

SKYWATCH: Women in astronomy: A look forward and a look back

Let's be honest: Astronomy, like most science and technology fields, has long been dominated by men. That was the case back in Galileo's day, and it largely remains the case today.

Slowly but surely, though, astronomy is becoming less male-dominated. Studies show that more than one-third of professional astronomers in the younger age cohort are women, and women could achieve parity with men in astronomy in a few decades if present trends continue.

The Popular Astronomy Club has done its part to encourage women in astronomy by inviting some female professionals in the field — including some Quad-City natives — to give presentations to the club.

The Quad-Citians who've made presentations to PAC include Tiffany Fields, a telescope operator at the Burke-Gaffney Observatory in Nova Scotia who spoke at the 2019 North Central Region Astronomical League conference in Moline, and Lisa Wells, a remote observer at the Canada-France-Hawaii Telescope on Mauna Kea in Hawaii.

Later this year, PAC has scheduled an appearance by Katie Melbourne, a Bettendorf native who earned a degree in astrophysics from Yale University in 2019 — made possible, in part, by a PAC-sponsored scholarship — and who is currently pursuing a doctorate at the University of Colorado and working with the James Webb Space Telescope team at Ball Aerospace in Colorado.

PAC's schedule for 2021 also includes a presentation by Russet McMillian, an astronomy professor at New Mexico State University and operations manager at the Apache Point Observatory in New Mexico. Our 2020 list of presenters included Adeene Denton, a planetary scientist at Purdue University who hopes to become an astronaut someday.

March is Women's History Month, which makes it a good time to both celebrate women who are breaking barriers today and hoping to do so tomorrow, and to look back at the trailblazers who overcame more daunting barriers in the past.

One woman from the past who's rightly earned acclaim for her contributions to astronomy is Maria Mitchell, born in 1818 on the island of Nantucket off the coast of Massachusetts.

Nantucket in the 19th century was a major fishing and whaling port. Men from the island often went on ocean voyages that lasted months, even years (sadly, some never returned). This meant that the women of Nantucket, by necessity, had to learn to stand on their own two feet without male assistance.

Besides being surrounded by independent women, Maria was also the daughter of William Mitchell, a schoolteacher and avid amateur astronomer. The Mitchell family, which grew to 10 children, practiced the Quaker faith, which places a high value on education and, even back then, believed in educating boys and girls on an equal basis.

Maria Mitchell showed an interest in astronomy at a young age, and her father encouraged this interest by showing her how to use a telescope and other astronomical instruments. That ability paid off on October 1, 1847, when Mitchell went to a rooftop observatory built by her father, peered through the telescope and found an object she later confirmed to be a comet.

The comet became known as “Miss Mitchell’s Comet” and vaulted its discoverer to instant fame. She was awarded a gold medal by the king of Denmark for using a telescope to find a comet, and is generally credited as being the first American to discover a comet and only the second woman to do so. In 1848, Mitchell became the first woman elected to the American Academy of Arts and Sciences.

Famous Americans such as Ralph Waldo Emerson, Herman Melville and Frederick Douglass visited Mitchell in Nantucket, where she worked for the U.S. Coast Survey tracking the movement of planets in order to use their positions to aid sailors in navigation.

Though she lacked a college degree, Mitchell was hired by Vassar College in Poughkeepsie, New York, as a professor of astronomy, and is believed to be the first American woman to hold that position. Mitchell was also named director of the Vassar Observatory, where she and her students did pioneering work in astrophotography.

Under Mitchell’s direction, the Vassar Observatory became the first to take daily photographs of the sun. These images helped prove that sunspots were cavities on the sun’s surface, rather than clouds floating above it. Vassar became a center of astronomical research and trained many students who went on to advance the study of astronomy and mathematics.

Mitchell retired from Vassar in 1888 and died a year later. She became the namesake of a World War II liberty ship, a crater on the moon and a commuter rail line that runs to Poughkeepsie. Her legacy is preserved at the Maria Mitchell Natural History Museum in Nantucket.

Maria Mitchell’s story shows that encouraging and nurturing a girl’s interest in astronomy can yield great results. Let’s hope there are more young women out there who will follow in the footsteps of Maria Mitchell and the female astronomers of today, and take science to a new level.

Paul Levesque is a member of the Popular Astronomy Club.

Women and men, girls and boys — anyone and everyone is welcome to join in the activities of the Popular Astronomy Club and become PAC members. More information is available at PAC’s website, at <https://www.popularastronomyclub.org>, or by searching for PAC on Facebook.