ASTRONOMY BEAT

Celebrating Diversity: The ASP's Arthur B.C. Walker II Award

Linda Shore (*Astronomical Society of the Pacific*)

Introduction

I was finishing my master's degree on January 28, 1986, helping undergraduate students register for spring semester astronomy courses, when I got the news that the Space Shuttle Challenger had tragically exploded after launch. Among with its crew of 7 astronauts and payload specialists, Challenger carried Christa McAuliffe, a high school science teacher from New Hampshire selected as the first civilian in space and the first person selected for NASA's "Teacher In Space" program. McAuliffe was to have been a space ambassador to science students across the nation who looked forward to following her adventures. I had decided to pursue a career in science education and was eager to see how her stories would influence a new generation of scientists and space explorers — and especially to what extent her experiences would positively impact girls who needed to see more examples of successful women in astronomy.

Just a few months later, I found myself glued to television reports on the progress of the commission appointed by President Ronald Reagan to investigate the Challenger accident. President Reagan called upon 13 of the greatest minds in science, space exploration, and aerospace engineering to listen to testimony, review documents, and determine the cause of the accident. The commission's members included Richard Feynman, Sally Ride, Neil Armstrong, and renowned solar scientist Arthur Bertram Cuthbert Walker II. I remember feeling enormous pride watching Sally Ride examine evidence and listen to testimony. Here was an example of a successful female astronomer and astronaut — a role model for me during an era when there were few women in my field. But just as remarkable was the presence of Arthur B.C. Walker II on the commission, a man of Haitian descent. It filled me with pride to watch this diverse commission take up what many described as the most important committee in the history of US space flight.

Arthur B.C. Walker II *[Photograph courtesy of Victoria Walker]*

This year, the ASP established the Arthur B.C. Walker II Award recognizing significant contributions made by an African American* to astronomy and who has worked to increase diversity and inclusion in science. Our first recipient is celebrated NASA mathematician, Katherine Johnson, who calculated the orbits of virtually all the early NASA missions into space and to the Moon. For her achievements,

*or of the African diaspora

she received the Presidential Medal of Freedom from Barack Obama in 2015. Two distinguished ASP Board members, Dr. Gibor Basri and Schyleen Qualls spearheaded the Arthur B.C. Walker II Award. In this issue of *Astronomy Beat*, we describe the life and achievements of this incredible scientist and educator and we reflect on the importance of the ASP's new award.

The Life of Arthur B.C. Walker II

Arthur Walker was born in Cleveland, Ohio, in 1936 and moved to New York when he was five years old. The young Arthur was very interested in science and idolized Albert Einstein, as many did at that time. Arthur attended Bronx High School of Science but despite his abilities and enormous love of science, his teachers discouraged him. Urged on by his mother and inspired by the story of his role model, Benjamin Banneker (1731–1806), the first African-American man of science in the United States. Arthur persevered. He earned a bachelor's degree in physics with honors from Case Western Institute of Technology in 1957 and then completed his master's degree (1958) and PhD degree (1962) in astrophysics from the University of Illinois.

Walker joined the U.S. Air Force immediately after receiving his doctorate, worked at the Air Force Weapons Laboratory, and developed instruments for a satellite designed to study the Earth's Van Allen Belts. After completing his military service, he joined the Space Physics laboratory of the Aerospace Corporation, where he served as the Director of Space Astronomy program from 1971 to 1973 and investigated the Sun's atmosphere in x-ray and ultraviolet wavelengths using instruments launched by rockets.

Arthur Walker joined Stanford University as a professor in the department of Applied Physics in 1974. His research interest was in developing novel techniques for improving astronomical observations, especially in x-ray wavelengths. With the assistance of graduate and undergraduate students at Stanford University, Walker constructed, launched, and carried out x-ray observations of the Sun's corona in successive rocket launched experiments. The result of the first mission adorned the cover of the September 1988 issue of *Science* magazine. In 1991, Walker's group launched an instrument with 14 telescopes; in 1994 another rocket was launched with 19 telescopes, each tuned to a different narrow x-ray band. Walker's innovations were later adopted for use on board the SOHO, TRACE and Chandra X-ray Observatory.

