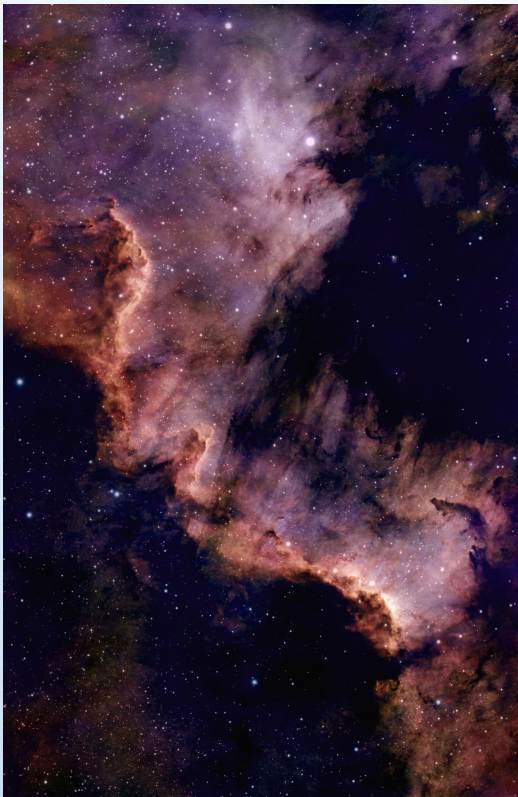


Spooky Astronomy

We have had mixed luck with the weather recently but maybe October will provide us with some clear nights. In this issue we have more BSAS member photos, observing targets that fit a Halloween theme, an article on Iapetus by Robin Byrne, and the usual Astronomical League star charts.

Speaking of spooky, how about some astronomy-related candy! There are Mars bars, Milky Way bars, Moon pies, Starburst, Orbit gum, and Eclipse gum. Can you name others?



Eagle Nebula by new BSAS member Jesse Scruggs from suburban Nashville. Seestar S50, TH10 EQ mount, 10 second exposures. Eagle was 5.5hrs integration time.

In This Issue

President's Corner - page 3

BSAS Gallery - page 4

Miscellany - page 5

Spooky Halloween targets - page 6

Navigating the October Skies - pages 7-8

BSAS meeting minutes - page 9

Happy birthday Iapetus - pages 10-12

***"... I feel above me the day-blind stars
waiting with their light. For a time
I rest in the grace of the world, and am free."***

Wendell Berry



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Contact BSAS officers at
bsasnashville.com/contact, or
email info@bsasnashville.com.

About BSAS

Founded in 1928, the **Barnard-Seyfert Astronomical Society** is an association of amateur and professional astronomers who have joined together to share their knowledge and love of the night - *and day* - sky! We welcome everyone from beginners to pros alike!

BSAS meets on the third Wednesday of each month at the **Warner Park Nature Center** in Nashville, TN. Experienced members or guest speakers usually talk about some aspect of astronomy or sky observing. Subjects range from how the universe first formed to how to build your own telescope, to "Pluto: Dog, planet, or KBO?..."

The meetings are very casual and time is allotted for coffee, hang out and general astro-tivity! Meetings are free and open to the public, you do NOT need to be a member to attend!... Join us!

BSAS membership entitles you to several perks such as subscription discounts to *Astronomy* and *Sky & Telescope* magazines, access to the club's Equipment Loan Program, invitations to private club events, participation in our Google chat forums, and much more!

In addition to the regular meetings, BSAS also sponsors many public astronomy events, such as our famous monthly public star parties, Astronomy Day school events, collaborations with the Dyer Observatory, tents and displays at local festivals, and "Pop-Up" star parties!

More information about BSAS can be found on our website bsasnashville.com. If you have any questions, please email us anytime at info@bsasnashville.com.

Equipment Loan Program

Did someone say **FREE** telescope loans??... Why yes, yes they did!!

BSAS has telescopes ranging from 2.5" to 10", from beginner to advanced, that members can borrow for up to 60 days at a time! We also have other items such as H-alpha solar telescopes, Dobsonians, educational CDs, tapes, DVDs, and more!

