

# The ECLIPSE

August  
2019

*The Newsletter of the Barnard-Seyfert Astronomical Society*

## Next Membership Meeting:

August 21, 2019, 7:30 pm

Cumberland Valley  
Girl Scout Council Building  
4522 Granny White Pike

Topic:  
*What's Up?*

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## From the President

Star parties. We get a fair amount of members from our outreach at star parties. The parties are a great way to share our knowledge and love of this hobby (or profession!). Although we regularly talk about two types of star parties, public and private; I will add a third category and call it requested parties. We all know about the public parties where we bring telescopes and binoculars and set up to let the public look at the skies and ask questions. The private parties are members only that allows us to have fellowship and learning with fellow club members. The requested parties are the type where someone emails us requesting that a couple of people show up with a scope or two and share with a small group of people – usually some sort of organization. The requested parties are difficult to plan for because they are so random. Once we get a request, we have to poll members to see who might be available and willing to help out. We have a pretty dedicated group of members that usually step up but I am encouraging others to think about it too. Not only does it promote our purpose of outreach, but you will learn as much as you teach. I know schedules are tight and families are all over the place on weekends, but watch at the meetings for upcoming opportunities and see if it fits your schedule. You might be surprised with how much fun you have!

While we are talking about star parties, there is the Dark Skies Celebration event at Pickett State Park starting on Aug. 30th. This is a great opportunity for fellowship, learning, and experiencing an IDS Dark Sky site. Accommodations are the bunkhouses at the Group Camp. this is north of the main park, the buildings are heated. Really nice dining hall / meeting space. There will be programs, opportunities for hiking, and if we are lucky, dark skies at night. For more information, [see the park website](#).

Clear skies and have a great month!

Keith Rainey



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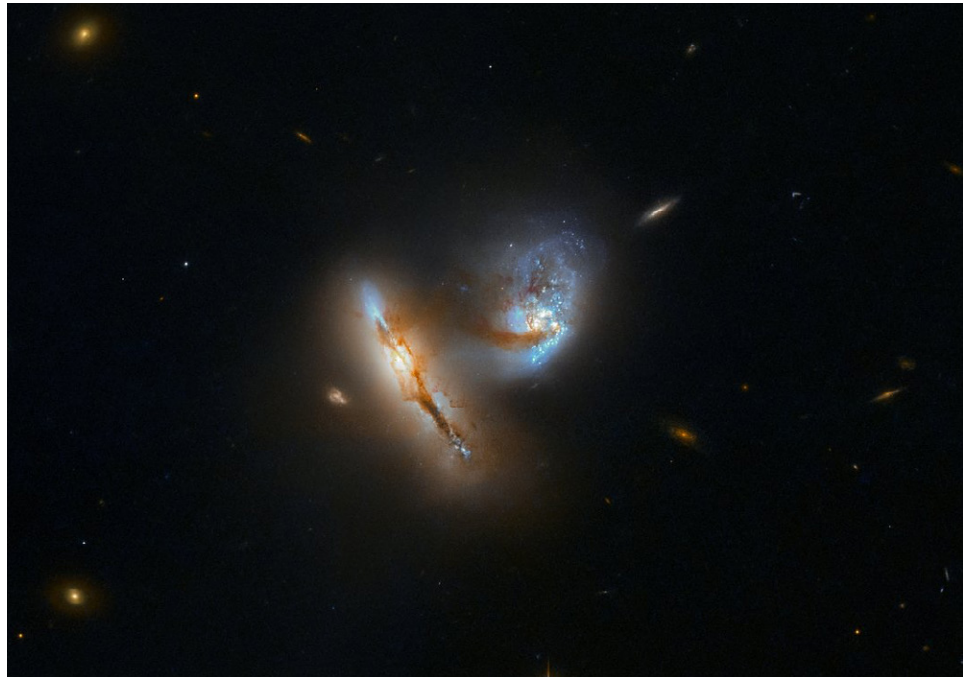
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The pair of strange, luminescent creatures at play in this image are actually galaxies — realms of millions upon millions of stars. This galactic duo is known as UGC 2369. The galaxies are interacting, meaning that their mutual gravitational attraction is pulling them closer and closer together and distorting their shapes in the process.

