

The ECLIPSE

March
2016

The Newsletter of the Barnard-Seyfert Astronomical Society

Next Membership Meeting:

March 16, 2016, 7:30 pm
Cumberland Valley
Girl Scout Council Building
4522 Granny White Pike

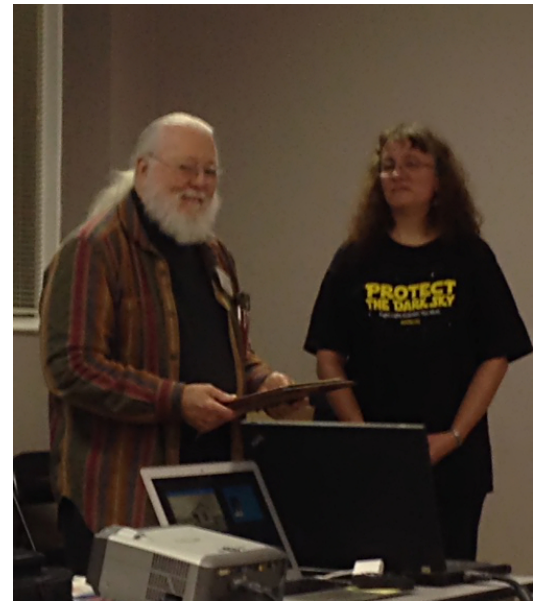
Topic: *Theo Wellington:*
"Juno in July"
Details on page 5

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From the President:

For those of you who were not able to make the annual dinner in December, I would like to again congratulate long time member Mike Benson. Mike has long been active in the Astronomical League, the association of groups like BSAS that you are included in as part of your member fees. Many of us were not yet club members when BSAS hosted the Astronomical League's annual convention (ALCON) in Nashville in 2003. To encourage all of us to get out under the night sky, the Astronomical League runs observing "clubs," lists of astronomical objects that you can observe in a variety of ways and be recognized for. Volunteers are responsible for running these, and Mike has for some time run the Double Star, Arp and Master Observer clubs, as well as being involved in general in the AL. I was happy to be able to present Mike with a certificate and plaque from the Astronomical League that honored his years of work.



You too can earn recognition from the Astronomical League! Pick an observing list and get started! There are several (besides the classic Messier list) that are made specifically for urban observers. Some use nothing other than your eyes, some are for binoculars. Bring a list out to a star party and help others find objects in the night sky. You do NOT need to have a telescope to come out and enjoy the night sky.



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Observing Highlights March and April

Open Clusters

NGC884/869 (*Double Cluster*),
M34, M45 (*Pleiades*),
M36, M37, M38, M35, M41,
M50, M47, M46, M93, M48,
M44 (*Beehive*), M67,
NGC2264 (*Christmas Tree*)

Nebulae

NGC1499 (*California*), M1,
M42 (*Orion*), M43, M78,
NGC2392 (*Eskimo*),
NGC3242 (*Ghost of Jupiter*),
M97 (*Owl*)

Globular Clusters

M79

Variable Stars

Beta Persei (*Algol*),
Omicron Ceti (*Mira*),
R Leporis (*Hind's Crimson Star*)

Galaxies

M31 (*Andromeda*), M32, M110,
M33 (*Triangulum*), M74, M77,
M81, M82, NGC3115 (*Spindle*),
M95, M96, M105, M108,
M65/M66/NGC3628 (*Leo Triplet*),
M109

Multiple Star Systems

Gamma Andromedae, Beta
Orionis (*Rigel*),
Alpha Geminorum (*Castor*)

Upcoming Star Parties

Friday 3/4 7:00 - 9:30 pm	Public Star Party Bowie Nature Park (Fairview)
Saturday 3/5	Private Star Party Natchez Trace Parkway mile marker 412 (Water Valley Overlook)
Saturday 4/9	Private Star Party Natchez Trace Parkway mile marker 435.3
Saturday 4/16	Public Star Party Edwin Warner Park