BSAS will not be held responsible for lost sleep or gear addiction from use of this excellent astronomy equipment! For information on what's currently available, contact info@bsasnashville.com.

President's Corner

By Steve Hughes

Greetings Astronomies,

I heard a YouTuber once say *"visual astronomy and astrophotography are the perfect partners... One teaches you to look, the other teaches you to keep."*

While nothing can replace the excitement of seeing Saturn or the Ring Nebula with your eye through an eyepiece, or learning how to star-hop to the M13 star cluster, there is also nothing like seeing the colors of the Orion Nebula or the majesty of the Andromeda Galaxy live on a smartscreen or in a stacked final image.

As astrophotography (AP) gear continues to advance and prices continue to drop, interest in AP focused content is growing at BSAS. So be on the lookout for more AP topics and maybe even AP classes in the coming months!

And we can always use more volunteers at BSAS! If you'd like to give us a hand and learn more astronomy stuff along the way, we've love to hear from you! No experience required! Just email info@bsasnashville.com.

As always, be safe, be kind, and keep looking up!

Steve Hughes
President, BSAS

"Every star may be a sun to someone..." - Carl Sagan

Upcoming Events

October Member Meeting

Wednesday, October 21

7:00 - 9:00 p.m.

Warner Park Nature Center
7311 Highway 100 Nashville

November Member Meeting

Wednesday, November 18

7:00 - 9:00 p.m.

Place TBD!

We might be back at Dyer
or

Warner Park Nature Center
7311 Highway 100 Nashville

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BSAS is a non-profit, 100% volunteer operated organization. Please consider giving us a hand if you can! We could use some help with the following:

- Monthly Meeting Setup and tech support.
- Program Committee: Help research content for our monthly meetings.
- Event Crew: Help with setting up our various events.

If you can help with any of the above, or in any other way, please email us at volunteer@bsasnashville.com.