Credit: [ESA/Hubble & NASA, A. Evans](#)

## Upcoming Star Parties

Saturday August 3	BSAS Private Star Party <a href="#">Natchez Trace Parkway mile marker 435.3</a>
Friday August 9 9:00 to 11:00 pm	BSAS Public Star Party <a href="#">Bowie Nature Park (Fairview)</a>
Saturday August 31	BSAS Private Star Party <a href="#">Natchez Trace Parkway mile marker 412 (Water Valley Overlook)</a>
Saturday September 7	BSAS Public Star Party <a href="#">Cornelia Fort Airpark</a>



Aug 30  
Sept 28



Aug 7  
Sept 5



Aug 15  
Sept 13



Aug 23  
Sept 28

## Book Review: The Girls of Atomic City reviewed by Robin Byrne

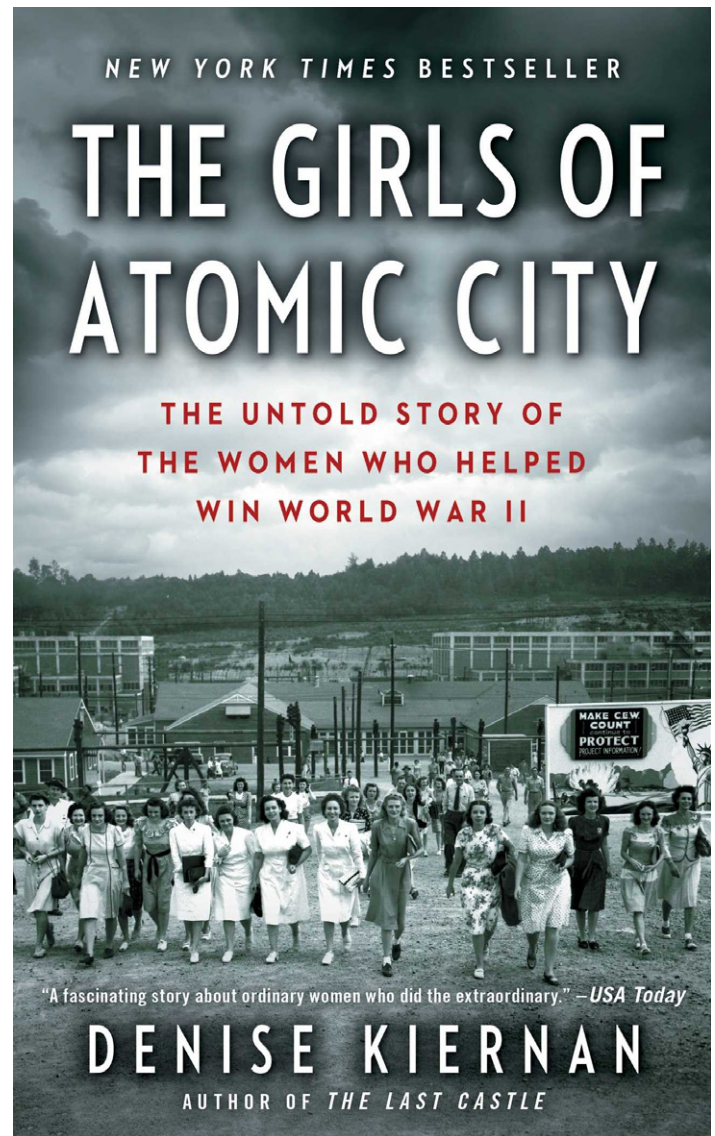
A little over a year ago, Adam and I went on a tour of the Oak Ridge National Laboratory in Oak Ridge, Tennessee. When looking around the gift shop, I saw the title, *The Girls of Atomic City: The Untold Story of the Women Who Helped Win World War II* by Denise Kiernan, and knew it was a book I should read.

*The Girls of Atomic City* follows the story of the Manhattan Project and the development of the first atomic bomb, but focuses on the lives of several women who would work at Oak Ridge during this time. The women chosen covered a wide range of roles for women at the facility: janitorial service, secretary, nurse, wife, leak pipe maintenance, calutron cubical operator, statistician, and chemist. We also get a glimpse at the differences between how white and black employees were housed and treated.

The story begins in Germany with Lise Meitner, an Austrian physicist who was one member of the team that first discovered fission. Because she fled Germany for her safety after the rise of the Nazis, she missed out on being recognized for her contributions to the discovery. The story then moves to the United States, the beginning of the Manhattan Project, and the choosing of sites to develop the bomb.

