# HIDDEN NATIVE FIGURES

## MEET THREE SCIENTISTS WHO BLAZED THE TRAIL FOR TODAY'S WOMEN IN STEM

**BY DEBRA UTACIA KROL**

The 2016 film *Hidden Figures* depicts three female African-American mathematicians whose work supported the success of the space program. Despite their substantive contributions, these women remained hidden behind the scenes because of prejudice against people of color in the mid-20th century.

Native America has also had its share of female scientists whose work has made the world a better place, but who are largely unknown. Here's the story of three of those indigenous "hidden figures."

## ISABELLA AIONA ABBOTT
### BECOMING THE "FIRST LADY OF LIMU"

The first Native Hawai'ian woman to earn a PhD in science, Isabella Aiona Abbott was one of the world's foremost authorities on limu, or the more than 70 edible varieties of seaweed. Her work won Abbott the accolade "First Lady of Limu." Also considered the foremost expert on central-Pacific algae, Abbott navigated an ocean of "firsts" for indigenous people through her 90 years (1919–2010).

Isabella Kauakea Yau Yung Aiona was born in Hana, Maui, where she spent hours during her childhood gathering seaweed for use in traditional Hawai'ian foods. She learned their uses — and fluent Hawai'ian — from her mother. After graduating from Kamehameha Schools in 1937, Abbott earned a bachelor's degree in botany from the University of Hawai'i in 1941 and a master's degree from the University of Michigan in 1942. She married zoologist Don Abbott, then obtained her PhD in algal taxonomy from the University of California, Berkeley, in 1950.

At that time academic jobs for female PhDs of any ethnicity were rare, so Abbott followed her husband to Stanford's Hopkins Marine Station in Pacific Grove, Calif. There she spent 10 years raising their daughter, Annie, and refining her seaweed culinary skills. (She also wrote a book about how to cook seaweed.) Finally, in 1960, she began work as a lecturer at Hopkins, and her keen scientific mind had a chance to shine. Celia Smith, professor of botany at the University of Hawai'i at Manoa, noted that Abbott became "without doubt, the preeminent marine botanist."

Abbott became the first female full professor in Stanford's biology department, as well as the first minority full professor, in 1972, bypassing the normal tenure track due to her exceptional record. In 1976, she wrote *Marine Algae of California*, which Dave Epel, professor emeritus of biology at Stanford, characterized as "the definitive description of marine algae along the Pacific coast." Altogether, Abbott penned eight books and more than 150 articles.

In 1982, the couple retired to Hawai'i, where Abbott joined the University of Hawai'i at Manoa and taught Hawai'ian ethnobotany. Thanks to her work, the university created a bachelor's degree in this subject.

The National Academy of Sciences honored Abbott with its highest award in marine botany, the Gilbert Morgan Smith Medal, in 1997. Abbott was named a Living Treasure of Hawaii, and she was given the opportunity to name a National Oceanographic and Atmospheric Administration research ship, the *Hi'ialakai*. Abbott continued working at UH Manoa until her death in October 2010.

In a video shot just before she died, Abbott described her Native perspective through the window of her book, *La'au Hawai'i: Traditional Hawaiian Uses of Plants*. "I look upon it as a Western scientist's viewpoint of the Hawai'ian way of doing things," she said. "Why is this necessary? So that Hawai'ians are not put in second- or third-class status of Native people who don't know anything. Hawai'ian culture is unbelievably sophisticated."

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# MARY GOLDA ROSS
## MARKING "FIRSTS" IN AEROSPACE

MARY GOLDA ROSS: *AD ASTRA PER ASTRA*. AMERICA MEREDITH (CHEROKEE NATION). 2011. ACRYLIC ON CANVAS. 30 X 40 IN. COLLECTION OF THE SMITHSONIAN. NATIONAL MUSEUM OF THE AMERICAN INDIAN. IMAGE COURTESY OF THE ARTIST.

Mary Golda Ross could have starred in her own motion picture about rocket scientists of color. Ross, Cherokee, is best known for her work as one of the country's original rocket scientists, but her role was so well hidden that in 1958 she easily stumped the celebrity panelists on the popular TV game show *What's My Line?*

Ross was born in 1908, just one year after her native Oklahoma became a state. She obtained a bachelor's degree in 1928 from Northeastern State Teachers College in Tahlequah, which had been founded by her great-great-grandfather Chief John Ross. She taught math and science for nine years in public schools, then went on to earn a master's in math from Colorado State College of Education.

But in 1942 destiny — and a new career — took Ross farther west, to Lockheed Aircraft Corporation. She initially did research for the P-38 fighter plane, after which Lockheed sent her for advanced aeronautical engineering training and made her the company's first woman engineer.