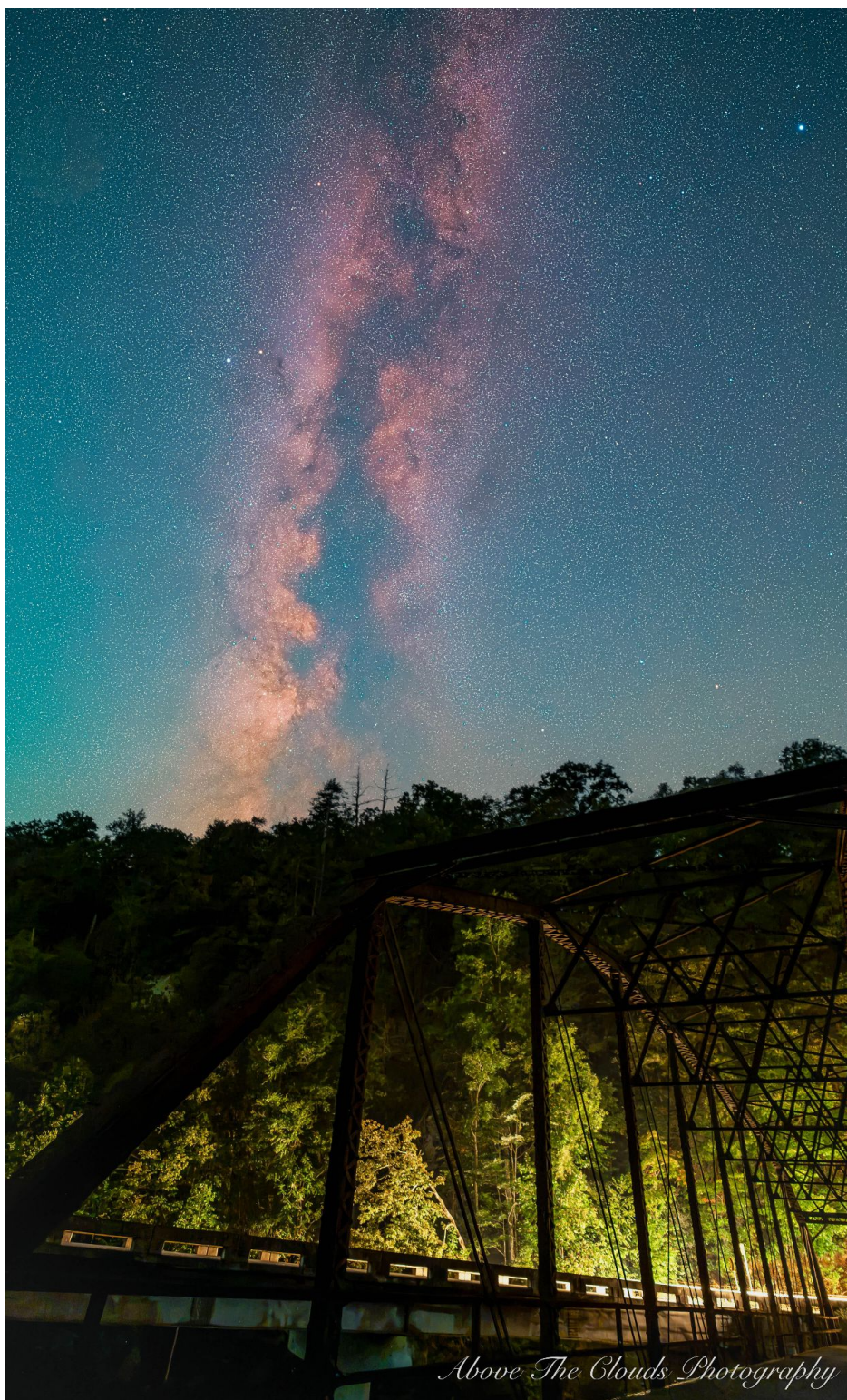


The *Eclipse* is the monthly newsletter of the Barnard-Seyfert Astronomical Society, Nashville, Tennessee.

Comments, questions, and submissions for future issues are welcome and may be sent to eclipse@bsasnashville.com.

Don Filer, Editor

BSAS Gallery



Milky Way image by Spencer Waugh. 8 stacked images for the Milky Way and 1 single untracked image of the foreground. Blended in post.



IC1396 by Kevin Taylor from his backyard in Clarksville. Details at <https://app.astrobin.com/i/ang7wu>

BSAS 2027 Wall Calendar

We're looking for some of your favorite astro-photos to feature. This is a great opportunity to see your work in print and share it with the club and beyond, whether you're a beginner or a pro!

Deadline for image submission is midnight, 10/31/26! Email your images directly to calendar@bsasnashville.com

High-resolution images (ideally 300 dpi or larger) of any astronomy subject, taken by a BSAS member (no need for it to be recent), and a short title/caption and basic details.



Comet 220P/McNaugh by Spencer Waugh. 2 hours (252 subs @ 30S) of data. He noted that he was locked on to a neighboring star rather than the comet itself so "my detail isn't where I want."

Miscellany

Upcoming BSAS Events

Remember to check the BSAS website (<https://www.bsasnashville.com/calendar>) and BSAS social media channels for upcoming events, including joint-venture BSAS/Dyer star parties.

Astronomy On Tap Nashville

Dates for Astronomy On Tap for the remainder of 2026 are:

- October 27
- December 8

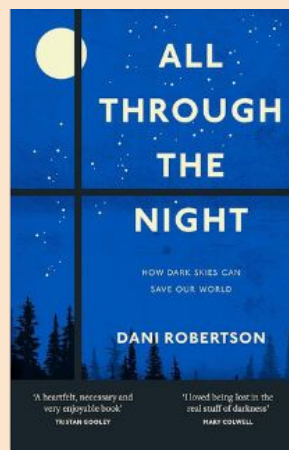
All begin at 7:00pm at Fait la Force Brewing, 1414 3rd Ave S, Nashville.

DarkSky reads: Go dark with a good book

Another selection of interest from DarkSky International's list of dark sky-themed books.

All Through the Night: Why Our Lives Depend on Dark Skies by Dani Robertson

Blending science and personal reflection, this book explores why darkness is essential for human health, wildlife, and natural rhythms. It offers both insight and a call to protect the night.



