

Chronology: Women and Mathematics

In the United Kingdom

- 1835 - Caroline Herschel and Mary Somerville were the first women to be elected to the Royal Astronomical Society [RW, 242].
- 1846 - Queen's College, the first English college for women, was founded. It was incorporated in 1853. [H, 153].
- 1849 - Bedford College for women founded in London; received a charter in 1869. [H, 153]
- 1853 - Cheltenham Ladies College founded [H, 143]
- 1859 - Elizabeth Blackwell, an Englishwoman who had qualified as a doctor in the U.S., was entered on the British Medical Register [RW, 221].
- c.1860 - Jessie Boucherette established a school to give "a solid English education to young girls and teach older women to write a letter grammatically, to calculate rapidly without a slate, and to keep accounts by single and double-entry" [AZ, 185].
- 1868 - Edinburgh University opened its courses in pharmacy to women. [H, 143]
- Sophie Jex-Blake applied to enter medical school at Edinburgh University, but many difficulties were placed in the path of the small group of women medical students of which she was the leader [RW, 231].
- 1869 - Girton College (for women) founded at Cambridge University. [H, 143]
- 1870 - Elizabeth Garrett Anderson became the first woman to qualify as an M.D. in the U.K., but she took her medical exams in Paris [RW, 218].
- 1871 - Newnham College (for women) founded at Cambridge University. [H, 143]
(As of 2000, it has not become coeducational.)
- 1874 - Jex-Blake and her group graduated in medicine at Edinburgh [RW, 231].
- 1876 - Educated at home, Charlotte Angas Scott won a scholarship to Girton College [K, 98]
- 1877 - Jex-Blake's name finally appeared on the British Medical Register after she had qualified as a doctor in Berne and in Dublin [RW, 231].
- 1879 - Somerville College (for women) was founded at Oxford, named after Mary Somerville [RW, 242].
- 1880 - Scott competed in the final examinations at Cambridge University, the Tripos exams. Although she came in 8th, she was refused a degree because she was a woman [K, 102].
- 1882 - Scott received a bachelor of science degree from the University of London [K, 102].

- 1885 - Scott received a doctorate from the University of London, becoming the first Englishwoman to receive a doctorate in mathematics [K, 102; C].
- 1895 - First doctorate in Germany granted to a foreign woman: at Göttingen in mathematics to Grace Chisholm Young from England, supervised by Klein [R, 41]
- In that year, there were 264 women doctors in U.K. [H, 143]
- 1914 - As of this date, Oxford and Cambridge did not allow examinations and degrees to women (but eight other British universities did). [H, 143]
- 1948 - Cambridge University finally awarded a degree to a woman [C].
- 1977 - Girton College finally became coeducational [G].

In the United States

- 1749 - First women's school in the U.S. opened by the Moravians at Bethlehem, PA. [H, 169]
- 1789 - A public school system established in Boston; girls can attend from April to October, but only primary school [H, 169]
- 1819 - First instance of government aid for women's education (in New York), to the school of Mrs. Emma Willard.
- 1825 - Women first allowed to attend secondary school in the Boston Public school system
- First girl's school in which higher mathematics was taught
- 1829 - First public examination of a girl in geometry (at Willard's school) led to a storm of ridicule and indignation, with clergy saying it would destroy the family [H, 170]
- 1833 - Oberlin College, a coeducational institution, founded
- 1836 - First school for women to approach the university level, Mt. Holyoke College in Massachusetts [H, 170]
- 1847 - Maria Mitchell won gold medal from the King of Denmark for calculating the position of a new comet and observing it [R, 12]. She was the first woman astronomer in the U.S. [H, 421]
- 1849 - The Englishwoman Elizabeth Blackwell was awarded a medical degree at Geneva, New York, and became the first woman in the U.S. to qualify as a doctor. She returned to England in 1858 and was entered on the British medical register in 1859 [RW, 221].
- c. 1850 - Mitchell became the first woman member of the American Academy of Arts and

