

Rappahannock Astronomy Club

Minutes, April 17, 2019, Meeting

In attendance:

Jean Benson
David Bentz
Bart and Linda Billard
Scott Busby
Glenn Faini
Glenn Holliday

Jerry Hubbell
Curtis Martin*
Tim Plunkett
Matt Scott
Myron Wasiuta
Michele and Sarah Lewis**

*Visitors

**Visitors who joined the club at the meeting

The meeting began at 7:05 p.m. with introductions. Eleven members and 3 visitors were present (2 visitors joined at the meeting).

Program

Myron Wasiuta talked about his experiences exploring Apollo Moon landing sites with his telescope. He began with a history of the manned space program that led to the Moon landings, beginning with Mercury and Gemini. The Mercury program goals were first to get men to space using the Redstone rocket and then to get them to orbit using the Atlas rocket.

The Gemini program came next. Myron said this program added the goals of launching two people at a time, getting them to orbit for up to 2 weeks to see how men did in orbit for long periods, practicing rendezvous with another spacecraft, and trying extravehicular activity (EVA) in orbit. All these capabilities were important to be able to get men to the Moon. Ed White was the first American to try EVA during Gemini. The first in-orbit rendezvous was between two Gemini spacecraft. They did not dock together. Neil Armstrong was on the Gemini mission that performed a rendezvous with docking to an Agena rocket. It was on the mission that a thruster problem caused a loss of control. The two docked spacecraft began spinning faster and faster, putting the astronauts in danger of losing consciousness. Armstrong managed to use his test-pilot experience to work out thruster controls to slow the spinning. They undocked from the Agena, mistakenly thinking it was the cause of the malfunction. Instead, Armstrong had to regain control again when it turned out a Gemini capsule thruster malfunction was the cause. Myron said he thought Neil Armstrong was chosen to command the first Apollo Moon landing mission because of the abilities he demonstrated during this emergency.

Myron showed diagrams of the Saturn V rocket developed for the Apollo program next to the Atlas and Redstone rockets. The size difference was striking. He said the booster stage burned for 2 minutes and 40 seconds, going from 0 to 6,000 miles per hour and reaching an altitude of 40 miles. It burned 20 tons of fuel per second. Harrison Schmitt said riding the Saturn V was like driving 60 miles per hour across railroad ties. In contrast, Myron said the ride on the second stage was smooth as silk. He said there was also a smaller rocket, the Saturn IB, for just getting to Earth orbit.

Myron passed around some books he owned. One was *Full Moon*, by Michael Light, another was *Apollo: The Epic Journey to the Moon* by David Reynolds, and the third was *Painting Apollo*, by Alan Bean. He showed a Moon image with the Apollo landing sites marked. He said Neil Armstrong had to make adjustments to the Apollo 11 landing site when it proved too rough. Myron said the Apollo 14, 15, and 17 sites were especially interesting for the lunar features around them. His image of the Apollo 11 site, showed that the terrain was mostly featureless. The nearest craters included three small ones that are now named after the three Apollo 11 astronauts. However, the astronauts never visited these craters because they were too distant from the actual landing site.

Apollo 14 landed near the Fra Mauro crater so the astronauts could look for ejecta from the Imbrium impact. It was originally the destination for Apollo 13. The Apollo 15 landing site was near Mons Hadley and the Apennine mountains, providing interesting features to view from Earth. Myron said it was the first extended mission (David Scott and James Irwin spent 3 days on the surface) and also featured the first

buggy ride. He said the Apollo 16 mission was to collect geological samples—important scientifically—but the site, the Descartes and Cayley formations, was not so interesting for telescopic views. The Apollo 17 site was again right near mountains. Myron showed an interesting view taken by the NASA Lunar Reconnaissance Orbiter (LRO) currently orbiting the Moon. Then he went through the landing sites showing images he had made of them with his telescope, along with some pictures taken during the missions.

In his image of the Apollo 14 site, Myron pointed out a pattern of ripples where liquefied lunar material had flowed. He also showed a picture of a hand cart the astronauts used to carry tools and samples as they walked around.

