

1. Vera Rubin - July 23, 1928 – December 25, 2016

an American [astronomer](#) who pioneered work on [galaxy](#) rotation rates. Her data provided some of the first evidence for [dark matter](#).

She is the first woman to have a large observatory named after her: the [National Science Foundation Vera C. Rubin Observatory](#) (Rubin Observatory) in Chile.

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[Harry Plaskett](#)

Interviewed by: David DeVorkin

Interview date: Wednesday, 29 March 1978

Location: Plaskett's home, Blenheim Drive, Oxford, England

Discussion of astronomers of greatest significance in recent history. Personal recollections of his father's (John Plaskett) associates: Karl Schwarzschild, Edward A. Milne, Arthur S. Eddington, Ejnar Hertzsprung, Joseph N. Lockyer, Alfred Fowler, Meghnad N. Saha, Henry N. Russell, Frank Schlesinger, Jan H. Oort, Edwin Hubble, Albrecht Unsöld, Bengt Strömgren, Harlow Shapley, Walter Baade, George E. Hale, William H. Wright, Vesto M. Slipher. Also prominently mentioned are: Subrahmanyan Chandrasekhar, Paul Adrien Maurice Dirac, Theodore Dunham, Jr., Jacobus C. Kapteyn, Norman Lockyer, Edward Arthur Milne, Edward Charles Pickering, Henry A. Rowland; Harvard College Observatory, Lick Observatory, and University of London Imperial College.



[Helen Hogg](#)

Interviewed by: David DeVorkin

Interview date: Friday, 17 August 1979

Location: Montreal, Canada

Training at Mount Holyoke, 1926, and at Harvard College Observatory; work for Harlow Shapley on variable stars in globular clusters; move to the Dominion Astrophysical Observatory and then to David Dunlap Observatory in 1934 when husband changed positions; research activities at David Dunlap; continued contact with Shapley; David Dunlap Observatory during World War II; popular writing and organizational activities; program director for the Astronomy Program at National Science Foundation (NSF), 1955-1956; recollections of Harlow Shapley. Also prominently mentioned are: Annie Jump Cannon, John S. Plaskett, Jan Schildt, Robert Julius Trumpler; Harvard University, and Toronto Star.

Hogg Helen
B1

2. Emmy Noether

Amalie Emmy Noether^[a] (German: [ˈnøːtə]; 23 March 1882 – 14 April 1935) was a [German mathematician](#) who made many important contributions to [abstract algebra](#). She discovered [Noether's theorem](#), which is fundamental in [mathematical physics](#). She invariably used the name "Emmy Noether" in her life and publications. She was described by [Pavel Alexandrov](#), [Albert Einstein](#), [Jean Dieudonné](#), [Hermann Weyl](#) and [Norbert Wiener](#) as the most important [woman in the history of mathematics](#). As one of the leading mathematicians of her time, she developed some theories of [rings](#), [fields](#), and [algebras](#). In physics, **[Noether's theorem](#) explains the connection between [symmetry](#) and [conservation laws](#).**

Noether was born to a [Jewish family](#) in the [Franconian](#) town of [Erlangen](#); her father was the mathematician [Max Noether](#). She originally planned to teach French and English after passing the required examinations, but instead studied mathematics at the [University of Erlangen](#), where her father lectured. After completing her doctorate in 1907 under the supervision of [Paul Gordan](#), she worked at the Mathematical Institute of Erlangen without pay for seven years. At the time, women were largely excluded from academic positions. In 1915, she was invited by [David Hilbert](#) and [Felix Klein](#) to join the mathematics department at the [University of Göttingen](#), a world-renowned center of mathematical research. The philosophical faculty objected, however, and she spent four years lecturing under Hilbert's name. Her [habilitation](#) was approved in 1919, allowing her to obtain the rank of [Privatdozent](#).

Ref: for the brave...

Classical Mechanics The Theoretical Minimum (Theoretical Minimum 1) by George Hrabovsky, Leonard Susskind

3. **Augusta Ada King** – a computer language, ADA, was named after her in the 1980s. Still in use for software where reliability is paramount.

Augusta Ada King, Countess of Lovelace (*née* **Byron**; 10 December 1815 – 27 November 1852) was an English mathematician and writer, chiefly known for her work on **Charles Babbage's** proposed mechanical general-purpose **computer**, the **Analytical Engine**. She was the first to recognise that the machine had applications beyond pure calculation, and to have published the first **algorithm** intended to be carried out by such a machine. As a result, she is often regarded as one of the first computer **programmers**.



4. **Mary Somerville** (née **Fairfax**, formerly **Greig**; 26 December 1780 – 29 November 1872)

was a Scottish scientist, writer, and [polymath](#). She studied mathematics and astronomy, and was nominated to be jointly the first female member of the [Royal Astronomical Society](#) at the same time as [Caroline Herschel](#).

When [John Stuart Mill](#), the philosopher and economist, also author of *The Subjection of Women*, organised a massive petition to Parliament to give women the right to vote, he had Somerville put her signature first on the petition.

When she died in 1872, [The Morning Post](#) declared in her obituary that "Whatever difficulty we might experience in the middle of the nineteenth century in choosing a king of science, there could be no question whatever as to the queen of science".

[Somerville College](#), a college of the [University of Oxford](#), is named after her, reflecting the virtues of liberalism and academic success which the college wished to embody. She is featured on the front of the [Royal Bank of Scotland](#) polymer [£10 note](#) launched in 2017, alongside a quote from her work *The Connection of the Physical Sciences*.

In 1827 she was working on the translation of Pierre-Simon Laplace's book *The Mechanism of the Heavens* into English. Her writing was so clear that the book became a bestseller in Britain. She was the only woman, Laplace said, 'who could understand and correct his works'. Others called her the 'queen of science'. She would later publish a book called *Physical Geography* which bore many similarities to **Alexander Humboldt's** approach to science and the natural world.“

"The Mechanism of the Heavens" is quite well written, if technical, and can be had at this legal book download site:

https://books.google.com/advanced_book_search?hl=en



5. Alexander von Humboldt - a supporter of women?

“On 3 November 1827, less than six months after his arrival in Berlin, Alexander von Humboldt began a series of sixty-one lectures at the university he founded in 1812. These proved so popular that he added another sixteen at Berlin’s music hall – the Singakademie – from 6 December. For six months he delivered lectures several days a week. Hundreds of people attended each talk, which Humboldt presented without reading from his notes. It was lively, exhilarating and utterly new. By not charging any entry fee, Humboldt democratized science: his packed audiences ranged from the royal family to coachmen, from students to servants, from scholars to bricklayers – and half of those attending were women.”

“Berlin had never seen anything like it, his brother, Wilhelm von Humboldt said. As newspapers announced the lectures, people rushed to secure their seats. There were traffic jams on the days of the talks with policemen on horses trying to control the chaos. An hour before Humboldt took the podium, the auditorium was already crowded. The ‘jostle is frightful’, said Fanny Mendelssohn Bartholdy, the sister of the composer Felix Mendelssohn Bartholdy. But it was all worth it. Women, who were not permitted to study at universities or even to attend meetings of the scientific societies, were finally allowed to ‘listen to a clever word’. ‘The gentlemen might scoff as much as they like,’ she told a friend, but the experience was marvellous.”

ref: The Invention of Nature Alexander von Humboldts New World - Andrea Wulf