

Rappahannock Astronomy Club

Minutes, October 21, 2015, Meeting

In attendance:

Dave Algert
Terry Barker
Bart & Linda Billard
Don Clark
George Clarke
Tessie & Liam Crowley
Glenn Holliday
Jerry Hubbell

Scott Lansdale
Melvin McDaniel
Lauren Nicholson
Ryan Rapoza*
Tim Plunkett
Bill Setzer
Tom Watson
*visitor who joined at the meeting

Vice President Scott Lansdale called the meeting to order shortly after 7 p.m. Thirteen members and 4 visitors were present. One visitor joined the club during the meeting.

While the projector and computers were being set up, we had introductions and discussed recent events. Terry Barker went to the VAAS in Charlottesville and to the Staunton River Star Party in the Staunton River State Park near the border with North Carolina above Chapel Hill, home of the club that sponsors the star party. He said there were 50–100 telescopes, including some Dobsonians that required a step ladder. One 18-inch f/3 Dobsonian allowed views without a ladder. He also went to see “The Martian” and asked if anyone else had. He was disappointed only one or two people had seen it and urged everyone to go. He plans to ask who has seen it by the next meeting.

Program

Jerry Hubbell presented “Tools for Lunar Observing and Imaging.” Before starting, he played a video of the Voice of America broadcast covering Astronomy Night at the Mall and the VOA visit to our picnic in August. The program was in Arabic, but it included some of Scott Busby’s images and scenes from the Mall event, along with views of Scott’s observatory and members setting up telescopes for the star party following the picnic.

To start his presentation, Jerry showed images he had made of Copernicus and Gassendi craters. He noted that these craters are best viewed 3 or 4 days before full Moon because they are toward the western side, and recommended using a neutral density filter for a larger telescope to reduce excessive light. It takes observing a while to be able to spot details (for example, like a 10-mile diameter crater he pointed out in the Mare Humorum region near Gassendi). Jerry also showed an image of the crater J. Herschel near the northwest part of the Moon, with its very rough floor and eroded-looking rim. He said that by using high magnification, he gets a sense of being in orbit above the lunar surface, and there is software one can use to adjust images to see how that landscape of feature would look from directly overhead.

Jerry said he was into refractor telescopes. Reflectors use secondary mirrors that cause loss of contrast because of the obstruction of the mirror and supports. However, for photographs, the larger reflectors help get detail from shorter exposure times along with the resolution of the large aperture.

Jerry Then asked, “So how do I tell what I’m looking at?” He uses [Virtual Moon Atlas \(6.0\)](#), which he demonstrated. It shows how the Moon looks now (or you can change the date, as he did, to show Copernicus). Clicking a feature brings up detailed information. The program also provides a list of features on the terminator. When you see one you find interesting, clicking it locates it in the image. Virtual Moon Atlas also provides links to a set of topographic charts, which Jerry used to show the elevation contrast between the maria in the middle and northern regions and the southern highlands.

The next tool Jerry discussed was the Lunar Terminator Visualization Tool ([LTVT](#)), which lets you make measurements with your images. He demonstrated creating an aerial view of mare Crisium. The foreshortened craters looked round, and the mare was in the center of the disk. Because it was near the limb in the original image, much of the disk to that side of the mare in the aerial view would show features that were not in the image that was transformed, and that part of the disk was rendered as a featureless

blue area. You can use the aerial view feature on your image, and after identifying points in the image using the reference map, the program allows you to make measurements. For example, Jerry showed height measurements he got from shadow lengths and the angle of the Sun. You can also draw circles on craters to measure their size. He finds it interesting to compare measurements he can make on his images with [lunar aeronautical charts](#) or other available [lunar maps](#) and see whether he gets agreement with them. One last site Jerry mentioned is Lunar Picture of the Day.

Jerry uses a 5-inch refractor and a fast webcam. (He also used the camera with Scott Busby's Takahashi Mewlon 250 telescope for some of the images he showed.) His webcam is a higher-end model that is more sensitive and can take 200 frames per second. The speed and short exposure time freezes atmospheric turbulence and takes sequences of up to 4,000 frames quickly. In software, he can select the best 10 percent and get more than 200 frames to compile into a single image. That image can be enhanced with tools like wavelet filtering to pull out great detail. Jerry gets features down to 2–3 miles in diameter from his images. He said three programs are available for the processing he described: [Avistack](#), [Registax](#) and [AutoStakkert](#). He also showed charts available from *Sky & Telescope*, which he had brought to the meeting.