- Sciences and of the American Association for the Advancement of Science [R, 12].
- 1865 - Vassar College, a coeducational institution, opened at Poughkeepsie, NY [R, 9].
 - Mitchell, the best known woman scientist in the 19th-century U.S., appointed to a professorship of astronomy at Vassar [R, 13].
 - Susan Cunningham studied with Mitchell for a year at Vassar. Then for several summers Cunningham took special courses in astronomy and mathematics at Harvard, Princeton, Newnham, and Williams College [W].
- 1869 - The American mathematician and logician Christine Ladd-Franklin graduated from Vassar as a student of Mitchell [R, 12].
 - Founding of Swarthmore College (for women) [W]
 - Cunningham became an instructor at Swarthmore and helped organize the astronomy and mathematics departments [W].
- 1871 - Founding of Smith College (for women) [R, 10].
- 1875 - Founding of Wellesley College (for women) [R, 10].
- 1879 - Women lawyers allowed to plead a case before the U.S. Supreme Court [H, 171]
- c.1880 - Thanks to the British mathematician J. J. Sylvester, Ladd-Franklin was able to attend his graduate courses in mathematics at Johns Hopkins University [L].
- 1882 - Johns Hopkins University refused to give Ladd-Franklin a doctorate for work done there, since she was a woman [R, 10].
- 1885 - Founding of Bryn Mawr College (for women) [R, 10].
- c.1885 - Scott became an instructor in mathematics at Bryn Mawr [C].
- 1887 - Ladd-Franklin received an honorary LL.D. from Vassar College. She taught for five years at Johns Hopkins University and for 15 years at Columbia University [when?] [L].
- 1889 - Barnard College founded, by Columbia University, as its college for women [R, 10].
- 1890 - First fellowship of the Association of Collegiate Alumnae (U.S.) to help a woman undertake graduate study abroad [R, 38–39]
 - Ruth Gentry, an American, was the first woman permitted by the University of Berlin to attend lectures, but she was not permitted to get a degree [R, 40]
- 1891 - Cunningham was elected a member of the New York Mathematical Society (which soon became the American Mathematical Society), one of the first six women to join this organization [W].
- 1892 - Ladd-Franklin wanted to attend Klein's courses at Göttingen, and Klein agreed, but the German courts would only permit her to be an auditor, not to be enrolled [R, 40]

- 1895 - First doctorate in Germany to a foreign woman (who was an American):
at Göttingen in physics to Margaret Maltby, supervised by Waldemar Voigt [R, 41]
- At Harvard, Mary Whiton passed all her examinations brilliantly but was
denied her doctorate [R, 44].
- 1896 - The mathematician Mary Winston Newson became the second American (and
the third foreigner) to receive a doctorate at Göttingen [R, 41]. This was the first
doctorate received in mathematics by an American at Göttingen.
-After leaving Strasbourg, where the university refused to grant her a degree,
the American Ida Hyde received a doctorate at the University of Heidelberg [R, 42].
- 1898 - At Harvard, Ethel Puffer Howes passed all her examinations with high honours,
but the university refused to grant her a degree [R, 44]
- 1899 - Scott became coeditor of the *American Journal of Mathematics*, a position which she
retained until 1926 [C].
- 1900 - There were 7399 women doctors and surgeons, as well as 808 women dentists,
in the U.S. [H, 171]
- 1902 - Harvard created Radcliffe graduate school (for women only) as a way of granting
doctorates to women [R, 44].
- 1905 - Scott became Vice President of the American Mathematical Society [K, 105].
- 1920 - By this date, there have been 41 baccalaureate degrees (B.S.) given in mathematics
to American women, more than in chemistry or physics, but less than in botany,
zoology, or psychology [R, 11].
- 1926 - Ladd-Franklin was finally awarded a doctorate by Johns Hopkins University,
44 years after completing her dissertation [L].
- 1963 - Harvard finally granted doctorates to women.

