

# Rappahannock Astronomy Club

## Minutes, September 21, 2016, Meeting

In attendance:

Bart & Linda Billard  
Don Clark  
Jerry Hubbell  
Scott Lansdale

Payal Patel  
Ryan Rapoza  
Myron Wasiuta

The meeting began a little after 7 p.m. Eight members were present.

## Program

Myron Wasiuta and Jerry Hubbell made presentations on the Mark Slade Remote Observatory (MSRO). Myron presented "A Discussion of Possible Observing Projects Using the Mark Slade Remote Observatory." He said the MSRO is a free Internet telescope, but not the first. He had found a free Internet telescope that began operating in 2007, the Seeing in the Dark Internet Telescope, operated by Cornell and PBS with an NSF grant. There is no charge for using MSRO; however, RAC members have priority.

The MSRO was named in honor of Mark Slade, Myron's friend and fellow club member from the early days of the club. The Meade LX200 telescope and dome, along with the Dome Works system for operating the dome were donations from the estate of Mark Slade, and additional donations from the club and several individuals made it possible to complete the observatory.

Myron listed several suggestions for projects possible with the observatory: general astrophotography, wide-field nova patrol, narrow-field nova patrol, supernova patrol, variable star observation, and asteroid orbit and light curve measurement. The wide-field nova patrol project would employ the ASI 120-mm camera that currently serves as the telescope finder. It could take 10-second exposures reaching 8th magnitude. He said he expected a nova could be found about every 5–10 years. Narrow-field nova patrol with the main telescope would best search places with concentrations of many stars, for example, globular clusters. Myron said that estimates indicate a nova frequency of one every 2 years in the Milky Way globular clusters, which would imply about one every 4 years in those MSRO could search. He said spiral galaxies, especially merging, starburst galaxies would be favorable for supernova searches. Even a supernova distant enough to reach only 16th magnitude would be detectable.

Myron suggested variable star observation was interesting, and there were not enough telescopes for all the variables that could be observed. Some examples he gave include cataclysmic variables, reverse novae (stars like R Coronae Borealis that suddenly dim instead of flaring up), recurrent novae (like T Coronae Borealis or RS Ophiuchi), pre-main sequence or protostars (such as R Monocerotis and FU Orionis), and helium flash stars (highly unpredictable stars at the end of their lives that are forming planetary nebulae).

Asteroid orbits can change, so observations are useful. Myron said the MSRO computer had a database of 730,000 asteroid orbits to aid in finding them to measure their positions by taking and analyzing images (astrometry). In addition, photometry on asteroids could measure light curves from which their rotation could be measured, and occultation timing could help resolve their size and shape in addition to providing position measurements.

Myron ended by showing spectroscopic measurements made with MSRO. One was the quasar 3C 273, whose spectrum showed its red shift. He also illustrated how to distinguish a small planetary nebula from a star using the emission line spectrum.

Jerry gave a short presentation on how spectroscopy can be done on MSRO. He showed the RSpec website operated by Tom Fields, who provided the SA-200 grating for MSRO. This grating would diffract some of the light from stars into a line of colors to the side of the star's image on the CCD. Jerry had the grating turned in the filter holder to orient the line along the declination axis. Analysis software from the RSpec website read the spectrum from the CCD image.

Jerry also showed a setup he designed based on a fiber-fed spectrometer. This spectrometer had a connector to hold the tip of a fiber-optic cable carrying starlight from the focus of the telescope so that the light from the fiber passed through an entrance slit. The spectrometer had a collimating mirror, grating, and focusing mirror all aligned as needed to project the spectrum of the light from the fiber onto a linear CCD chip that measured the spectrum. Processing electronics in the spectrometer then sent the data to a computer for analysis. Jerry designed and built a fiber-optic head to connect the other end of the fiber to a telescope. The fiber-optic head also split infrared light not needed for the spectrum and directed it to a guide camera. The guide camera allowed focusing and aligning the star's image so that its visible light entered the tip of the fiber at the opposite end of the cable from the spectrometer.