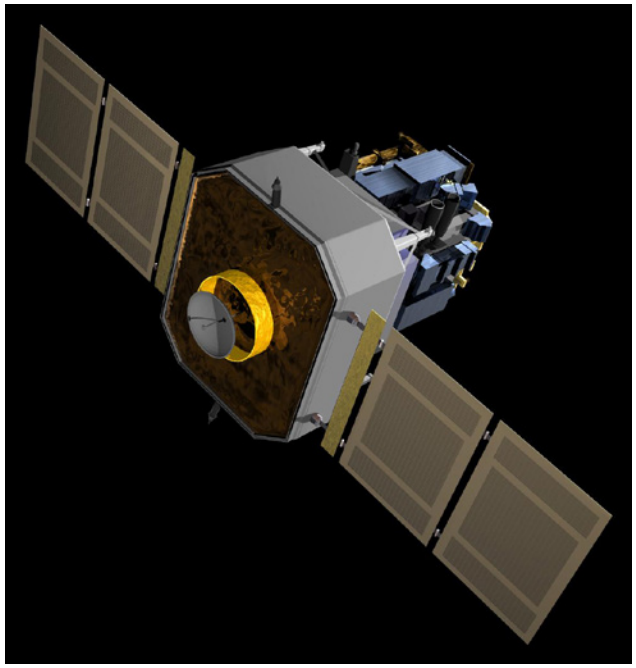
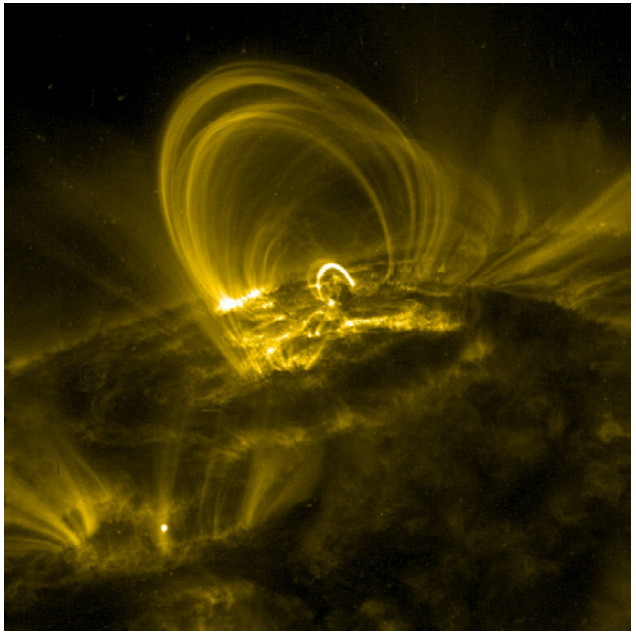


Illustration of SOHO *[Alex Lutkus]*

Arthur Walker made a lasting contribution to academic life at Stanford University where he mentored and positioned himself as a role model for his thirteen graduate students, a majority of them women and African Americans. One of his students was Sally Ride, America's first female astronaut. Walker's tenacious, long-term efforts to make Stanford's physics department more diverse and inclusive resulted in the department having more minority graduate physics and applied physics students than any other major research university in the nation. His dedication to inclusion extended far beyond the fields of physics and astronomy. He was a leader of the African-American community at Stanford and served as the informal

leader of the black faculty association, which he named "The Banneker Group." He also was an important role model for many of the young African-American assistant professors at Stanford, including Condoleezza Rice.



Example of solar coronal loops observed by the Transition Region And Coronal Explorer (TRACE). *[NASA]*

Dr. Walker served on a number of NASA, National Science Foundation (NSF), and National Academy of Sciences (NAS) committees, which prepared recommendations on national research policies and priorities, including 1980's Astronomy Decadal Survey Committee, the Space Studies Board of the NAS, and NASA's Astrophysics Council. He chaired the Advanced Solar Observatory Science Working Group for NASA, and the Astronomy Advisory Committee of the NSF. Through his final year he was a member of the Observatories Council of the AURA Board of Directors, and the Astronomy Subcommittee of the NSF Division of Mathematical and Physical Sciences.

NASA recognized his service record during a combined meeting of the National Conference for Black Students and the National Society of Black Physicists in 2001. Art's devotion to science and service encouraged and promoted African Americans to enter physics as a profession at all levels. Even in failing heath, Arthur was proud of the hundreds of underrepresented folks he had encouraged and mentored nationally, many of whom went on to distinguished positions at universities and research laboratories. Arthur B.C. Walker II passed away in 2001.

Reflections on the Establishment of the Arthur B. C. Walker II Award

ASP board member, Schyleen Qualls, talks about what inspired her to propose that ASP establish the Arthur B.C. Walker II Award.

"I came to know Art Walker and his wife Victoria because my husband and Art were friends and members of Sigma Pi Phi Fraternity, a national organization for professional African-American men. In the 1990s, I was touring the country with a one-woman show of poetry and prose and decided to write a series of astronomy-themed poems to include in my performances.

Art invited me to sit in on one of his astronomy courses at Stanford University for a semester. Not only was I inspired by his powerful lectures, but I also came to learn how beloved and respected he was at Stanford. As an example, in an October 2000 issue of the *Stanford Report* (the university newsletter), it said, 'Solar physicist Arthur Bertram Cuthbert Walker II has spent a lifetime bridging the space that separates humans from the Sun and from each other.'

Art passed away in 2001 and a decade later when I was invited to join the ASP Board of Directors, becoming the first person of color to serve on the board, I immediately began thinking how wonderful it would be to have an award named after Art. Not only because Art was world-renowned for his pioneering use of x-rays and thin films to study the Sun's outermost atmosphere, but also because he was

one of the most exemplary human beings I've ever met.