Mar 8
Apr 7



Mar 15
Apr 13



Mar 23
Apr 22



Mar 1, 31
Apr 29

Happy Birthday Ken Mattingly by Robin Byrne

This month, we celebrate the birthday of a man whose career has spanned many areas, but who managed to, unintentionally, avoid being part of a harrowing experience. Thomas Kenneth Mattingly II was born March 17, 1936 in Chicago, Illinois. Known as “Ken”, Mattingly’s family moved to Hialeah, Florida when he was young. His early years were fairly typical, including joining the Boy Scouts, and achieving the rank of Life Scout. In 1954, Ken graduated from Miami Edison High School. From there, he went to Auburn University where he received a Bachelor of Science degree in Aeronautical Engineering in 1958.

After graduation, Mattingly joined the U. S. Navy as an ensign. Two years later, he had his aviator wings. With that achievement came a new assignment - Attack Squadron 53 in Virginia, where he flew the A-1H Skyraider aboard the USS Saratoga. Three years later, Mattingly transferred to Sanford, Florida, where he was assigned to the USS Franklin D. Roosevelt, flying the A-3B Skywarrior. During his many years of active duty in the Navy, Mattingly became quite proficient at landing a plane on an aircraft carrier. In 1966, he went to Edwards Air Force Base to attend the Air Force Aerospace Research Pilot School to become a test pilot. However, NASA had other plans for his career.

In April of 1966, Mattingly joined a new group of 18 other men chosen to join the astronaut ranks. While waiting his turn to fly, Mattingly acted as support crew for both the Apollo 8 and Apollo 11 missions. He also was part of the team that developed the Apollo spacesuit and the EMU (the backpack worn during spacewalks and used for maneuvering in a weightless environment). Finally, he was assigned his own mission. Originally, he and his fellow crew mates were to fly on Apollo 14, but due to Alan Shepard needing more training for his mission, the two crews were swapped, and Mattingly found himself slated to fly on Apollo 13 with Jim Lovell and Fred Haise. Mattingly was assigned to the Command Module Pilot position. However, three days



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Ken Mattingly, continued

before launch, he was pulled from the crew after discovering he had been exposed to the German measles from Charlie Duke. Mattingly found out about the change while listening to the radio, where he heard a special broadcast about it. His first thought was, "If this is a practical joke, it's really well done, but I don't think this is a joke." He was replaced by Jack Swigert. Even though he never contracted the measles, the last minute swap saved Mattingly from being a part of the emergency that struck the Apollo 13 mission. However, the change allowed him to help address some of the issues faced by the crew in space, especially the power availability. Mattingly also knew that Jack Swigert was better suited to handle that particular emergency, because Mattingly can't handle the cold. "I have a personal thermostat that's set right around 70 degrees," Mattingly said. "When my body gets below 60 degrees, it doesn't function. If I had been stuck up there, I would have absolutely been a disaster."

Because of the swap with Swigert, Mattingly was now poised to fly as the Command Module Pilot on the Apollo 16 mission from April 16 - 27, 1972. Flying with him were John Young and Charlie Duke. While Young and Duke worked on the lunar surface, Mattingly remained in orbit aboard Casper. His job was to perform observations of the moon's equator, obtaining photographs and geochemical maps of the region. After leaving lunar orbit and while heading back to Earth, Mattingly performed an EVA (Extravehicular Activity) to retrieve film and data packages from the science bay located on the side of the service module.

After his stint with the Apollo program, Mattingly moved on to the Space Shuttle program. From 1973 to 1978, he worked as the head of the astronaut office for the program. He then briefly worked as a technical assistant for flight test to the Manager of the Orbital Flight Test Program. Starting in December 1979, Mattingly was head of the astronaut office ascent/entry group. Finally, in 1981, the first Shuttle launched. Mattingly served as back-up commander for both STS-2 and STS-3. He was then named Commander for the STS-4 mission, which was the last test flight of the Space Shuttle Columbia. Flying with him was Henry Hartsfield in the Pilot seat. Launching June 27, 1982, their seven days in space were used to evaluate the launch and entry performance of the space craft, the long-term thermal effects on the orbiter, plus some scientific experiments. They landed at Edwards Air Force Base on July 4, 1982. (A landing that I was SUPPOSED to see, but that's another story.)

