 1878-1881 and became Instructor in Mathematics at the University of Wisconsin in 1881. He was promoted to Assistant Professor in 1883 and to Professor in 1885. The same year, Hillsdale College conferred on him an honorary doctorate. Van Velzer served as Chair of the Department of Mathematics at the University of Wisconsin 1884-1894. He was the advisor of the first two mathematics doctorate degrees awarded by the University of Wisconsin, to Henry Freeman Stecker (1897), and to Theodore Running (1899). In 1906, under the presidency of Charles Richard Van Hise, Van Velzer was asked to choose between his professorship and his involvement in a local mining business. He resigned. Several years later, he became Professor of Mathematics at Carthage College. He was a member of the London Mathematical Society and of the American Mathematical Society.

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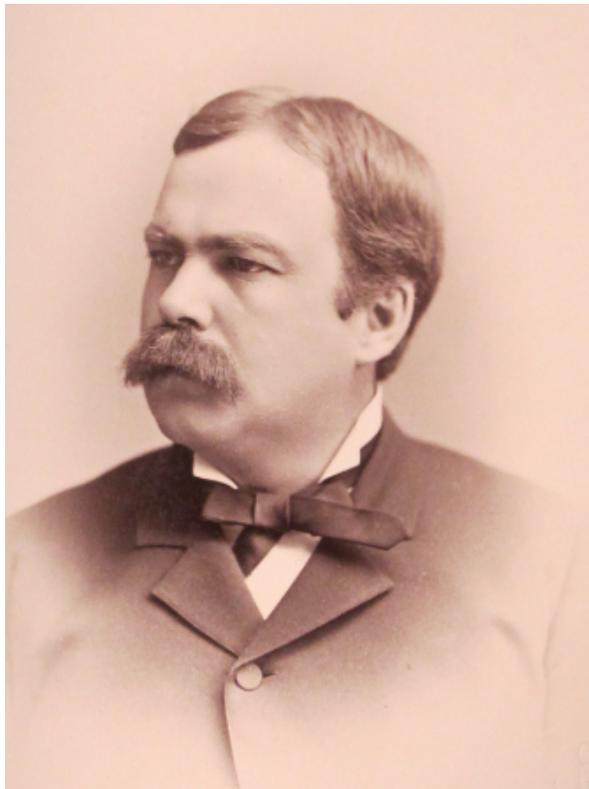
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## LUCIEN AUGUST WAIT

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(February 8, 1846—September 6, 1913)



Lucien Augustus Wait was born in Highgate, Vermont, Franklin County, on February 8, 1846, the son of Norval Douglas, and Marion Sarah Wait. He attended Phillips Exeter Academy, before going to Harvard, where he graduated in 1870, with the degree of A.B. He accepted a position as Assistant Professor in the mathematics department at Cornell, holding this until he was made U.S. Consul at Athens and Pirasus, Greece, in the years 1873-74. He returned to Cornell and was made Associate Professor in 1877 and Full Professor in 1890. He had served as Associate Chair under James Oliver and, after the death of Oliver in 1895, Wait became Chair of the Department, a position he retained until his retirement in 1910. In 1873, he married Anna J. Dolloff of Exeter New Hampshire. They had three daughters, Marion Anna Olga Wait (born in Athens, 1874), Alice Emma Wait (1876) and Zeta Wait (1888-1889).

The following is a quote from the memorial statement of the Cornell faculty: *“his administration has always been notable for efficiency, harmony, and devotion to high ideals of scholarship. In planning the mathematical instruction, he has kept steadily in view its various aims and purposes, including intellectual discipline, preparation for the scientific professions or for work in pure science, and the training of teachers and investigators. How well he has succeeded in the difficult task of holding an even balance among the diverse interests is well-known to all who have had any personal concern in the matter... A notable feature of his administration is the encouragement he has given to the research work of his younger colleagues and of the graduate students. He has always planned that each instructor, after his initiatory period, should take some share in the graduate work, and should not be so overburdened as to leave him no time for his private investigations.”*

The following is taken from the website of the Cascadilla School<sup>4</sup> in Ithaca: The Cascadilla School was founded in 1870 by two young Cornell University professors, Lucien Augustus Wait (1846-1913) who taught mathematics & Bela P. MacKoon (1840-99) who taught Latin & German. They established a tutoring school for Cornell students as well as for those who planned to enter Cornell and located it in Cascadilla Place, still a part of the Cornell campus and now known as Cascadilla Hall. Both the School and this early Cornell building take their name from nearby Cascadilla

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<sup>4</sup> <http://cascadillaschool.org/history/>

Creek, “cascadilla” being Spanish for “little cascades.” After MacKoon left Cornell, Wait in 1890 launched the Cascadilla School as a full-fledged all-boys prep school.

Wait died on 6 Sep 1913 in Clifton Springs, Ontario County, New York. In Ithaca, Wait Avenue which forms a crescent of Thurston Avenue, is name after him.

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