Find more good star reads at DarkSky International: <https://darksky.org/news/darksky-reads-go-dark-with-a-good-book>

The Night Sky Network (NSN) supports astronomy clubs across the USA dedicated to astronomy outreach. Visit <https://nightsky.jpl.nasa.gov/> to find events, planners, news, and more!

Bill the Sky Guy - Help for Beginners

I recently spotted this site created specifically to help beginners. He collects all sorts of tips, advice, techniques and information.

<https://www.billtheskyguy.com/>

Become a Member of BSAS! Visit 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.



Spooky Halloween targets

There are plenty of observing targets that are “Halloween appropriate.” The following was borrowed from a piece published in 2014 by Jane Houston Jones.

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Here are my favorite spooky named objects. Some are tricks and all are treats! All benefit from a dark sky.

[Mirach's Ghost](#) NGC 404 in Andromeda, magnitude 11, size 4.3' x 3.9' This galaxy is hard to see. Move Mirach (Beta Andromedae) out of the way for a ghostly view.

The [Phantom Streak](#) NGC 6741 in Aquila, magnitude 10.8, size 6". A fast evolving planetary nebula.

The [Ghost of the Moon](#) Nebula NGC 6781 in Aquila, magnitude 11.8, size 1.8'. A nice round ghostly planetary nebula.

The [Spider Galaxy](#) NGC 5829 (Arp 42) in Bootes, magnitude 13.8, 1.7' x 1.5'. Pretty face-on spiral galaxy in BOOtes. Scary!

The [Skull Nebula](#) NGC 246 in Cetus, magnitude 8, size 3.8'. William Herschel discovered this large planetary nebula. It's easy to find, and a real treat!

The [Witch Head Nebula](#). IC 2118 in Eridanis, magnitude 13, size 160' by 80'. (About the same size as the Andromeda Galaxy which is 189' by 61'). This very large and very faint reflection nebula is associated with the star Rigel but is almost 3 degrees west of the star. The blue color of the nebula is caused not only by blue color of Rigel, but also because the dust grains reflect blue light more efficiently than red. Earth's daytime sky appears blue for the same reason.

The [Ghost Ring Nebula](#) IC 5148 in Grus, magnitude 13, size 2'. A pretty little planetary nebula in the neck of Grus the crane. If you can see Fomalhaut in Piscis Austrinus, look a little more south to find Grus.

The [Little Ghost Nebula](#) NGC 6369 in Ophiuchus, magnitude 12.9, size 30". A pretty planetary nebula, also discovered by William Herschel. Look for the mag 15.9 central star in this planetary nebula.

The [Red Spider Nebula](#) NGC 6537 in Sagittarius, magnitude 12.5, size 9". A bipolar planetary nebula with a hot white dwarf star.

Phobos and Deimos ([Fear and Terror](#)) – the moons of Mars. It's possible to see these small moons, but easier to see when Mars is closer to Earth (*Ed: next close approach is Feb 19, 2027*).