From June 1983 through May 1984, Mattingly served as Head of the Astronaut Office Department of Defense (DOD) Support Group. This may have played a role in his next assignment. On January 24, 1985, Mattingly was again the Commander of a shuttle

Ken Mattingly, continued

mission, this time STS-51-C, which was the first DOD mission. The Space Shuttle Discovery landed on January 27, 1985. This was Mattingly's last flight, garnering him a total of 504 hours in space, including 73 minutes of EVA.

After resigning from NASA in 1985, Mattingly was Chief of NAVSPACECOM for one year. He then retired from the Navy with the rank of Rear Admiral. From the Navy, Mattingly moved on to become the Director of Utilization and Operations at the Grumman Space Station Office. Later, he moved to Lockheed Martin to be the Director of the X-33 Program, which was a proposed space plane that never reached fruition. After Lockheed Martin, Mattingly went to General Dynamics to head the Atlas booster program.

Whether flying in air or space, Ken Mattingly managed to live a charmed life while achieving goals most of us can only dream about. As NASA begins recruiting for the next round of astronauts to fly the Orion spacecraft, we can live vicariously through these individuals, who get to experience what only a select few ever will achieve. Ken Mattingly's legacy lives on in all of them.

References:

[Ken Matting - Wikipedia](#)

[Ken Mattingly: Apollo 16 Astronaut by Elizabeth Howell April 16, 2013](#)

[International Space Hall of Fame:: New Mexico Museum of Space History](#)

Next BSAS meeting
March 16, 2016, 7:30 pm
Cumberland Valley Girl Scout Council Building
4522 Granny White Pike

Topic: "Juno in July" - Theo Wellington

Last summer we explored Pluto... this summer the target is Jupiter. Spacecraft Juno arrives at Jupiter on July 4. What do we expect to learn in this year and a half mission? The largest planet still harbors some secrets that Juno will discover. We'll be looking at Jupiter in our telescopes this summer from Earth while Juno looks from orbit!

Barnard-Seyfert Astronomical Society
Minutes of a Regular Meeting of the Board of Directors
Held On Wednesday, February 3, 2016.

The regular meeting of the Board of Directors of the Barnard-Seyfert Astronomical Society was held February 3, 2016, at the Girl Scouts of Middle Tennessee office, 4522 Granny White Pike, Nashville, TN 37204. Present were Mike Benson, Spencer Buckner, Gary Eaton, Tom Guss, Bud Hamblen and Theo Wellington. A quorum being present, Theo Wellington called the meeting to order at 7:30 PM. Spencer Buckner made a motion to adopt the minutes of the January board meeting. Tom Guss seconded, and the minutes were approved by a unanimous voice vote.

Tom Guss reported that there was \$2665.53 in the equipment account. The current balance in the regular account was not yet available.

Discussions included holding the telescope workshop, which had been scheduled for the canceled January general meeting, at Warner Park, just prior to the April 16 public star party. If the star party had to be canceled owing to weather it still might be possible to have a rain-or-shine workshop at the Nature Center or to have the workshop on the date of another star party where meeting space was available. The Earth Day Festival at Centennial Park on April 23 is an opportunity for solar observing and outreach. On-line membership dues payment is almost ready. Tom Guss and Theo Wellington were to run tests. Plans for the August 21, 2017, solar eclipse were discussed. The best idea seemed to be to support eclipse viewing through the area rather than have a club eclipse viewing site. SLOOH, the robotic telescope service, offered a live feed to their telescopes in exchange for a link on the club's web site to SLOOH's sign-up web page.

