

# Margaret Harwood and the Maria Mitchell Observatory

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**Abstract** The Maria Mitchell Observatory (MMO) and its first Director, Margaret Harwood, played an important role in encouraging women in astronomy.

## 1. Beginnings at Mt. Wilson Observatory

Mt. Wilson was the world's leading observatory from 1906 to 1949. During that period and beyond there was a strict prohibition against use of its facilities by women. The Director of the Observatory for much of the time was George Ellery Hale, who adhered strictly to established procedures. His health was intermittently precarious and in 1923 he took a leave of absence to recuperate. This circumstance allowed the one exception to the Mt. Wilson protocol: the acting director, Walter Adams, briefly relaxed the prohibition of women, to the benefit of Margaret Harwood (Figure 1).



Figure 1. Margaret Harwood 1886–1979. Director of Maria Mitchell Observatory 1912–1957.

Margaret Harwood spent most of her sabbatical, from August 1923 until June 1924, at Mt. Wilson. There she observed variable stars and asteroids, particularly Eros, a small asteroid with a close approach to Earth. She found, to the surprise of some astronomers, that its brightness varied (probably due to its rotation). During the last three months of her stay, she was granted the privilege of using the 60-inch telescope, formerly the largest in the world until supplanted by the 100-inch in 1916.

Harwood was friendly with Edwin Hubble, whose photo she took near the time of his discovery of Cepheid variables in the Andromeda Galaxy (Christianson 1995). Cepheids were key to supporting the argument that the spiral nebulae were galaxies far outside our Milky Way. Imagine an animated conversation between the two variable star astronomers, sharing the excitement of Hubble's discovery. Hubble and Harwood were partnered in one of two teams to observe the September

10, 1923, total solar eclipse. Their team, sent to Point Loma near San Diego, was frustrated to sit in their tents enjoying the rain. Miss Harwood had better luck with eclipses on Nantucket.

Prior to her stay at Mt. Wilson, Harwood had spent the spring of 1923 at the Harvard station at Arequipa, Peru. There, she studied the southern skies at altitude with the snow-capped volcano El Misti (19,000 feet) as a background. Her widely published photograph of the southern Milky Way was taken with a telescope of one inch in aperture.

## 2. Assistants at Maria Mitchell Observatory 1914–1956

Maria Mitchell Observatory (MMO) is a small facility on the island of Nantucket, Massachusetts, but it has been highly effective in encouraging women to work in astronomy. The tradition began with the first American woman astronomer, Maria Mitchell. Many women astronomers were invited to participate as assistants under the tutelage of Margaret Harwood, Director of MMO from 1912 to 1957 (Table 1). The term of residence varied from a summer to a year or more. MMO became a haven for young women—including the AAVSO's future Director, Margaret Walton Mayall (Figure 2)—to learn astronomical techniques and use of the telescope. These skills would be utilized during their careers of observing, research, publication, and teaching. The pattern altered in 1937, when Miss Harwood encouraged young men local to Nantucket to be assistants. The author participated in 1953, 1954, and 1955.



Figure 2. Margaret Harwood, student assistant Margaret Walton, and Harlow Shapley, advertising an "Open Night" talk by Shapley at the Maria Mitchell Observatory in 1925.

Five of the MMO assistants later received the Annie Jump Cannon Award, at that time presented by the American Astronomical Society (AAS) only once every three years to a distinguished woman astronomer.

Following Margaret Harwood's retirement the tradition was strengthened by astronomer Dorrit Hoffleit when she became MMO Director; her outstanding program (2 to 6 interns each summer) resulted in many who went on to distinguished careers in astronomy.

## References

- Christianson, G. E. 1995, *Edwin Hubble: Mariner of the Nebulae*, Farrar, Straus, Giroux, New York.
- The Nantucket Maria Mitchell Association. Various issues, *Annual Report*, Nantucket Maria Mitchell Association, Nantucket, MA.

Table 1. Maria Mitchell Observatory assistants 1914–1956.

<i>Year</i>	<i>Name</i>	<i>Affiliation while at MMO</i>	<i>Notes</i>
1914	Susan Raymond	Harvard	
1918	Mary H. Vann	Harvard	
1919	Dorothy W. Block	Harvard	
1919	Mary D. Applegate	Vassar	
1920	Antonia C. Maury	Harvard	1, 4
1922	A. Grace Cook	England	
1924	Adelaide Ames	Vassar	
1924	Cecelia Payne	Harvard	2, 4
1925	Margaret L. Walton	Swarthmore	3, 4
1926	Margaret L. Walton	Swarthmore	3, 4
1929	Helen B. Sawyer	Mt. Holyoke	4
1930	Frances W. Wright	Harvard	
1931	Marjorie Williams	Smith	
1935	Helen W. Dodson	Wellesley	4
1937	Edgar Sanborn, Jr.	—	
1938	John H. Heath	—	
1943	Helen Wright	Vassar	
1948	Nan Reier	Goucher	
1949	Jocelyn Gill	Wellesley	
1950	Jocelyn Gill	Wellesley	
1951	Jocelyn Gill	Wellesley	
1953	James W. Hanner	—	
1954	James W. Hanner	—	
1955	James W. Hanner	—	
1956	John Turtle	—	

*Notes:* 1. Student of Maria Mitchell; 2. Otto Struve, Director of Yerkes Observatory and McDonald Observatory, AAS President (1946–1949) and IAU President (1952–1955), declared Payne's doctoral dissertation to be "undoubtedly the most brilliant Ph.D. thesis ever written in astronomy"; 3. Recorder, then Director of the American Association of Variable Star Observers (AAVSO) (1949–1973); 4. Recipient of Annie J. Cannon Award, American Astronomical Society (AAS).