

# Rappahannock Astronomy Club

## Minutes, May 15, 2019, Meeting

In attendance:

Jean Benson  
Bart and Linda Billard  
Scott Busby  
Don Clark  
Glenn Holliday  
Jerry Hubbell  
Scott Lansdale

Michelle Lewis  
Sarah Lewis  
Curtis Martin  
Tim Plunkett  
Ryan Rapoza and daughter  
Matt Scott  
Tom Watson

The meeting began at about 7 p.m. Fifteen members were present.

## Program

Jerry Hubbell presented “Looking at the Moon: Online Tools” about tools available online for planning and analyzing lunar observations. He started with lunar charts available for personal computers (PCs) or phones. The first tool was Virtual Moon Atlas (the page for the PC download is [here](#)). Jerry started it and showed the initial view was a relief drawing of the Moon as it appeared on the current date. He showed how to go to other phases and see when they were or would be. He also showed how to pick a date and find how the Moon appeared or would appear. On the chart, one can point to a feature and click to identify it.

Someone asked about the lines radiating from the crater Tycho, and Jerry explained they were from debris thrown out by the impact that created the crater. He showed that Virtual Moon Atlas allows zooming in on features. When he zoomed on Copernicus, the program automatically switched charts to provide more details. The user can go to a configuration window to control the chart type selected according to the zoom level. Jerry indicated a camera icon that allows access to features viewed, but noted the version he was using did not seem to have some feature images downloaded yet.

There was a “Terminator” tab, which Jerry showed brought up a list of craters near the terminator at the time indicated. He said that feature is useful for planning observations because the angle of the Sun would be favorable for seeing a lot of detail in those features. Tom Watson asked about the letters that appeared near some of the craters. Jerry showed the “A” near Gassendi marked a small crater named Gassendi A.

Don Clark asked about finding Apollo landing sites. Jerry typed “Apollo 11” into the Find tool and brought up the Apollo 11 landing site. The image also indicated the locations of the Surveyor 5 site and of the 3 craters nearby named for the Apollo 11 astronauts.

Various types of information were shown along the right side of the diagram. One heading Jerry pointed out was “Observation.” With Copernicus N1 selected, the notes indicated a 100-mm refractor would be needed. Jerry mentioned he recently visited the crater near Flagstaff, Arizona. He said he likes to think of it when observing lunar craters. He talked about the Association of Lunar and Planetary Observers (ALPO) and its [Lunar Section Newsletter](#), *The Lunar Observer*. Jerry said he was a member and lately has been doing articles on the Apollo mission landing sites for the “Focus On” column in the newsletter.

Another tool was the Lunar Chart (LAC) series [website](#). It is published by the Aeronautical Chart Information Center, United States Air Force. Jerry briefly sampled maps available at the site. He then mentioned Robert Reeves as a good source on how to do high-resolution lunar photography.

Jerry also demonstrated the [Lunar Terminator Visualization Tool](#) (LTVT) for advanced analysis of images of the Moon. It can render the Moon as seen from an observer’s Earth location. It can calibrate user’s images and show them on the chart. Then it can adjust the image to appear as though it were seen from directly above a selected feature. Craters that look oval in the original image then appear round. Jerry illustrated how to draw a circle on a crater image you have taken and see what size the image indicates

for the crater. The result can be compared with the accepted size to see how good the measurement from the image is. He also demonstrated how to determine the height of a crater rim or mountain from the length of its shadow. In inverse shadow length mode, he set a reference point at the edge of the shadow, and then clicked at the peak along the red line drawn by the program to represent the path of sunlight past the mountain to the location of the reference point. LTVT calculated the height of the peak based on the angle of the Sun at the time of the image.

## Old Business

- Treasurer's Report—Tim Plunkett said his report for April showed a high starting balance because of a donation intended for MSRO made through the club that came in March and was paid to MSRO in April. April also recorded a payment to Glenn Faini reimbursing him for his order of the patch embroidery. The number of paid members for 2019 reached 38 in April.
- Night Sky Network (NSN) Report—Don reported receiving some goodies for outreach from NSN. He said he would pass them on to David Abbou, who has done a lot of outreach and has been good about providing reporting of them to NSN, and to Glenn Holliday for starting programs at Caledon star parties last year, and to Scott Lansdale for his contributions as club president through last year.
- Equipment Custodian Report—Scott Busby said he had prepared an equipment chart with most items in yellow. He said items would become green when he had them on hand. He would also have to assess their operability status and repair some if needed/possible. He said he planned to have borrowers take a class on operation at his house before checking equipment out. He anticipated it would take until late fall to have everything ready, along with appropriate updates for the club website. Scott B. said he would report to the vice president as the official custodian.
- MSRO Report—Jerry reported an MSRO Commission meeting was scheduled in about 2 weeks. He said he and Myron added a focuser to the 102-mm refractor, making both instruments in the dome more capable of remote operation. He and Myron Wasiuta recently found the shutter motor had failed, and they were preparing to send the motor and pulley system out for repair or replacement. Jerry said Myron would become a "biological remote dome shutter system" (now that he was no longer needed as a "biological remote focusing system" for the 102-mm refractor).
- Bylaws Update—Linda Billard and Glenn F. would shortly get together to work out a date for a meeting of the Executive Council to discuss updating the bylaws. Glenn F. was expected to be back from his trip the evening of this club meeting.
- Recent Events—The star party scheduled for May 4 was rained out. Glenn H. said he had prepared to give a presentation on the four forces, which he would be able to use later. He said he did not hear about the event the Dahlgren School had tried to work in(?) Tom talked about an idea for using solar filters and the club solar telescope for a daytime outreach in connection with Earth Day. He volunteered to look into the possibilities.

## New Business

- Upcoming Events—Glenn H. said he was recruited to give two shows on astronomy each day at the Renaissance Faire. He said our next star party at Caledon would be June 1. Jerry suggested Saturdays with a waxing crescent Moon would be good times for our star parties because they would allow early views of the Moon but its light would not be a problem for deep space objects later on. Tom said he thought he could make the June 1 star party. Bart Billard said he recalled Myron tentatively said he could go and was to confirm via email, probably to Glenn F. Glenn H. said this year's Astronomy at the Mall event was scheduled for June 15. He had concluded there was no need to contact the organizers based on the (lack of) response to the information he had sent out about the event. This year the Stratford Hall event is to be in November. Linda expressed hope it would not be so cold this year.
- Meeting Programs—Glenn H. said programs were still needed for monthly meetings in October and December. Tom said he could take October.
- Communications Committee—Don said he was not ready to report this month because he had been away on a long trip.
- *Stargazer*—Linda said the latest issue was just published and she did not yet need articles for the next one. However, she had asked Ron Henke to plan a report on an astronomy-related trip to

Joshua Tree National Monument. Scott B. said his Italy trip was great but a bust for astronomy. The trip was sponsored by the Smithsonian.

- Astronomy Topics—Jerry said the MSRO team got qualified to participate in the TESS follow-up program doing exoplanet observations.

## **Next Meeting**

The next meeting is on Wednesday, June 19, 2019, at the Headquarters Library on Caroline Street, downtown Fredericksburg. We will be in room 1.