It was obvious from the start that a lot of manpower was going to be needed. Initial estimates suggested needing 10 - 20 thousand employees. By the end of the war, that was closer to 40,000 people working at Oak Ridge. The majority of people recruited to work there, male and female, had no idea what they were working on, with each job being highly compartmentalized. All they knew was that it was part of the war effort, and it was a paying job. The isolation of each component would continue until the bomb was dropped on Hiroshima.

As the new employees arrived by train in Knoxville from all over the country, they were usually met at the train station and driven to the new site. Their first jolt of reality involved the excessive security measures, with multiple warnings about not talking to others about anything they were doing or saw,



## **The Girls of Atomic City, continued**

and to never engage in idle speculation about what was really being done at the site. Some employees were recruited to spy on their coworkers and report anything suspicious. Anyone accused of discussing a taboo topic quickly disappeared from the facility.

The next strong impression made on the new arrivals was the ever-present mud and the primitive housing conditions. Roads were not paved, and most people either accepted mud covered shoes, or walked barefoot, carrying their shoes to and from work. Housing ranged from literal huts with holes in the wall for windows (for the black employees only), to separate dormitories for single white men and women, to houses for white married couples and their children. A very elite few found housing in Knoxville and commuted each day. Black husbands and wives could not live together. No housing had been constructed for black employees beyond the huts, which were designed to be single-sex, multiple occupancy residences, with the men and women residing in separate areas of the facility. Because of the housing situation, black employees couldn't bring their children, so they sent money home to family members caring for the kids.

Because so many people worked and lived on site, it quickly became a town, despite its isolation. Grocery stores, churches, movies, dances, and a variety of clubs for different interests, such as hiking, cropped up to help the residents feel at home and fill their leisure time. What began as a facility geared toward only one purpose, quickly turned into a community. Love also blossomed for many of the women working there. Since the vast majority of people at Oak Ridge were single, romance was inevitable. More than half of the single women highlighted in the book ended up marrying someone they met while at Oak Ridge.

I found the stories interesting and entertaining. My one complaint would be that because the stories were told chronologically, and intertwined with milestones in the development of the bomb, while the author would present snippets from the lives of each of the women, I would lose track of who's who. It made it difficult to follow the complete story arch of any one individual, so they blended together. If you are better at following multiple story lines than I am, it shouldn't present as much of a challenge. Overall, I recommend *The Girls of Atomic City* as a glimpse into the story of the atomic bomb told from a very different point-of-view.

### **Referenes:**

*The Girls of Atomic City: The Untold Story of the Women Who Helped Win World War II* by Denise Kiernen; Touchstone/Simon & Schuster, 2013



