

Rappahannock Astronomy Club

Minutes, June 15, 2016, Meeting

In attendance:

Terry Barker
Bart & Linda Billard
Don Clark
Jerry Hubbell

Paul Jacobs
Scott Lansdale
Tom Watson

The meeting began a little after 7 p.m. Seven members and a visitor were present.

Program

Tom Watson presented "Astrophotography without the telescope: A look at photography using camera and lens." He said he had been a professional photographer for a time, but he did not claim to be an expert or very experienced with astrophotography. He began with some basics on cameras and lenses, including shutter speed and aperture, wide-angle and telephoto lenses, along with the difference between full frame and cropped formats like APS-C.

Tom showed the dial on his camera with various settings from fully automatic to manual and said all except the latter are not relevant for night sky photos. He said the lens is the most important thing, with wide angle usually being the best choice for night sky scenes. A 50-mm lens (with a full frame format camera) captures about what the eye sees, and shorter focal lengths are called "wide angle," while longer focal lengths are called telephoto. The cropped formats make a normal lens act like a telephoto, and it pays to look carefully at how a lens made for a cropped format is described. Tom had an \$89 lens that he said works well, and it was hard to see a difference between it and an expensive lens. He did find the focusing seemed sloppier.

The tripods Tom showed us illustrated a range of quality. He suggested a cheap one that had a hook for hanging heavy weights can work.

After this introduction, Tom showed a number of his night sky photos and used them to illustrate tips. One was a nice image from Caledon showing the Sagittarius region of the Milky Way. His tip was to try to get a site without sky glow in the direction you want to shoot. Tom also suggested the white balance setting can enhance night sky images. He suggested the "tungsten" setting, which also helps reduce chromatic aberration. He showed images you can get with round fisheye lenses, which can show the entire sky with the horizon around it, and fisheye rectangular lenses, which give a panorama of 150 to 180 degrees (he did not like the \$150 Amazon one).

Continuing on the subject of lenses, Tom said it helps to get a good fast aperture, like f/1.4, to reduce the time needed for exposure and hence blurring. For that reason, using the lowest f number possible is usually best. Sometimes there are exceptions. For example, with telephoto images, especially single stars, higher f numbers can reduce aberrations. Tom said older lenses can be very good, but some of them were made using thorium to improve performance. Thorium can cause yellowing of the glass over time, and he said you can find procedures online for reversing the yellowing.

Tom also discussed ISO setting and noise effects. In the past, the sharpest films were ones with low ISO ratings (100, 200, or 400). With digital cameras, it is still best to use the lowest ISO setting you can get away with. He also said some DSLRs get better pictures after cooling for a while. It pays to take a break after using the camera a while, although it does not tend to be necessary in winter.

Tom had several more tips and topics to finish his presentation. He said you can buy filters to create diffraction spikes if you like them (some do, some hate them). He had an image of the Moon and Jupiter with spikes, made with a 35-mm lens, as an illustration. He enjoys catching satellites: best times are near sunset or sunrise. Tom also likes to keep his camera set for whatever he is most likely to see at that time of day. He showed bird images he got that way before dark at Caledon. He also suggested looking for something interesting to have in the foreground (or have someone cooperative pose to add foreground

interest). Alternatively, Tom said you can just be lucky. He showed a galaxy image “photobombed” by a firefly.

Tom described his way of focusing for night sky shots. First he picks up the camera and focuses on a bright star (through the viewfinder, if necessary). Then he puts the camera on the tripod and finds a bright star roughly in the direction he plans to image and uses the display to refine the focus, taking advantage of the zoom capability to see the star better. Finally, he composes the image.

For exposure times, Tom starts with the rule of thumb to divide 500 or 600 by the focal length in millimeters to get the number of seconds you can expose without blur from Earth’s rotation. He recommends using the bulb setting, preferably with a remote release or cable to trip the shutter. For the Moon and planets, fast shutter speeds like 1/100 second, along with higher f number and lower ISO work well. The final recommendation was to use an air blower, which Tom said can make the difference between a good and bad picture.