## Old Business

- **MSRO Update**—We discussed ideas for layout of the club website with MSRO links added. Don Clark said he would try adding a widget with the observatory dome image that Scott had used in his agenda background. Ryan Rapoza suggested a menu item linking to the MSRO page would also be helpful because mobile devices made you scroll far down to find the widgets.
- **Events Held**—Scott listed the club picnic (with thanks to Scott Busby), Glenn Holliday's Perseid viewing with a Boy Scout Troop, Glow Astronomy at the Dahlgren base, and the Pratt Park outreach. The latter was a success, with about 40 people showing up. Scott said the clouds moved in just about when the Park people wanted the event to end.
- **Treasurer's Report**—Tim Plunkett's report for August 31 showed \$40 received as dues from Glenn Faini, and \$47.50 dues paid to the Astronomical League, for a net decrease of \$7.50. The list of paid members numbered 29 at the end of August. Myron said a couple of old names had popped up from earlier times. He said Gregory Szlyk and Joseph Marietta, who joined in July, were two doctors he knew when they were in the club some years back. Don said he had a bill from the website to send to Tim.

## New Business and Astronomy News

- **Review Event Calendar for Upcoming Events**—Scott listed two events coming up very soon. The Caledon star party was on September 24, the weekend following the meeting. Scott said a large group was expected. Bart and Linda Billard thought they could support it. A Stratford Hall outreach was scheduled for October 8. Jerry thought he could support it (?). The next two scheduled events were the VAAS on October 29 and Ferry Farm on November 12. Scott brought a couple of flyers for the VAAS event for anyone interested. Linda and Bart thought they could support Ferry Farm. Scott said two events were planned for next year: another outreach at the Marine Corps Museum on March 11 (date to be confirmed), and a weekend event at Stratford Hall on May 6 and 7. Three rooms are reserved at Stratford Hall for club participants.
- **Stargazer and Communications Committee Update**—Linda said she was looking for articles for the next newsletter. Ryan said he sent Tom Watson a text message about writing another article and got a reply from Tom confirming he had agreed to provide one. Ryan also said he would be going on a trip to the Southern Hemisphere and volunteered an article in the form of a journal of his trip. Bart agreed he would write a book-review article, and Jerry said he would write something on observatories he had been visiting in addition to his usual lunar article. The articles were needed by mid-October.
- **Event Identification**—Scott said he thought the club should consider using some form of identification at outreach events. He suggested badges or T-shirts. A high-resolution version of the club logo would be needed to make either, and we concluded Scott Busby would probably be able to provide the highest resolution version.
- **Meeting Support for October 19**—Scott said he would not be able to attend the October club meeting and needed someone to run it in his place. Jerry agreed that he was responsible for filling in for Scott, and they agreed on how to prepare the agenda. The October meeting agenda would include nominating next year's officers.
- **Scott Busby Membership**—Scott Lansdale had asked Scott Busby about whether he was incorrectly omitted from the list of members in Tim's reports. He said Scott Busby had suggested to him he could consider hosting the club picnic and providing some of the food as a substitute for payment of membership dues, and he wanted the members' thoughts on the proposal. Jerry thought Scott Busby used to provide a bill for the food, and Jerry preferred that approach. When

providing the bill, Scott could ask that the reimbursement be applied to his dues and/or a donation to the club instead.

- Other Events—Scott listed a number of additional upcoming events. On October 6, David Abbou would be supporting an Elder Study group, and on October 8, David and Mark Burns would be supporting Meet the Moon Night at the Porter Library. On October 11, Wilderness Elementary would be having Observe the Moon Night and was asking for RAC support. Scott asked for volunteers, and Jerry and Myron said they might be able to support it. On October 15, Glenn would be supporting Boy Scout Camp Snyder as a result of his connection with the Renaissance Faire. Scott also listed upcoming dates for astronomy nights at Sky Meadows State Park. He said volunteers who bring telescopes would have longer access afterward to enjoy the night sky at the Park. The dates were September 24, 6:30 to 9:30 p.m. (note conflict with Caledon), October 29, 6:00 to 9:00 p.m. (note conflict with VAAS), and November 19, 4:30 to 7:30 p.m. Scott also listed more details about the VAAS conference. It was scheduled for Saturday, October 29, 2016, at Roanoke College and would feature talks and possibly observing afterward. Scott closed the meeting with a review of the club schedule chart, showing the rest of this year and March and May of next year.

## **Next Meeting**

The next meeting is on Wednesday, October 19, 2016, at the Central Rappahannock Heritage Center.