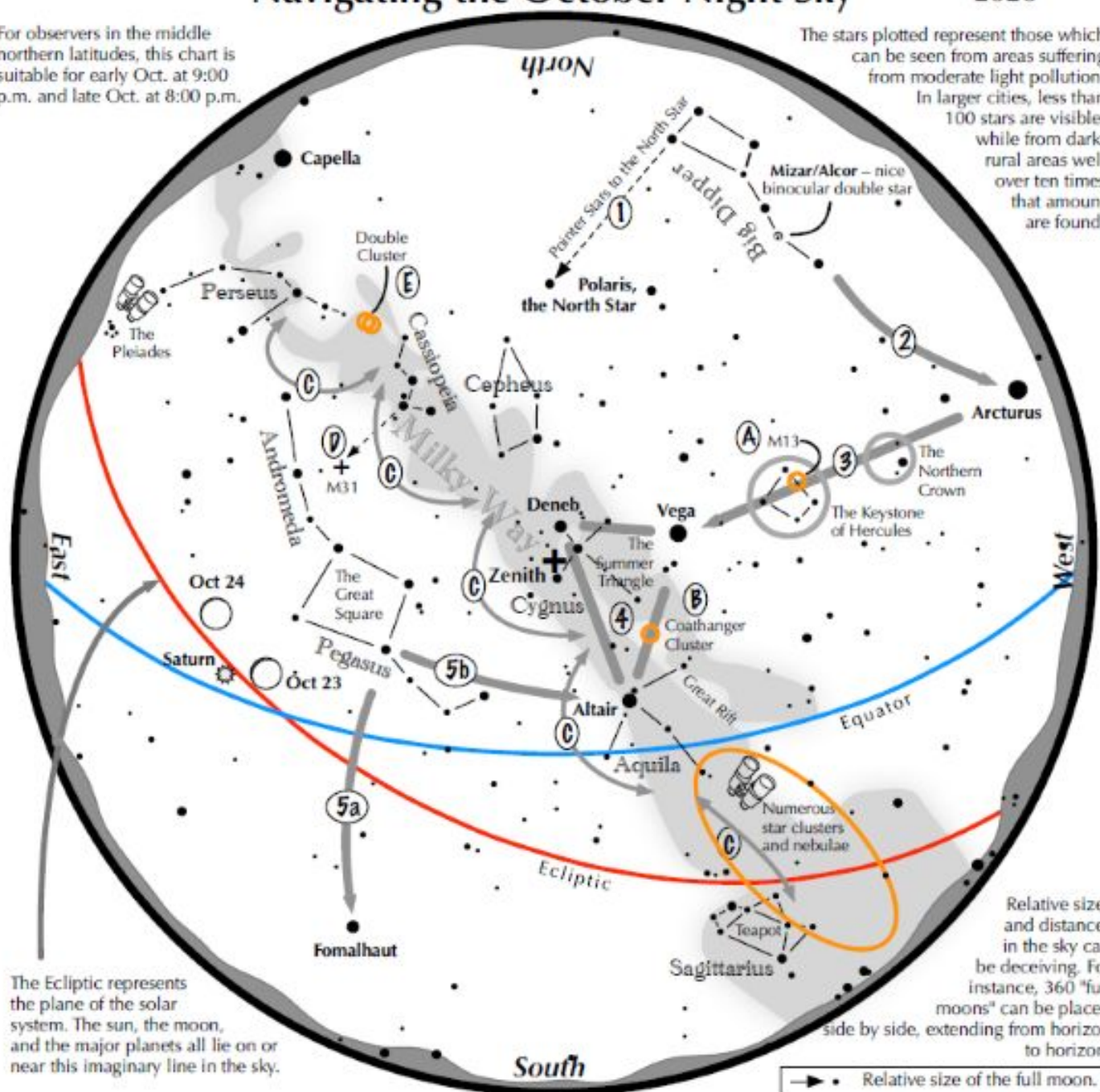
Source: <https://jane.janemojo.com/2009/10/30/spooky-halloween-observing/>

Navigating the October Night Sky

2026

For observers in the middle northern latitudes, this chart is suitable for early Oct. at 9:00 p.m. and late Oct. at 8:00 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



Navigating the October night sky: Simply start with what you know or with what you can easily find.

- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the early October evening sky.
- 3 To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 4 Nearly overhead lie the summer triangle stars of Vega, Altair, and Deneb.
- 5 High in the east are the four moderately bright stars of the Great Square. Its two southern stars point west to Altair. Its two western stars point south to Fomalhaut.