## **Dark Sky Celebration Weekend**

**A Weekend for Amateur Astronomers  
Pickett International Dark Sky Park**

**August 30 - September 1, 2019**

**Pickett Civilian Conservation Corps Memorial State Park**

**[www.tnstateparks.com/parks/pickett](http://www.tnstateparks.com/parks/pickett)  
(931) 879-5821**

**\$60 includes Saturday and Sunday breakfast,  
lunch and dinner Saturday, and accommodations  
in the Group Camp**

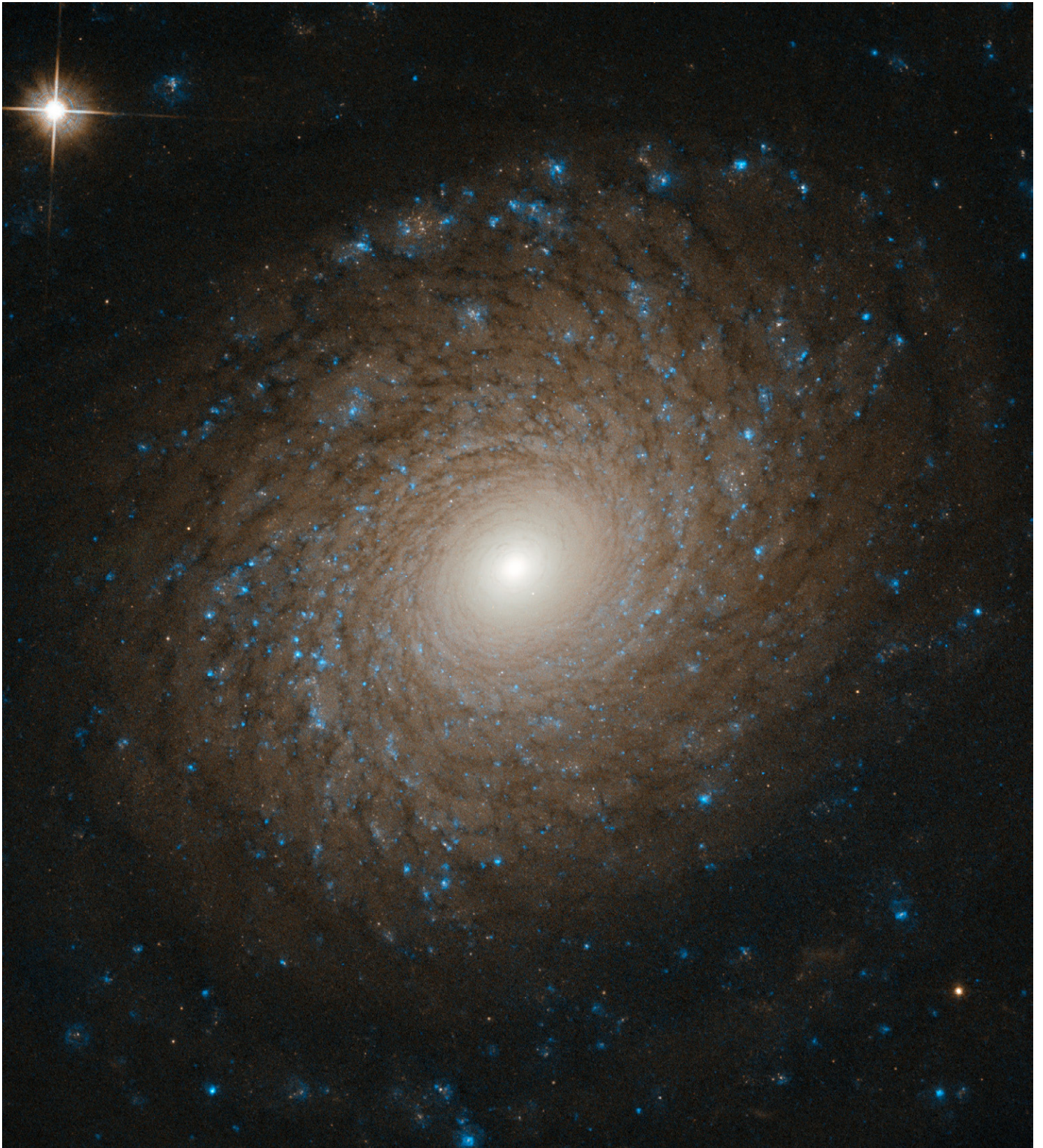
**Speakers and Workshops throughout the day  
Evening viewing under Pickett's dark skies**

**Next BSAS meeting  
August 21, 2019, 7:30 pm**

Cumberland Valley  
Girl Scout Council Building  
4522 Granny White Pike

Topic: *What's Up?*





Galaxies come in many shapes and sizes. One of the key galaxy types we see in the universe is the spiral galaxy, as demonstrated in an especially beautiful way by the subject of this Hubble Space Telescope image, NGC 2985. NGC 2985 lies over 70 million light-years from the solar system in the constellation of Ursa Major (the Great Bear).