There being no further business, Mike Benson moved for adjournment. Tom Guss seconded, and the meeting was adjourned at 8:30 PM.

Respectfully submitted,

Bud Hamblen
Secretary

**Barnard-Seyfert Astronomical Society
Minutes of the Monthly Membership Meeting
Held On Wednesday, February 17, 2016.**

The Barnard-Seyfert Astronomical Society held its monthly membership meeting at the Girl Scouts of Middle Tennessee, 4522 Granny White Pike, Nashville, Tennessee, on Wednesday, February 17, 2016, beginning at 6:30 PM. 27 members and guests signed in.

President Theo Wellington called the meeting to order at 7:35pm. Theo asked for a motion to approve the minutes of the December, 2015, meeting. Terry Reeves so moved and Mike Benson seconded. The minutes were approved by unanimous voice vote. [Secretary's note: The December minutes inadvertently omitted mention of the service award given to Mike Benson by the Astronomical League in recognition of Mike's service to amateur astronomy. The secretary apologizes for this omission.] Treasurer Tom Guss reported that there were \$1,619.74 in the equipment savings account and \$1,946.93 in the regular checking account.

Theo announced upcoming events:

- **March 4:** Public Star Party 7-9:30pm, Bowie Nature Park, Fairview, TN. Volunteers are needed to bring telescopes. [[link](#)]
- **March 5:** Private Star Party, Natchez Trace Water Valley Overlook (Mile Marker 412). [[link](#)]
- **March 19:** University of Scouting, Holy Family Catholic Church, Brentwood, TN. Volunteers are needed to crew a booth. [[link](#)]
- **April 1-3:** Pickett's Astronomy Weekend, Pickett CCC Memorial State Park, Jamestown, TN. [The cost is \$50 for meals and accommodation in a bunkhouse at the group camp site. There were no cabins available as of 2/25/16. [[link](#)]
- **April 2:** 6th Annual Nashville Outdoor Recreation Festival & Expo, Bells Bend Outdoor Center, Nashville, TN. Volunteers are needed to crew a booth and bring telescopes for solar viewing. [[link](#)]
- **April 2:** Astronomy Day, Nathan Bedford Forrest State Park, Eva, TN. [[link](#)]
- **March 31-April 3:** National Science Teachers Association Conference, Music City Center, Nashville, TN. [[link](#)]
- **April 2:** Free, public talk by Dr Andrew Fraknoi, professor of astronomy at Foothill College, Los Altos Hills, CA, and past president of the Astronomical Society of the Pacific, Adventure Science Center, Nashville, TN.
- **April 9:** Private Star Party, Natchez Trace Mile Marker 435.3. [[link](#)]
- **April 16:** Public Star Party 8:30-10:30pm, Edwin Warner Park Special Events Field, Nashville, TN. Volunteers are needed to bring telescopes. [[link](#)]
- **April 23:** Earth Day Festival 11am-6pm, Centennial Park, Nashville, TN. Volunteers are needed to crew a booth and bring solar telescopes. [[link](#)]

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Minutes of the Monthly Membership Meeting, continued

Theo mentioned that the ISS would fly over Nashville on February 18, 2016. Astronaut Scott Kelly is completing a year in space.

John Walker offered glow-in-the-dark tape to mark tripods and mentioned that it was available from Ace Hardware. [See what you are tripping over in the dark.]

John Kramer showed the Day Star Quark Solar Eyepiece for H α wavelength observations of the solar chromosphere and prominences. [<http://www.attheeyepiece.blogspot.com/>]

There being no further business, the meeting was adjourned at 8:45pm.

Respectfully submitted,

Bud Hamblen
Secretary



Strata at Base of Mount Sharp: A view from the "Kimberley" formation on Mars taken by NASA's Curiosity rover. The strata in the foreground dip towards the base of Mount Sharp, indicating flow of water toward a basin that existed before the larger bulk of the mountain formed.

