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An Astronomical Accomplishment

When Apollo 11 astronauts Neil Armstrong and Buzz Aldrin planted the United States flag on the moon 50 years ago this month — July 20, 1969, to be exact — it was a team effort.

It also represented a major feat of engineering.

“The flag on the moon is a great illustration of the fact that in space, nothing is simple,” said Annie Platoff, a librarian at the UC Santa Barbara Library and a leading expert on the Apollo program’s placement of flags on the lunar surface. “For me, the flag on the moon is an excellent example of something that seems very, very simple, but once you really start thinking about it, you realize is very complex.”

The Lunar Flagpole

With virtually no atmosphere on the moon –– and, therefore, no wind –– flags that fly freely on Earth would hang like limp cloth in the lunar environment. So engineers had to rethink flagpole design entirely, according to Platoff. On an earthbound flagpole, the flag is attached at the hoist –– the vertical section closest to the pole –– at both the top and bottom of the flag. The pole might slide through a sleeve on the hoist side of the flag, or be attached by grommets or some other type of fastener. A lunar flag, however, is anchored to the pole only at the bottom. It is held in place mainly by a horizontal crossbar at the top.

“A lunar flagpole has three parts,” Platoff explained. “There are two vertical sections, and then the horizontal crossbar that’s hinged at the top of the upper

vertical section.” To deploy the flag, one astronaut used a sampling hammer to pound the lower vertical section into the ground. The other astronaut extended the telescoping crossbar and raised it to a 90-degree angle with the vertical section to click it into place. Then the two astronauts slid the upper part of the pole into the lower one.

“Once they got the flag up, several factors made it look as though it was flying,” Platoff noted. “First there were wrinkles in it because of how tightly it was packed. And these add to the illusion that the flag is waving. Also, the astronauts didn’t always get the horizontal crossbar extended all the way –– they were working in pressurized spacesuits and really cumbersome gloves, after all –– which caused the flag to bunch up in places. That also made it look like it’s waving.”

Traveling into Space

Simply getting the flag to the moon also proved a challenge for NASA engineers. “The Apollo 11 and 12 flags were stored on the ladder of the lunar module,” said Platoff. “It was kind of a last-minute add-on, and I think that’s why they picked that location. But they had to protect it from the engines of the lunar module. As the astronauts were coming down to land, they were firing the engines to slow themselves down. And those engines got really hot. Without adequate thermal protection, the flag would have been gone.”

To protect Old Glory, engineers built a metal shroud that went around the apparatus on the ladder. They also added some insulating blanket material. On later missions, the flag was moved to a storage compartment outside the lunar module. “It was basically the space where they kept their cameras, hammers, sampling scoops and other equipment. And that area was already thermally protected,” Platoff said.

The Vexillologist

Though her interest in flags developed at an early age, it wasn’t until Platoff started college that she realized entire books had been written on the subject, or that organizations exist for people who share her passion. “That was when I also discovered there is a name for it –– vexillology. Once I got in touch with this larger community, I was no longer isolated, and I started reading everything I could get my hands on,” Platoff said.

An opportunity of a lifetime came along when Whitney Smith, the father of modern vexillology, and director of the Flag Research Center in Winchester, Massachusetts, invited Platoff to do some research with him in her hometown of Topeka, Kansas. It happened to be close to where a meeting of the North American Vexillological Association (NAVA) was set to take place. “He is the person I really consider to have been my mentor,” Platoff said.

When Smith invited Platoff to attend the NAVA meeting, her hobby transitioned into a serious scholarly pursuit. Later, her husband took a job at Johnson Space Center in Houston, and a television interview with one of the engineers who designed the lunar flagpole for the Apollo 11 mission piqued her interest in flags on the moon as a research project. “I’d also always been interested in the space program, so this was the perfect melding of my two interests,” she said.

Honors and Accolades

Still an active NAVA member, Platoff serves as director of the organization’s digital library and is the first woman to receive its Captain William Driver Award, an honor bestowed upon her twice. (Note: It was Driver, a sea captain from Salem, Massachusetts, who in 1824 proclaimed the flag Old Glory.)

Platoff also is the first female fellow of the Fédération Internationale des Associations Vexillologiques (FIAV), the first woman recognized with FIAV’s Vexillon Award for the most important contribution to vexillology during a two-year period and the first female recipient of FIAV’s Whitney Smith Award.

Recognized as one of the first research fellows of the Flag Research Center, she also serves on the Board of Trustees for the Flag Heritage Foundation, a non-profit organization devoted to the knowledge, preservation and study of flags.

Serving as the UC Santa Barbara Library’s subject liaison for Slavic studies, Platoff is a Ph.D. candidate in history at the University of Leicester in England. Her doctoral thesis focuses on the use of flags and other symbols in the civil religion of the former Soviet Union.

Following are some of Platoff’s publications directly related to the use of flags and other symbols in NASA’s human spaceflight programs:

• Where No Flag Has Gone Before: Political and Technical Aspects of Placing a Flag on the Moon (https://escholarship.org/uc/item/93t5x9dq)

• Flags in Space: NASA Symbols and Flags in the U.S. Manned Space Program (https://escholarship.org/uc/item/1tt282fs)

• Six Flags over Luna: The Role of Flags in Moon Landing Conspiracy Theories

(https://escholarship.org/uc/item/5h31r40r)

• Flags as Flair: The Iconography of Space Shuttle Mission Patches (https://escholarship.org/uc/item/6db004hr)

• A Shuttle Full of Flags: Use of Flags in the Space Shuttle Program (https://escholarship.org/uc/item/3jr7w2mc).

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