Ross was part of a team of 40 engineers that founded the Lockheed "Skunk Works," a secret think tank that developed ballistic missiles, satellites, and the first successfully launched rocket, the Agena. She was the only woman — and the only Native — in the Skunk Works, which is still in existence. "Often at night there were four of us working until 11 p.m.," Ross recalled in a 1994 interview with the San Jose *Mercury News*. "I was the pencil pusher, doing a lot of research. My state-of-the-art tools were a slide rule and a Frieden computer."

Because Lockheed was a major NASA contractor, Ross's work contributed to the U.S. space program. Ross was one of the authors of NASA's *Planetary Flight Handbook Vol. 3*, which laid the groundwork for the next four decades of space travel, including the Apollo missions. After becoming the firm's senior advanced systems staff engineer, Ross contributed to the development of the Poseidon and Trident missiles.

"The best thing about being a research engineer was that you were discovering new things every day," Ross told writer Laurel M. Sheppard during a 2002 interview for *Native Peoples* magazine. "I was working on designing vehicles that had never been dreamed of before — I felt immense satisfaction in this."

Ross also became involved in AISES, and in 1984 was given a lifetime membership. In 1985, she was named winner of the Ely S. Parker Award, the organization's highest honor. Later that year, she received the Eagle Feather award from the Council of Energy Resource Tribes, which then renamed the award for her. She was also a member — and later a fellow — of the Society of Women Engineers.

In 2004, Ross marked another milestone: wearing her first-ever traditional Cherokee dress. She asked her niece to make it so she could participate in the processional marking the opening of the

Smithsonian's National Museum of the American Indian.

Her death in April 2008 at age 99 was commemorated by the Cherokee Nation, and she remains an inspirational figure both for individuals and for the tribe's education initiatives. "When America won the space race in the 1960s, Mary Golda Ross played a critical engineering role for NASA. She was a supremely talented woman who committed herself to science and the pursuit of something monumental. She is a role model for our Cherokee Nation tribal citizens, especially young girls because they can see anything is achievable through hard work and education," says Cherokee Nation Secretary of State Chuck Hoskin Jr. "In the spirit of her success and pioneering effort, we have embraced opening more doors in STEM education opportunities. We are ready for more Cherokee women to be involved in science and math and pursue new frontiers in technology."

# BERTHA PARKER PALLAN CODY
## TAKING A SCIENTIFIC APPROACH TO THE ANCESTRAL RECORD

Long considered the first female Native American archaeologist, Bertha Parker Pallan Cody led an intriguing life. She was born in 1907 to Seneca folklorist, archaeologist, musicologist, and historian Arthur Parker and Abenaki actress Beulah Tahamont. She was also the great niece of Ely S. Parker, engineer, attorney, and the first Native American commissioner of Indian affairs (and inspiration for the highest AISES award).

After Cody's parents divorced, Bertha moved with her mother and her mother's parents, also actors, to Los Angeles, the new motion picture capital. Cody worked in show business for a time, but gave up the show biz life when her uncle by marriage, archeologist Mark Raymond Harrington, hired her as a secretary and cook on his digs.

Cody learned the science on the job, in the field. She was involved in some of the 20th century's significant discoveries, including working at a site promoted as having the earliest evidence of Native peoples on the continent. At Gypsum Cave in Nevada in 1930, she was the one who found the skull of an extinct giant ground sloth next to ancient human tools. Cody also excavated ancestral Pueblo sites, including Scorpion Hill, and published her findings based on her careful documentation and photography.

By that time, Harrington was director of the Southwest Museum, and many of the pieces Cody found were put on display. Cody published several papers while working at the Southwest from 1931 to 1941 as an archaeology assistant, and later as an archaeologist and ethnographer. Cody's studies ranged from Yurok lore to California baby baskets and Southwestern art. Dr. Margaret Bruchac, Abenaki, wrote in 2005 that Cody was "conscientious about recording the names of the

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Native people she interviewed, going so far as to give them credit as authors and co-authors." That practice was unusual among investigators of the time.

After leaving the Southwest Museum in 1941, Cody returned to show business as a technical advisor on projects depicting Native Americans. In the 1950s, Cody and her third husband, Italian actor Espera Oscar de Corti, "Iron Eyes Cody," also hosted a television program about Native history and folklore.

Still, most of the accomplishments and many records of this remarkable self-taught scientist remain hidden. Accounts typically name her as wife, daughter, or niece, making little if any mention of her own achievements. After Cody passed away in 1978, even her tombstone was inscribed simply "Mrs. Iron Eyes Cody." ■