Myron showed several images of the Apollo 15 landing site, which was up against a curve in the Hadley rille (Rima Hadley) and between the north and south complex of craters. He showed St. George Crater on Mons Hadley Delta. He said the Genesis Rock, found on Mons Hadley Delta, was the oldest rock found by the Apollo program. It is at least 4 billion years old. Myron showed images of Mons Hadley taken at the beginning and end of the stay on the Moon for comparison. The near side started in shadow and was sunlit by the end of the mission.

Myron briefly showed his telescope image of the Apollo 16 site location and then switched to a video of a buggy ride. He then showed LRO images of the Apollo 17 site, identifying the South Massif and North Massif, pointing out a small hill and crater south of North Massif. He then showed that those two features could be made out in his telescope image. He also pointed out a possible landslide off of South Massif that does not show in his telescope image but he said that it is possible to see it from Earth in the right viewing conditions.

Old Business

- Treasurer's Report—Tim Plunkett's report listed five dues payments, including one for 2020 and Astronomy league dues payment rounded up for a small donation. RAC also received a donation from Explore Scientific. Jerry Hubbell explained Explore Scientific offers an "experience" program with time on MSRO for interested customers and donates \$100 from the proceeds of a session. Paid memberships for 2019 reached 35, and 4 members are paid through 2020.
- Vice President's Report—Glenn Holliday said he recently had an enquiry about a Prince William Park outing planned for April 20. He also mentioned the NOVAC Widewater State Park event (April 27 from 8 to 11 p.m.) and an Astronomy Day event they are holding on May 11, from 3 to 11 p.m., at Crocket Park. Linda Billard said she and Bart were interested in the Widewater event. Glenn H. said our next star party was scheduled for May 4 and that he might not be available or might be late. Glenn Faini also said he would not be able to attend. Glenn H. said the King George Library wanted to do a Star Wars Day in conjunction with the star party. Myron volunteered tentatively to take his 16-inch Dobsonian, saying he would confirm in a day or two by email. Jerry said he gets information on the Richmond club's events that he could forward to Glenn F. for possible coordination between the two groups.
- Glenn H. reported on the reorganization of the lending library of equipment. Scott Busby had offered to provide a central repository of all the equipment and was working on tracking down the items the club was supposed to have. Myron explained the disposition of the 8-inch Dobsonian. He had built it and provided it to the club. He eventually donated it to someone else. Scott B. was still unable to contact Ranny Heflin about the 6-inch Orion Dobsonian. One contact possibility was through Ranny's club Yahoo group membership. The Meade DSI camera was also still missing, but Scott B. thought it might not be much of a loss. (The group thought Brenda Conway had had it last but no one had been able to contact her.) The last item was the 8-inch Skyview Pro, which we thought Scott Lansdale had last. He was away until May 2. Scott B. said he could pick up any equipment current custodians wanted to bring in at the next meeting, May 15.
- *StarGazer* Report—Linda said she was just waiting for Jerry's report on NEIAC and NEAF. She and Glenn F. determined that he needed to resend her his piece.
- Embroidered RAC and MSRO Patches—Glenn F. said the run of 25 patches took 6 hours to embroider. He said the good news was that because of the quantity, the price was only \$12 each. He gave a patch to the two visitors who joined at the meeting. Linda and Bart Billard, Myron, and Glenn F. each paid Tim \$10 for a patch. Glenn F. said the logo design the club paid for belonged to the club, and we could have a thumb drive with it to use or get embroidered elsewhere. Jerry said they still needed to work on the MSRO logo.

New Business

- Annual Picnic—Glenn H. noted he needed to reserve the pavilion at Caledon for the picnic on August 24.
- Scheduling Officers' Meeting—Linda will send out some June dates soon as options for this meeting, which will be held at the Billard house.
- Meeting Programs—Scott B. was on the schedule for the June meeting. His topic was “Meteors and Meteorites.” Glenn F. was on the schedule to talk about “Apollo, Skylab, and Viking in the News” for the July meeting.

Next Meeting

The next meeting is on Wednesday, May 15, 2019, at the Headquarters Library on Caroline Street, downtown Fredericksburg. We will be in room 1.