The colors are adjusted so that rocks look approximately as they would if they were on Earth, to help geologists interpret the rocks. This "white balancing" to adjust for the lighting on Mars overly compensates for the absence of blue on Mars, making the sky appear light blue and sometimes giving dark, black rocks a blue cast.

This image was taken by the Mast Camera (Mastcam) on Curiosity on the 580th Martian day, or sol, of the mission.

Malin Space Science Systems, San Diego, built and operates Curiosity's Mastcam. NASA's Jet Propulsion Laboratory, a division of the California Institute of Technology, Pasadena, built the rover and manages the project for NASA's Science Mission Directorate, Washington. Image Credit: [NASA/JPL-Caltech](http://www.nasa.gov/jpl-caltech)

From the President, continued

Star parties are for everyone, members and general public alike.

Make plans to come out to Pickett State Park for the Astronomy Weekend April 1-3, 2016. Register with the park to hold your space! Check out the January/February Tennessee Conservationist magazine for pictures taken from this Dark Sky Park.

Getting excited for the 2017 Eclipse? We'll shortly be only 500 days out. If you are not at Pickett, check out a free public talk at the Adventure Science Center on April 2nd at 1pm by Andrew Fracknoi, chair of the astronomy department at Foothill College and the co-author of *Solar Science: Exploring Sunspots, Seasons, Eclipses, and More*.

Clear skies,
Theo Wellington



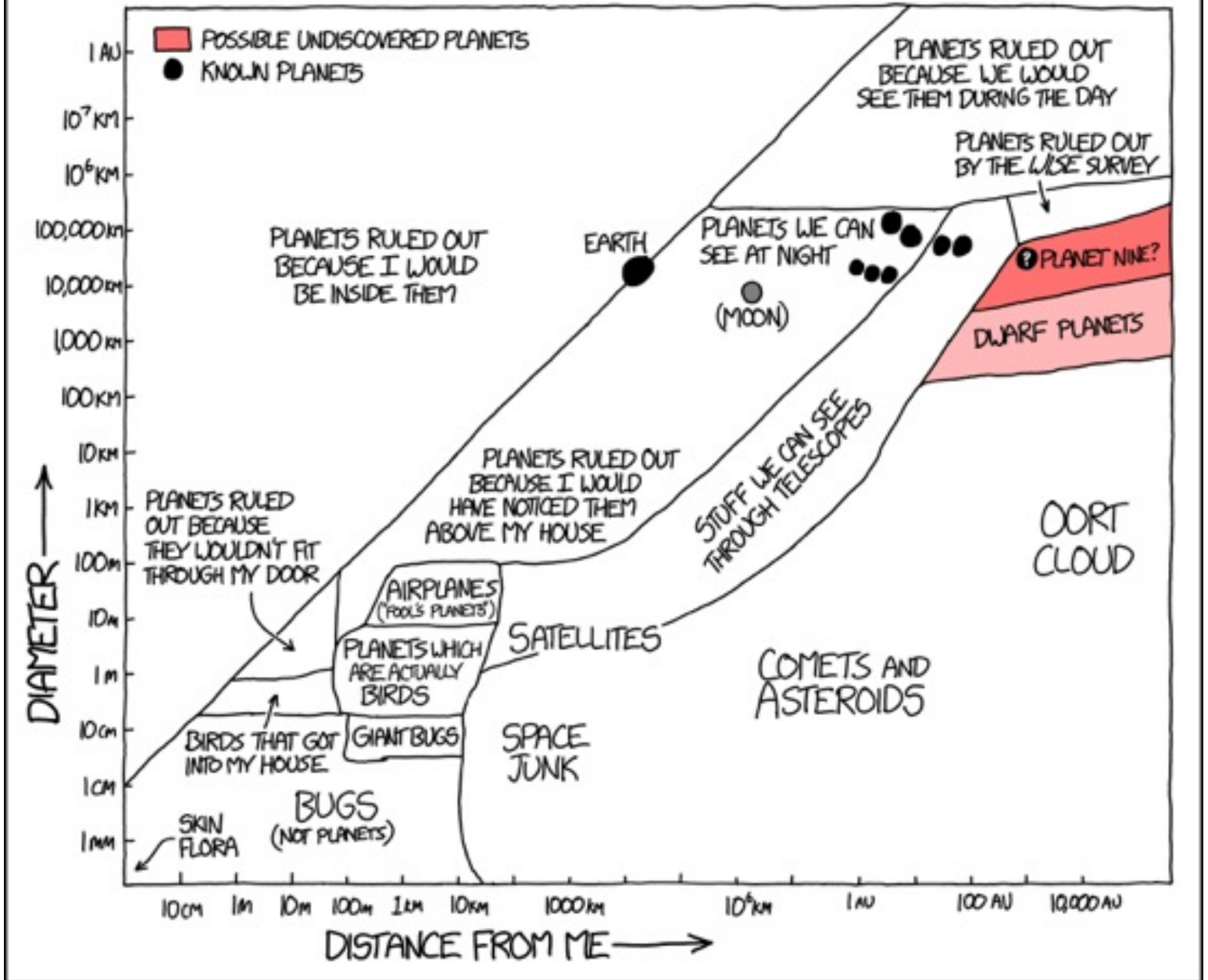
After 340 days aboard the International Space Station, Commander Scott Kelly returns to Earth aboard a Soyuz capsule, landing in Kazakhstan on March 1, 2016.