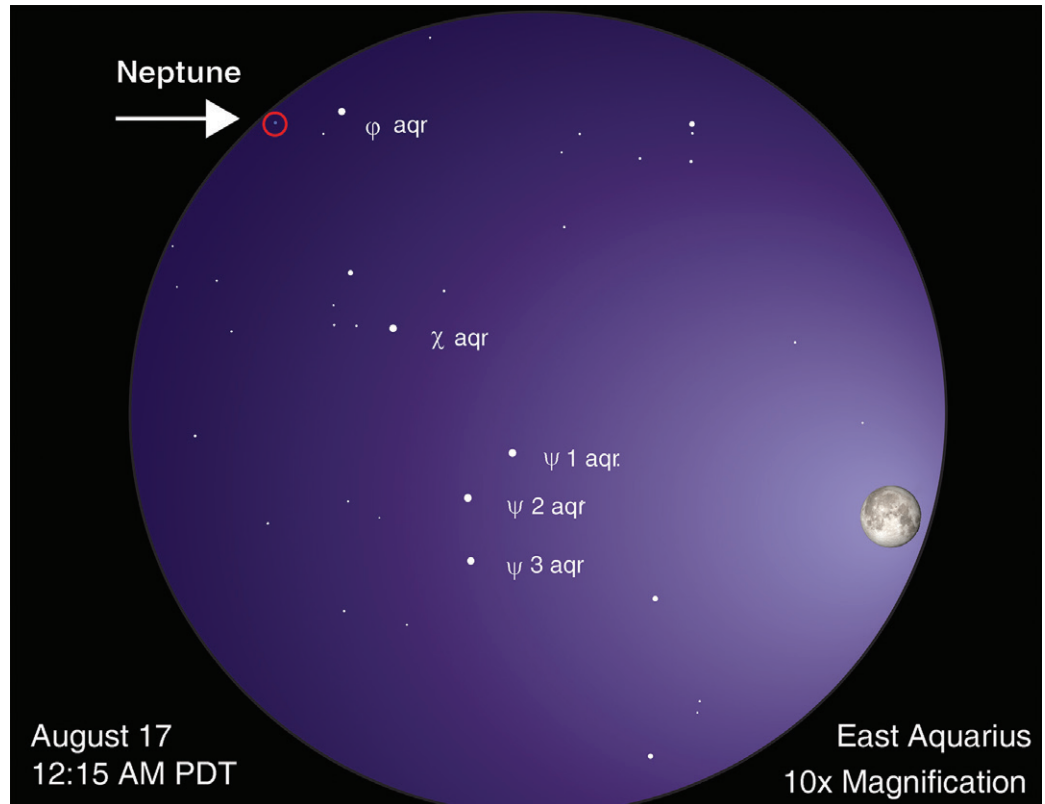
Credit: [ESA/Hubble & NASA, L. Ho](#)



## Chill Out: Spot an Ice Giant in August by David Prosper

Is the summer heat getting to you? Cool off overnight while spotting one of the solar system's ice giants: Neptune! It's the perfect way to commemorate the 30th anniversary of Voyager 2's flyby.

Neptune is too dim to see with your unaided eye so you'll need a telescope to find it. Neptune is at opposition in September, but its brightness and apparent size won't change dramatically as it's so distant; the planet is usually just under 8th magnitude and 4.5 billion kilometers away. You can see Neptune with binoculars but a telescope is recommended if you want to discern its disc; the distant world reveals a very small but discernible disc at high magnification. Neptune currently appears in Aquarius, a constellation lacking in bright stars, which adds difficulty to pinpointing its exact location. Fortunately, the Moon travels past Neptune the night of August 16th, passing less than six degrees apart (or about 12 Moon widths) at their closest. If the Moon's glare overwhelms Neptune's dim light, you can still use its location that evening to mark the general area to search on a darker night. Another Neptune-spotting tip: Draw an imaginary line from bright southern star Fomalhaut up to the Great Square of Pegasus, then mark a point roughly in the middle and search there, in the eastern edge of Aquarius. If you spot a blue-ish star, swap your telescope's eyepiece to zoom in as much as possible. Is the suspect blue "star" now a tiny disc, while the surrounding stars remain points of white light? You've found Neptune!