Old Business

- Stargazer and Communications Committee Update—Linda Billard said she was still looking for more volunteers for articles. Tom volunteered, and Jerry Hubbell said he would do another lunar article and could do a review of the *Exoplanet Handbook* he recently purchased. Bart Billard said he would try to do an article on LIGO. Terry Barker also agreed to do another one of his web resources articles. Linda said she would need the articles a couple of weeks before the end of July. Scott Lansdale thought he might be able to do something, and Linda said she thought Glenn might be due to write another astronomy history article. Don Clark and Terry Barker said they were working on converting the website to keep up with the change in Weaver/WordPress versions.
- Talk at Richmond Astronomical Society (RAS)—Jerry reported on the trip to talk to the RAS the previous evening. He reported that he talked about the recent book *Remote Observatories for Amateur Astronomers*, which he wrote with Linda and Rich Williams. He also talked briefly about the Mark Slade Remote Observatory (MSRO) before turning it over to Myron to cover in more detail.
- Treasurer’s Report—Scott did not get all of Tim’s treasurer’s report emails, apparently because the missing ones used the president@raclub.org address, which needs to be updated. Bart had a copy of the corrected May report. It confirmed Tom’s dues payment, along with a payment from Ron Henke for 2017 and 2018. The member list showed 16 paid for 2018, two paid for 2017, and one for 2018. Scott said he had made a member email list and sent some inquiries to members not yet listed for the current year who might have actually paid, including Scott Busby.
- MSRO update—Jerry said the observatory is still up and running. He and Myron hope to correct some small glitches in right ascension tracking the next time they remove the telescope from the pier. They suspect they need to clean and lubricate the worm gear. Polar alignment was accurate enough to allow tracking without declination drift, so that no guiding is needed. A grating is now installed in the filter wheel, and Jerry got a good spectrum of Vega. He encouraged members to let Myron or Jerry know if they want to give it a try or just request an image.
- Astronomy on the Mall—No one from the club made it to the event. Ron had already left for Arizona, and the Friday event date created work conflicts for some other members. Scott got sick, and Jerry did not want to go alone.
- Caledon Star Party June 11—The event was very successful, with 8 telescopes or binoculars there. Quite a few visitors stopped by and one brought an 8-inch Celestron Catadioptric. He may be planning to join the club. Tom said the viewing got very good late through 2 a.m.
- Meeting Programs—Scott said programs still needed to be set for July, September, and December. He planned to do the December program and proposed doing “astronomy in the news” for July. A volunteer for September is still needed.
- Club Picnic and MSRO Dedication—Scott said he was planning to talk with Scott Busby about whether he wants to host the picnic. Also plans are being developed for a MSRO dedication event.

New Business and Astronomy News

- Outreach Event Schedule—Scott said he and David Abbou were going to Embrey Mill on July 8. Don also volunteered to join them. Scott also asked for more volunteers for Shiloh Park in King George County on July 17. Linda and Bart said they were interested. Scott also reported we were invited to help out with events at Sky Meadows State Park. The first date would be July 2 from 8:00 to 11:00 p.m. Additional dates were August 27, September 24, October 29, and November 19. The September date conflicts with the Caledon star party, and the October date conflicts with the VAAS meeting. Scott reported that volunteers bringing telescopes could stay later and have weekend access for star gazing. Scott showed an updated calendar with meetings, star parties, and outreach dates. The Ferry Farm outreach date was November 12, but he said he needed to confirm the date. The Stratford Hall outreach date was October 8.
- VAAS Meeting October 29—The meeting is in Roanoke and consists of a conference with talks, possibly with observing in the evening.
- Night Sky Network (NSN) Outreach Kit—Don said he received another outreach kit from NSN. He said he would give it to Terry as a going-away present. Terry is a NASA Ambassador, and this was probably his last meeting.

Next Meeting

The next meeting is on Wednesday, July 20, 2016, at the Central Rappahannock Heritage Center.