George Clarke asked how Jerry used his computer for focusing when taking images. Jerry said he points the camera at a star first, looking at the image on the computer as he focuses. He also told us he uses a red filter to help reduce effects of the atmosphere, and a 4x Televue Barlow gives him an f/30 focal ratio (it works out to 0.2 arc-sec per pixel and does require better tracking to keep features in the field of view). Scott Lansdale asked about overloading the stacking program when using larger images from a mirrorless digital camera or other DSLR cameras. Jerry said his frames are quite small, and he only uses 10–20 alignment points, which might help. George asked him about hot pixels, and he replied that it was not necessary to worry about them with the video he uses. Someone asked about video imaging of deep sky objects, and Jerry said some cameras are made for video on deep sky objects, but not the ones he uses for the Moon. They are more suitable for very small objects such as planets.

Old Business

- Treasurer's Report—Tim reported no changes from August. The current number of paid members for 2015 is still 20, and we have one paid membership for 2016. He said someone at the meeting paid dues to join and will be included in the report for this month to be presented at the next meeting.
- Update on the Next Newsletter Status—Linda Billard said she had just about everything except articles Jerry was working on. She received the pictures from Scott Lansdale and said she can use them. He was still working on one other image that she said she could use for the next picture of the month.
- Communications Committee Report—Glenn Holliday said he had nothing dramatic to report. He has found WordPress is getting more serious about security and is sending smaller updates automatically. We now only have to do the major updates.
- Last Star Party—The Caledon Star party this month had a good club turnout, with eight telescopes. Glenn said only one family of visitors stopped by to talk a short while on their way out. Tom Watson mentioned successfully finding the Ring Nebula. Someone mentioned having problems with the motion light at the house across Route 218 going on repeatedly. Glenn said in the past the owner has turned it off and even come over once.

New Business and Astronomy News

- Caledon/Northumberland Events for November 7—Glenn confirmed he is able to go to Caledon that day. He has at least one Boy Scout troop coming. Tom said he could go to Caledon as well. Jerry, Linda and Bart Billard, and Ron Henke were planning to go to Northumberland. Ron had asked about requesting a screen for an astronomy presentation. Linda and Bart said they could take their folding screen, which should be about the right size.
- Upcoming Events Calendar—Scott said Stafford County Parks has requested two dates. We did the transit of Venus for them in 2012. The Wilderness Elementary request was for the 20th or 21st. It apparently never got set up after we failed to get a response to some emails about it. For the George Washington Foundation request, Glenn is going to try giving a presentation on “colonial astronomy.” Glenn had a request from a Cub Scout group for Tuesday, November 10,

but he is not available. He has suggested they attend the star party on the Saturday before, but they appear to prefer a regular meeting date.

A conflict has come up at Caledon for December 5. A deer herd culling is scheduled. We discussed whether there was interest in rescheduling for a week later and decided not to try.

- Plans for a Remote Observatory—Jerry said Myron Wasiutta received a donation from Mark Slade’s widow of his astronomy equipment for the benefit of RAC and the Culpepper Astronomy Club. Myron wants to use it to set up a remote observatory for use by members of both clubs and name it for Mark Slade. The equipment includes a dome, 12-inch Meade telescope, and cameras. Jerry is helping Myron plan it and solicited additional help with design and construction. He said he did not think Myron should cover all the expenses, including an estimated \$600–\$700 for the building under the dome, so he thought we may also need to contribute part of the costs. The observatory will be located at Myron’s house where he had his previous observatory.
- Night Sky Network (NSN) Outreach Kits—Don Clark had two new kits from NSN that he brought to the meeting to offer to Glenn. They discussed it and concluded David Abbou should have first “dibs.”
- Officer Nominations and Plans for the Officer Election Meeting, November 18—Tom volunteered to pick up the pizza for the meeting and requested an email reminder. Lauren Nicholson made a motion to authorize reimbursement for volunteers purchasing pizza and drinks for the officer election meeting. Linda seconded the motion and it was approved. Jerry nominated Ron Henke as President, and Linda seconded. Linda nominated Scott Lansdale as Vice President, seconded by Lauren. Lauren nominated Bart Billard as Secretary, and Linda seconded. Jerry Hubbell nominated Tim Plunkett for Treasurer, and Tom seconded.

Next Meeting

The next meeting is for officer elections and pizza on Wednesday, November 18, 2015, at the Central Rappahannock Heritage Center.