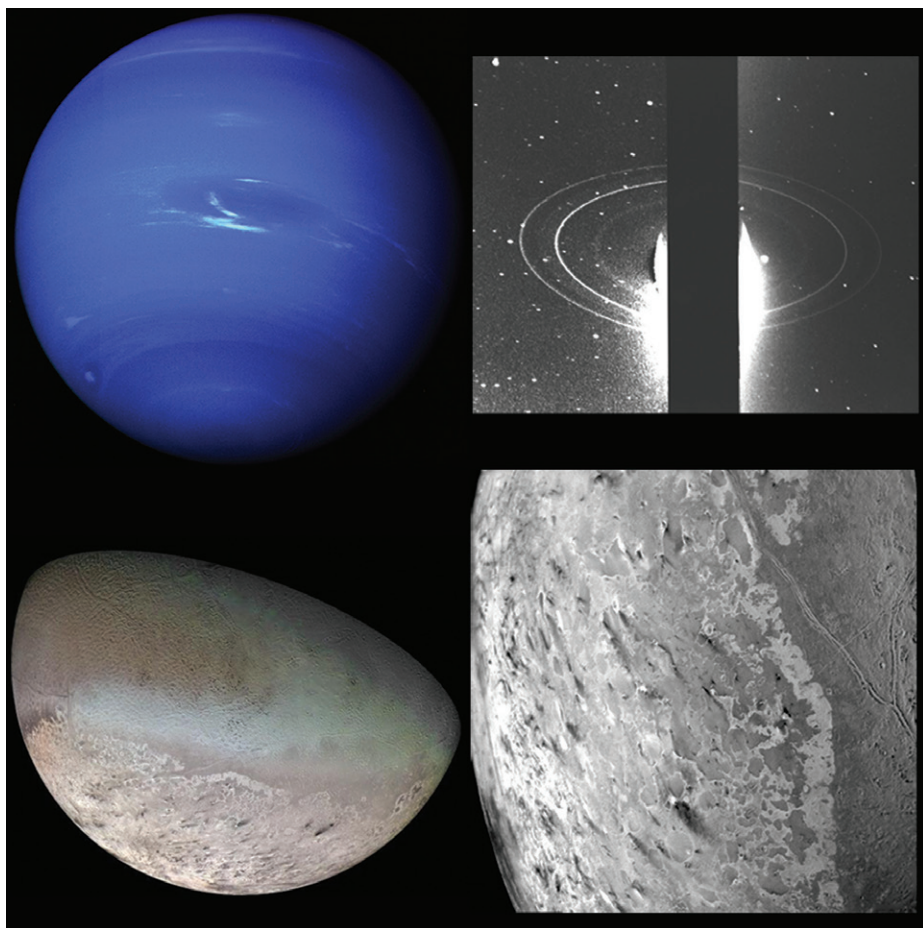


**Finder chart for Neptune. This is a simulated view through 10x50 binoculars (10x magnification). Please note that the sizes of stars in this chart indicate their brightness, not their actual size. Moon image courtesy NASA Scientific Visualization Studio; chart created with assistance from Stellarium.**

Neptune and Uranus are ice giant planets. These worlds are larger than terrestrial worlds like Earth but smaller than gas giants like Jupiter. Neptune's atmosphere contains hydrogen and helium like a gas giant, but also methane, which gives it a striking blue color. The "ice" in "ice giant" refers to the mix

continued on next page

## Chill Out, continued



**Clockwise from top left: Neptune and the Great Dark Spot traced by white clouds; Neptune's rings; Triton and its famed icy cantaloupe surface; close of up Triton's surface, with dark streaks indicating possible cryovolcano activity. Find more images and science from Voyager 2's flyby at [bit.ly/NeptuneVoyager2](http://bit.ly/NeptuneVoyager2) Image Credit: NASA/JPL**

of ammonia, methane, and water that makes up most of Neptune's mass, located in the planet's large, dense, hot mantle. This mantle surrounds an Earth-size rocky core. Neptune possesses a faint ring system and 13 confirmed moons. NASA's Voyager 2 mission made a very close flyby on August 25, 1989. It revealed a dynamic, stormy world streaked by the fastest winds in the solar system, their ferocity fueled by the planet's surprisingly strong internal heating. Triton, Neptune's largest moon, was discovered to be geologically active, with cryovolcanoes erupting nitrogen gas and dust dotting its surface, and a mottled "cantaloupe" terrain made up of hard water ice. Triton is similar to Pluto in size and composition, and orbits Neptune in the opposite direction of the planet's rotation, unlike every other large moon in the solar system. These clues lead scientists to conclude that this unusual moon is likely a captured Kuiper Belt object.

Discover more about Voyager 2, along with all of NASA's past, present, and future missions, at [nasa.gov](http://nasa.gov).

This article is distributed by NASA Night Sky Network.

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.org](http://nightsky.jpl.nasa.org) to find local clubs, events, and more! You can catch up on all of NASA's current and future missions at [nasa.gov](http://nasa.gov).

With articles, activities and games NASA Space Place encourages everyone to get excited about science and technology. Visit [spaceplace.nasa.gov](http://spaceplace.nasa.gov) to explore space and Earth science!





In honor of the club's 90th anniversary we partnered with Hatch Show Print to create a unique poster that would honor the achievement of the club. For those who don't know Hatch Show has been making posters for a variety of events and concerts for 140 years. In all that time we are their first astronomy club.

On the poster at the center is the moon. This was made from a wood grained stencil that the shop has used for over 50 years. To contrast that the telescope that the people are using is a brand new stencil made for our poster. The poster has three colors. First the pale yellow color of the moon was applied. Next the small stars, circles, and figures at the bottom were colored in metallic gold.