In Canada

- 1903 - Miss M. E. G. Waddell graduated in mathematics from the University of Toronto
[RO, 32].
- 1905 - After spending two years at Bryn Mawr, Waddell returned to the Dept. of
Mathematics at the University of Toronto to tutor and teach [RO, 32].
- 1923 - Waddell appointed an instructor in mathematics at the University of Toronto
[RO, 32].

- 1924 - Cecilia Krieger, from Poland, graduated in mathematics from the University of Toronto [RO, 32].
 - Waddell was the only Canadian woman at the International Congress of Mathematicians held in Toronto that year [RO, 32].
- 1925 - Krieger received her M.A. in mathematics at the University of Toronto [RO, 32].
- 1930 - Krieger received her doctorate in mathematics at the University of Toronto. She was Canada's third Ph.D. in mathematics—the first was Samuel Beatty at the same university in 1915 [RO, 32, 34].

In Europe

- 1754 - Dorothee Leporin of Germany was granted the degree of Doctor of Medicine by the University of Halle, thanks to the personal intervention of King Frederick II of Prussia [RW, 233].
- 1848 - The Revolution of 1848 led to a short-lived women's college in Hamburg [AZ, 186].
- 1868 - Sonya Krukovskaya married Vladimir Kovalevskii in a fictitious marriage so that she could study outside Russia (Russian women could study abroad only if married and accompanied by their husbands). Henceforth she was Sonya Kovalevskaya [C, 12].
- 1869 - After strenuous efforts, Sonya succeeded in persuading the University of Heidelberg that she could attend classes with the permission of the professors. She (and later her friend Julia Lermontova) studied physics with Professors Bunsen, Helmholtz, and Kirchhoff. Sonya studied mathematics with Professors Paul du Bois-Reymond and Leo Koenigsberger [C, 13].
- 1870 - Sonya goes to Berlin, where she met Karl Weierstrass. He was forbidden by university rules to allow her to attend his lectures, and so he gave her a list of problems to solve as a sort of entrance exam. Her solutions were so impressive that he began to give her private lessons two a week. By 1874 she wrote under his direction three dissertations, which he believed to deserve the doctoral degree [C, 13–20].
- 1872 - The first high school for girls in Prussia was established, in Berlin.
- 1874 - Through the efforts of Weierstrass, Sonya is awarded the degree of doctor of philosophy in mathematics at the University of Göttingen. Thanks to Weierstrass, she did not have to undergo the usual oral examination [C, 21]. She was the first woman in the world (outside of Renaissance Italy) to attain this degree in mathematics. [KB, 122–123]

- c.1875 - By this time, most European nations were providing some free primary education to girls as well as boys [AZ, 185].
- 1879 - Public secondary schools established for girls in France, where women's education had previously been in the hands of nuns [AZ, 186].
- 1883 - Thanks to the efforts of Weierstrass and Gösta Mittag-Leffler, Sonya became a professor of mathematics at the new Stockholm University in Sweden. [KB, 176]
- 1888 - The teacher Helene Lange founded the General Association of German Women Teachers [AZ, 187].
- 1889 - Lange established college preparatory courses for girls at her school in Berlin [AZ, 187].
- 1891 - The Prussian minister of education ruled that girls' secondary schools must continue to be controlled by men [AZ, 187].
- 1893 - Lange changed the courses at her school to the exact equivalent of those taught boys [AZ, 187].
The German state of Baden established the first state academic high school for girls [AZ, 187].
- 1895 - First doctorates in Germany granted to foreign women (none yet granted to German women): at Göttingen in mathematics to Grace Chisholm Young from England, supervised by Klein, and in physics to Margaret Maltby, supervised by Waldemar Voigt [R, 41]
- 1896 - The girls at Lange's school were passing the examinations in Greek needed to gain admission to German universities in that era [AZ, 187].

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[W] <http://www.agnesscott.edu/lriddle/women/cunning.htm>