Credit: NASA

<http://xkcd.com/1633/>

POSSIBLE UNDISCOVERED PLANETS

IN OUR SOLAR SYSTEM
BY SIZE AND DISTANCE (FROM ME)





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\$12 Student*

* To qualify as a student, you
must be enrolled full time in
an accredited institution or
home schooled.

You can check the status
of your membership at
bsasnashville.com.

There will be a two month
grace period before any
member's name is removed
from the current distribution
list.

About BSAS

Organized in 1928, the Barnard-Seyfert Astronomical Society is an association of amateur and professional astronomers who have joined to share our knowledge and our love of the sky.

The BSAS meets on the third Wednesday of each month at the Cumberland Valley Girl Scout Building at the intersection of Granny White Pike and Harding Place in Nashville. Experienced members or guest speakers talk about some aspect of astronomy or observing. Subjects range from how the universe first formed to how to build your own telescope. The meetings are informal and time is allotted for fellowship. You do not have to be a member to attend the meetings.

Membership entitles you to subscriptions to *Astronomy and Sky & Telescope* at reduced rates; the club's newsletter, the *Eclipse*, is sent to members monthly. BSAS members also receive membership in the Astronomical League, receiving their quarterly newsletter, the *Reflector*, discounts on all astronomical books, and many other benefits.

In addition to the meetings, BSAS also sponsors many public events, such as star parties and Astronomy Day; we go into the schools on occasion to hold star parties for the children and their parents. Often the public star parties are centered on a special astronomical event, such as a lunar eclipse or a planetary opposition.

Most information about BSAS and our activities may be found at bsasnashville.com. If you need more information, write to us at info@bsasnashville.com or call Theo Wellington at (615) 300-3044.

Free Telescope Offer!

Did someone say free telescope? Yes, you did read that correctly. The BSAS Equipment & Facilities Committee has free telescopes ranging in size from 2.6" to 8" that current members can actually have to use for up to 60 days at a time. We also have some other items in the loaner program such as a photometer, H-alpha solar telescope, educational CDs, tapes, DVDs, and books. Some restrictions apply. A waiting list is applicable in some cases. The BSAS Equipment Committee will not be held responsible for lost sleep or other problems arising from use of this excellent astronomy gear. For information on what equipment is currently available, contact info@bsasnashville.com.