The third color is a blue for the night sky. Where it overlaps with the metallic gold it creates a darker blue leaving the figures at the bottom looking like silhouettes. This was a one time printing so the 100 that we have are all that will be printed.

The prints are approximately 13 3/4" x 22 1/4" and are available for \$20 at our membership meetings, or \$25 with shipping by ordering through [bsasnashville.com](http://bsasnashville.com). Frame not included.

**Barnard-Seyfert Astronomical Society**  
**Minutes of a Regular Meeting of the Board of Directors**  
**Held On Wednesday, July 3, 2019**

The regular meeting of the Board of Directors of the Barnard-Seyfert Astronomical Society was held July 3, 2019, at the Girl Scouts Center, 4522 Granny White Pike, Nashville, TN 37204. Present were Tom Beckermann, Chip Crossman, Gary Eaton, Todd Nannie, Keith Rainey and Andy Reeves. A quorum being present, Keith called the meeting to order at 7:36 PM. Keith asked for a motion to approve the Board minutes (as amended) of the June 5, 2019 meeting. Todd so moved, Chip seconded, and the minutes were adopted by unanimous voice vote. Keith stated that Theo had reported that there was approximately \$9,000 in the bank account. Keith reported that there are 116 members in good standing out of a total of 124.

Keith discussed the lineup of speakers for the upcoming monthly member meetings. Chuck Schlemm will be presenting about the 50th anniversary of the Apollo 11 moon landing for the July meeting. The August meeting's "What's Up" presentation to be held at the ASC, with Gary and Theo assisting ASC staff. Speakers still need to be lined up for the October and December meetings. The Board discussed asking Theo to present for the December meeting regarding her recent trip to Chile for the solar eclipse.

Regarding upcoming outreach events, Gary stated that he would conduct a presentation at the Bells Bend public star party if the telescope viewing is rained out. Keith discussed staffing for the Apollo 11 anniversary celebration at the ASC.

Todd discussed the equipment report, stating that he had received a couple of requests for loaner scopes. All BSAS equipment has been tagged with asset tags, and Keith has the remaining tags. Tom will continue to work on the loaner equipment list for addition to our Google Groups forum.

Gary brought up the possibility of incidents/injuries at impromptu club outreach events, and if our insurance would cover such incidents. The Board decided to review the group's bylaws about what is considered an official outreach event, and if the current insurance policy has any deficiencies in coverage.

Chip showed the Board possible templates he designed for new BSAS name tags.

There being no further business, Keith asked for a motion to adjourn. Chip so moved, Todd seconded, and the meeting was adjourned at 8:30 PM.

Respectfully submitted,

Andy Reeves  
At-Large Board Member (Acting Secretary)



**Barnard-Seyfert Astronomical Society  
Minutes of the Monthly Membership Meeting  
Held On Wednesday, July 17, 2019**

The Barnard-Seyfert Astronomical Society held its monthly meeting at the Girl Scout Center, Nashville, Tennessee, on Wednesday, July 17, 2019. Twenty-one members and guests signed in. Keith Rainey called the meeting to order at 7:48 PM and asked for a motion to approve the minutes of the June 19, 2019, meeting. Chuck Schlemm so moved, Theo Wellington seconded, and the minutes were approved by a unanimous voice vote. Theo reported that there was \$8,949.26 in the bank account and \$306.48 in the PayPal account. Keith reported that there were 129 members. Theo commented on her visit to La Silla, Chile, where she observed the July 2, 2019, total eclipse of the Sun. Keith announced upcoming events, outreach opportunities, and star parties. There is to be a Boy Scout Camperee at Port Royal State Park on July 20. The Adventure Science Center also was holding an event on July 20 to celebrate Apollo 11. Chuck Schlemm will have an exhibit table at this event. The Williamson County Public Library and the Williamson County Parks and Recreation will have an event at Timberland Park on August 2. A private star party will be at Natchez Trace Mile Marker 435.3 on August 3. A public star party will be at Bowie Nature Park, Fairview, on August 9. The Belmont University Humanities Symposium is on August 24 and 15. Keith mentioned upcoming celestial events, including the peak of the Summer Perseid meteor shower on August 13.

Chuck Schlemm presented “Apollo 11, 50th Anniversary,” including planned future lunar explorations.

