

Maria Mitchell's Legacy to Vassar College: Then and Now

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Abstract. Maria Mitchell became Vassar's first Astronomy Professor and Observatory Director in 1865. Her teaching emphasis on students learning by direct observation and analysis is continued today at Vassar College. Several of her students went on to prominence in astronomy, two of them succeeding her at Vassar. Astronomy majors today, both male and female, consistently achieve success after Vassar, in astronomy as well as in other fields. She encouraged her students to present their findings at scientific meetings and in scientific journals, also encouraged today as undergraduates co-author research papers with faculty members. She insisted on excellent facilities and built up the library collection, maintained today to a standard remarkable for a college of just under 2,500 undergraduate students.

1. Great Beginnings

Matthew Vassar was keen to have female teachers at Vassar College (Haight 1916). Maria Mitchell had achieved world fame with her 1847 telescopic discovery of a comet and was an excellent choice, becoming Vassar's first astronomy professor in 1865. In a eulogy at her funeral in 1889, Vassar College President Taylor concluded, "She has been an impressive figure in our time, and one whose influence lives." (Taylor 1889) Henry Albers, Vassar's fifth Observatory director (the first male!), referring to our fine facilities today, wrote, "In keeping with the legacy of Maria Mitchell, these facilities enable today's students to learn and apply the most modern astronomical techniques." (Albers 2001, 329) This presentation aims to confirm that the legacy has been self-perpetuating and lives on.

2. Maria Mitchell Chronology Highlights

Born in Nantucket in 1818, Maria Mitchell died in 1889, teaching at Vassar till December 1887. As early as age 12, she observed the sky with her father from their rooftop observatory, assisting him with his measurements. When 18 she became the librarian for the Nantucket Atheneum, selecting and cataloguing the books. She read many of the books and progressed in mathematics as a result. On October 1, 1847 she discovered the comet since referred to as Comet 1847 VI. It was independently observed by Frau Rumker, wife of the Director of the Hamburg Observatory. The Vatican Astronomer also observed it but Maria saw

it first! (Kendall 1896) This earned her a gold medal from the King of Denmark and brought her fame. She was the first woman to be elected a Fellow of the American Academy of Arts and Sciences, first of all as an ‘Honorary Member’ in 1848. Vassar College President Frances Fergusson was elected a Fellow in 2002. In 1862 Rufus Babcock, Vassar College Trustee, enthusiastically recommended that Vassar appoint her as professor of astronomy following a visit to her home in Massachusetts, citing her humility, domestic ability! and her competence in her small observatory. (I am thankful that no one investigated my domestic ability before I was offered my Vassar position.) In 1865, aged 47, she began 23 years at Vassar (Albers 2001).

3. After Maria Mitchell

Women attracted by the astronomy opportunities at Vassar continued to flourish. The next two Observatory directors, Mary Whitney and Caroline Furness, were Maria’s students. Antonia Maury, named by Maria Mitchell as one of her best three students ever, along with Mary Whitney and Christine Ladd Franklin, achieved fame in astronomy. She also fought hard to save endangered western sequoia forests threatened by World War II material needs (Hoffleit 1983).

Vera Cooper Rubin is still active today as a staff member at the Carnegie Institution of Washington since 1965. Born in Philadelphia in 1928, she observed the sky as early as age 12. She made a telescope from a cardboard tube at 14. Inspired by Maria Mitchell she attended Vassar from 1945-1948, choosing it because there women were encouraged to study astronomy. In 1950 her provocative theory on the motions of galaxies hit newspaper headlines. She was elected to the National Academy of Sciences in 1981. In 1983 her calculation that as much as 90% of the universe is “Dark Matter” caused further consternation but it is widely accepted now. She continues to make discoveries, many of which challenge earlier paradigms (Ambrose et al. 1997).

Vassar’s incumbent Maria Mitchell Professor of Astronomy is Debra Meloy Elmegreen. Given her first telescope in first grade, she hosted backyard star-gazing parties as a pre-teen in Virginia. At the Palomar Observatory she was the first female to ride in the Hale cage. One summer many years ago she probed nearby galaxies for signs of intelligence with Frank Drake and a then young Carl Sagan. Her work continues on the study of galaxies and offers research opportunities to Vassar undergraduates (Elmegreen 1998).

4. What About Men?

Vassar became coeducational in 1969, the first women’s college to do so, since when males have seized the opportunities it offers. Maria Mitchell supported coeducation in an 1888 letter (Mitchell 1888). Fred Chromey, Observatory Director since 1990, involves students in all aspects of astronomy from installing a new telescope to research in his projects. Astronomy majors, males and females, flourish after graduation in a broad spectrum of endeavors, some astronomy related, some not.

5. Maria Mitchell's Legacy

Maria left Vassar enriched in so many ways, some tangible, e.g., a thousand dollars in her will and a picture of Alexander Humboldt in his study (Albers 2001). The fruits of her energetic fund-raising for observatory equipment led to the Maria Mitchell Chair, endowed by her students. Vassar's first four Observatory Directors were female, two of them her students. Henry Albers, the first male Director, edited her journal entries and letters as a wonderful, richly illustrated book published in 2001. Maria tirelessly promoted excellence of women in science and maintained a database of women's scientific achievements (Keller 1974).

Her practice of careful observation coupled with rigorous mathematics continued with Antonia Maury and Vera Rubin and is emphasized still. Before and at Vassar Maria was active in library collection development. She wrote in an 1869 letter to President Raymond at Vassar College, "... it is suicidal to attempt to solve the problems of the universe, without a knowledge of the facts and reasoning which are on record." (Mitchell 1869) She encouraged students to publish their work — a *Scientific American* column then, papers in the *Astronomical Journal* and the *Astrophysical Journal* now, 15 papers co-authored by students in the last 10 years. She encouraged students to attend conferences and present their observations. Students today present findings at American Astronomical Society meetings.

Maria instigated Dome Parties to celebrate the academic year end. Original poetry was and is shared as established by Maria Mitchell. Last but not least, an oil can, possibly of sperm whale oil, was recently discovered in a closet in the Old Observatory. Labeled KEEP, perhaps in Maria's handwriting, it was kept!

6. Conclusion

Maria Mitchell's early achievements and resulting fame attracted bright young women to study astronomy at Vassar College. She encouraged them to observe firsthand, to avail themselves of existing technology, to excel, to present and publish their findings and to seek paid employment. Access to equipment was recognized as vital from the outset and continues today with the excellent facilities of the Class of '51 Observatory as well as using data obtained from the Hubble Space Telescope. Several Vassar students went on to achieve astronomical fame, notably Antonia Maury, class of 1887 and Vera Rubin, class of 1948. Maria Mitchell's legacy is that Vassar continues to be an excellent college for the study of astronomy — and much else besides!

As stated at the Vassar Astronomy web site:

"The way astronomy is taught at Vassar was shaped by Maria Mitchell, America's first woman astronomer and also the first director of the Vassar Observatory. She was famous for pushing her students to think for themselves, do their own research, come to their own conclusions. And she believed that students work best when they are part of a supportive scientific community."

Web Sites

- *Vassar College*
<http://www.vassar.edu>
- *Vassar College Library*
<http://library.vassar.edu>
- *Images of Early Vassar*
<http://libraryosxsvr.vassar.edu/earlyimages>
- *Astronomy at Vassar College*
<http://physicsandastronomy.vassar.edu/astronomy.shtml>
- *Vassar Observatory*
<http://physicsandastronomy.vassar.edu/observatory.shtml>
- *Discover Dialogue: Astronomer Vera Rubin*
http://www.discover.com/june_02/breakdialogue.html

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