I felt that in a world so in need of role models to inspire young people to pursue careers in astronomy, there could not be a finer example than Art Walker, who dedicated so much of his professional life to mentoring students of color. Just as learning about the African-American astronomer Benjamin Banneker greatly inspired Art, I believe that Art Walker's tremendous legacy can also inspire gifted young people to follow in his footsteps."

ASP board member, Gibor Basri also reflected on his memories of Art Walker.

"I only met Prof. Walker once in person. I went down to Stanford to see him. I had been an undergrad at Stanford and graduated a year before he arrived. I also studied magnetic activity on the Sun, so I went to talk to him about the multi-wavelength coronal observations he was doing. In fact, my first major paper in astrophysics (1976) had also been on ultraviolet observations of the solar chromosphere taken by a rocket.

But I was also interested in talking to Prof. Walker about efforts in STEM diversity. We spent about an hour together, and two of his graduate students (both of color) joined us for part of it. I was impressed by the number of graduate students of color he had mentored, but he was not pleased with the slow progress being made more generally in the field (something still true today). Although I had already been active in STEM diversity, he inspired me to up my game.

The lack of progress is the main reason for establishing the Arthur B.C. Walker II award. The STEM fields are a vibrant part of the economy today, and it is very important that all segments of the population participate in STEM careers. To illustrate, the entire University of California system — all 10 campuses — each have about one black professor in the physical sciences. I've been the only one at U.C. Berkeley for decades, and now that I have retired that number is zero. The lack of diversity deprives young people of important

Goals of the Arthur B.C. Walker II Award:

- To honor Arthur Bertram Cuthbert Walker II for his considerable accomplishments and contributions to the world of astronomy.
- To honor other outstanding astronomers of African descent.
- To elevate the profiles of exemplary astronomers of African descent within the global astronomical community, recognizing the critical importance of having diverse role models and mentors to inspire students and teachers around the world.
- To encourage and support the development of students, teachers and professionals of color in astronomy and STEM fields.
- To increase ASP's outreach and engagement with astronomers of color.
- To build, grow and sustain diversity and inclusion among ASP's global astronomical community.
- To set the stage for other initiatives and programs designed to support diverse and underserved communities.
- To support ASP's mission to use astronomy as a gateway to science.

The Award

The Award consists of a plaque presented at the ASP Awards Gala and $500 to the scientist receiving the award. The Award also includes an "Arthur B.C. Walker II Scholarship" which the awardee gives to a student of their choice who is a stellar example of what the Arthur B.C. Walker II Award represents. In addition, and perhaps even more important than the financial benefit, the prestigious scholarship from the ASP will help support the student's academic and career goals.

role models, discourages them from pursuing very rewarding STEM careers, and ultimately robs the sciences of a very large talent pool. As our country becomes "majority minority," it is completely unacceptable for the sciences to not be fully diversified. Prof. Walker pulled much more than his weight towards this goal."

About the Author

Dr. Linda Shore is the Executive Director of the Astronomical Society of the Pacific. Most recently, Shore served as Director of the Teacher Institute at San Francisco's renowned science museum, the Exploratorium. While there, she led a staff of scientists and educators, and created nationally recognized teaching programs. She was also responsible for fund development, grants program, and expanding institutional reach by forging collaborations with national and international museums and science centers. Shore has co-authored Exploratorium science and education books, and written articles about popular science and science education for the public. A native San Franciscan who has spent most of her life in the Bay Area, she holds a PhD in science education from Boston University, and a master's degree in physics and astronomy from San Francisco State University.

Resources for Further Information

- Katherine Johnson, inaugural recipient of the Arthur B.C. Walker II Award: https://www.astrosociety.org/society-news/katherine-johnson-to-receive-the-asps-new-arthur-b-c-walker-ii-award/
- "Solar Images to be made by unique X-ray telescope" (1998 interview of Arthur B.C. Walker II, PI for the Chromospheric/Corona Spectroheliograph telescope): https://science.nasa.gov/science-news/science-at-nasa/1998/ast02apr98_1/
- Rogers Commission Report on the Challenger Accident: http://history.nasa.gov/rogersrep/51lcover.htm
- This article is based on the obituary of Arthur B.C. Walker II, written by Vahé Petrosian, Stanford University, https://aas.org/obituaries/arthur-b-c-walker-1936-2001 ✦

Astronomy Beat

Number 150 • September 30, 2016

Publisher: Astronomical Society of the Pacific
Editor: Linda Shore
Designer: Leslie Proudfit

The Astronomical Society of the Pacific increases the understanding and appreciation of astronomy by engaging scientists, educators, enthusiasts, and the public to advance science and science literacy.

astrosociety.org

390 Ashton Avenue, San Francisco, CA 94112

2016 ASP Annual Awards Gala

Join us as we present the prestigious Catherine Wolfe Bruce Gold Medal for lifetime achievement in astronomy research.

Saturday, October 22, 2016
5:30–10:00 pm
The Embassy Suites Hotel • Burlingame, CA

Register for the Gala