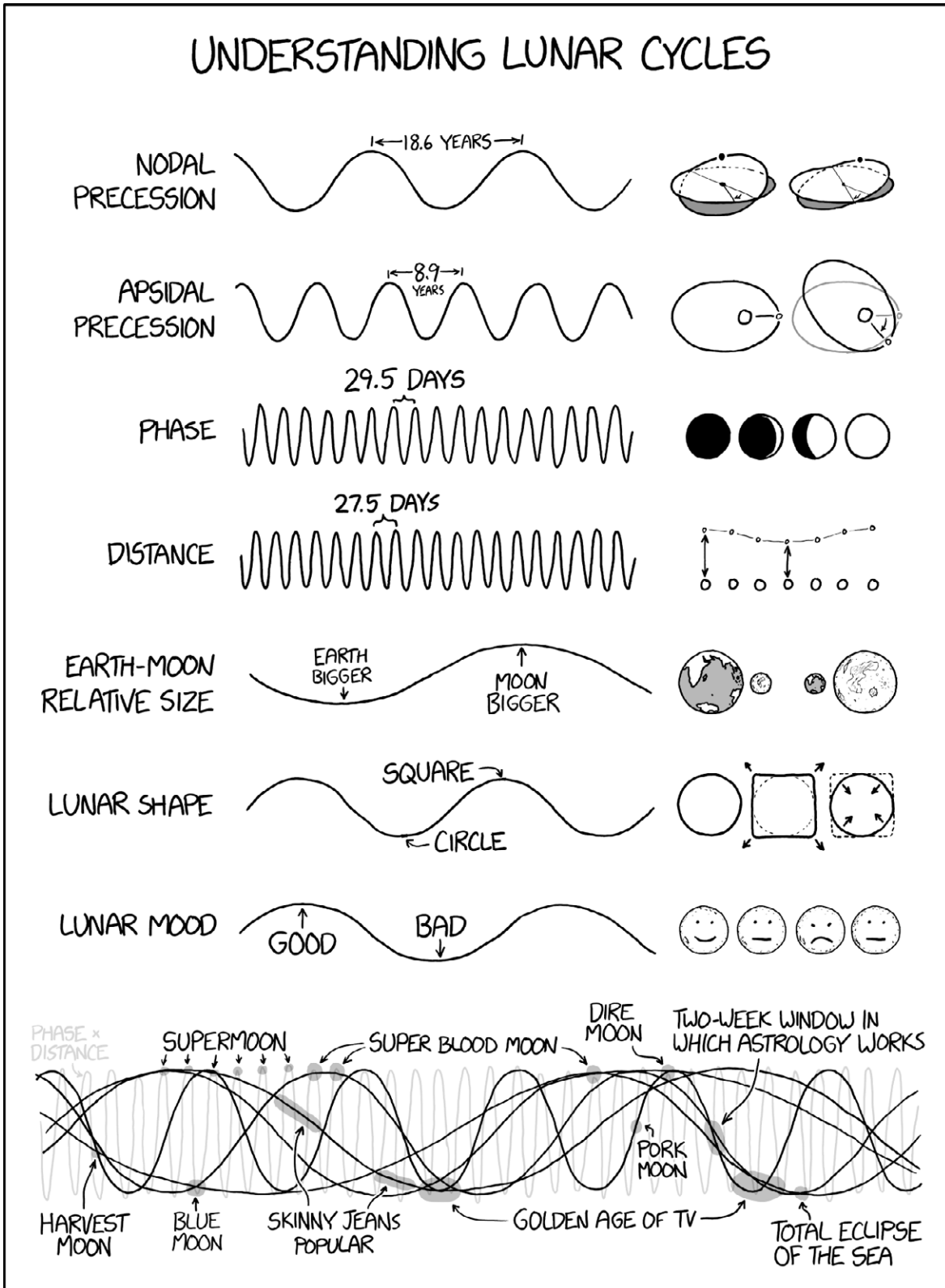
There being no further business the meeting was adjourned at about 9 PM.

Respectfully submitted,

Bud Hamblen

Secretary

xkcd







Become a Member of BSAS!  
Visit [bsasnashville.com](http://bsasnashville.com) to join online.

All memberships have a vote in BSAS elections and other membership votes. Also included are subscriptions to the BSAS and Astronomical League newsletters.

Annual dues:

Regular: \$25  
Family: \$35  
Senior/Senior family: \$20  
Student:\* \$15

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

## 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](http://bsasnashville.com). If you need more information, write to us at [info@bsasnashville.com](mailto:info@bsasnashville.com).

## 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](mailto:info@bsasnashville.com).