

Rappahannock Astronomy Club

Minutes, May 11, 2011, Meeting

In attendance:

- Barton & Linda Billard
- Scott Busby
- Don Clark
- George Clarke
- Leigh Gettier
- Glenn Holliday
- Jerry Hubbell
- Mike Masters
- Tim Plunkett
- Javier & Ruby Valverde

President Mike Masters began the meeting at 7 p.m. Twelve members were present.

Program

Leigh Gettier presented the program, "Effects of Vacuum on Materials." His interest in the subject began with his experience working for Intel for 12 years with semiconductor manufacturing equipment using various levels of vacuum. He said the definition of a vacuum is tricky: the quip that a vacuum is "nothing, really," leads to problems with all the exceptions you would have to make. Even if you could get out every molecule, there would still be photons, virtual particles, neutrinos, etc. Practical examples of what we call vacuums, measured in millimeters of mercury, or Torr (760 Torr is atmospheric pressure), include the vacuum in a vacuum cleaner (600 Torr), a Thermos bottle (10^{-3} Torr), high vacuum systems (10^{-3} to 10^{-9} Torr), and ultra-high vacuum systems (10^{-9} to 10^{-12} Torr), among manmade vacuums. The CERN Large Hadron Collider vacuum is 10^{-10} Torr. At the surface of the Moon is a vacuum of 10^{-11} Torr, and the vacuum of deep space is 10^{-17} Torr.

The commonly used unit of pressure, Torr, is named for Torricelli, who made the first mercury barometer after it was found that water could only be drawn up in a pipe to 30 feet in height. In 1643, Torricelli tried the same thing with mercury filling a tube sealed at one end. He put the open end in a vessel of mercury and inverted it. The mercury flowed out of the tube until it was 760 millimeters above the level in the vessel, creating a vacuum above this level in the tube. Leigh wondered if Newton was influenced by Torricelli's discovery, which suggested the possibility of the planets moving without resistance in a vacuum as the explanation of their orbits continuing without coming to rest like objects on Earth.

Old Business

- Treasurer's report—Tim said the membership is now 28 paid club members as of April 30. He recorded one dues payment for the month and no expenditures. Mike noted there appears to be a listing for George Clarke with two different spellings in the membership roster in Tim's written report. Mike was able to provide Tim with the check and cash for dues that he collected at an earlier meeting. The next renewal payment for Astronomical League club membership is due July 1, 2011. The only update on the *Sky & Telescope* club discount subscriptions was that Ranny Heflin was not on the subscriber list that came back from *S&T*. The possibility of him receiving a duplicate subscription may have taken care of itself.
- Status of Club loaner equipment—Joe could not attend the meeting and did not have an update on equipment status. Mike asked about the Club solar telescope, which Scott confirmed he had on loan since last month's meeting. Scott agreed to arrange to make it available for the Conway Elementary Space Day outreach event, Monday June 13.
- Events—The April 30 star party at Caledon was a success, with more than 30 attending, including 14 members, Girl Scouts, and many visitors. The May 7 backup party at Scott's place was cancelled because of weather, and Mike did not make a May "Challenge Objects" list. David Abbou was active with an outreach for 30 Cub Scouts at Lorton April 25 (he was contacted as a result of his *Free Lance-Star* astronomy column) and a presentation and observing session for Cub Scout pack 907 on May 10. Glenn continues to have participation requests from Girl Scout groups beyond the one

associated with the April 29 star party. He has one for September 16–18 and another to teach how to do a scout astronomy camp in June. He hopes that will get some more people able to help Girl Scouts with astronomy activities in the future. The next star party date is May 28, with backup date June 4, both at Caledon. The program for the June 8 meeting at the Library is “Introducing Astronomy at Star Parties,” presented by Glenn Holliday. Mike noted that the October meeting shifted to Tuesday, October 4, at the Library in the Theater. The shift is because of a semiannual book sale on the original date. Mike reported that he offered October 7 as the alternate date for the weather-cancelled outreach at Lake Anna to Ms. Corker, the Park representative. It may not have been what she hoped for, but she did agree to it.

- Email aliases for Club officers and points of contact—The addresses that Don Clark established are now active on the raclub.org website. Tests are not complete for Glenn Holliday’s alias, scouting@raclub.org, and two of Ranny Heflin’s: skyquest6@raclub.org and pst40@raclub.org. Don and Glenn had started discussing the cause of Glenn’s alias test not working.
- Conway Elementary Space Day, Monday, June 13—Mike noted that the date for this requested outreach is 2 days before full Moon. He expects the most successful observing will be with his solar telescope and the Club Personal Solar Telescope (PST). Don Clark said he was willing to handle the Club PST for the event. Mike said he tried to reduce expectations for other observing, but the school would still like to try. The Moon will not clear the trees until 9:00 p.m., and only Saturn is available earlier, leaving a gap after solar observing from 5:30 to 6:30 p.m. With those disadvantages understood, Mike asked who would be willing to have a telescope set up for observing the Moon and Saturn. Based on positive responses from Don Clark, Jerry Hubbell, and George Clarke, Mike concluded we could go ahead and offer to show telescopes and Saturn for a while before the Moon shows up.
- Alternate meeting location—Mike said that he contacted the Church representative to say that we decided not to relocate our meetings there. He explained that we understood the photography club made a donation for each meeting they held there, and we could not in good conscience hold our meetings there without providing a similar donation. Our finances would not allow such an expense. He has not received a response, further confirming his sense that donations really are expected. He said he has appointed a committee with a charter to explore alternate meeting possibilities and provide a recommendation by the October meeting. He listed criteria the committee will consider to come up with a rationale for whether the Club should move or stay. The committee chair is Scott Busby, with members Glenn Holliday, Leigh Gettier, Don Clarke, and Brenda Conway representing the four directions over which the membership resides.
- Raclub.org website versus rac_group—Mike said that he and Scott have discussed the ways the two resources differ and overlap and worked out a division of their uses. The main distinction is that raclub.org is a public website while rac_group requires registration, making it the internal conduit for real-time contact, calendar, and private Club matters. Raclub.org is the location for information about Club business, undertakings, and accomplishments, including minutes, presentations, technical papers, astrophotos, lesson plans, observing links, etc. (Members can send astrophotos for inclusion on the site to imageeditor@raclub.org.) Rac-group has our email list server and can be used for chat, polls, celestial event notices, as a buy/sell bulletin board, and any other private content.

Next Meeting

The next meeting is June 8, 2011, 7:00 p.m., at the Central Rappahannock Regional Library Headquarters, 1201 Caroline St., in Fredericksburg. Introductions will begin at 6:45 p.m.

Submitted by Bart Billard, Secretary