Binocular Highlights

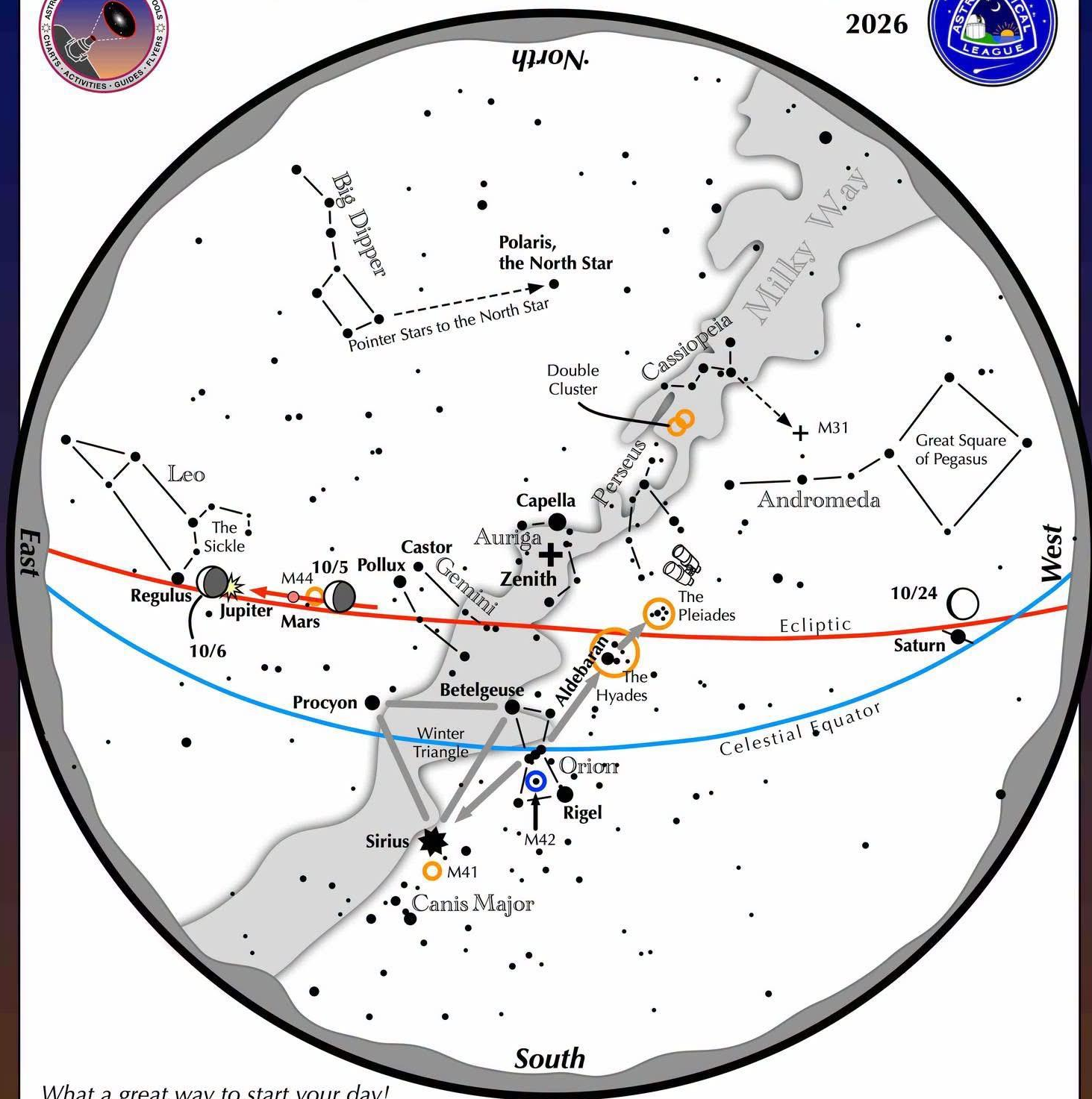
A: On the western side of the Keystone glows the Great Hercules Cluster, a ball of 500,000 stars. **B:** 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger. **C:** Sweep along the Milky Way for an astounding number of fuzzy star clusters and nebulae amid many faint glows and dark bays, including the Great Rift. **D:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **E:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster.





Navigating the mid October Morning Sky

2026



What a great way to start your day!

For observers in the middle northern latitudes, this chart is suitable for mid October at 5:00 a.m.

Late sunrises in October provide opportunities for early morning skywatching.

- Bright Jupiter shines high in the east.
- Crescent moon lies just west of Mars on October 5.
- The crescent moon glows next to and occults bright Jupiter on October 6.
- The near full moon glows in the west next to Saturn on October 24.
- During the first half of October, gaze high in the south and overhead to see these many celestial features: the Pleiades, the Hyades with Aldebaran, Orion, Capella and Auriga, the Winter Triangle with Sirius and Procyon, Gemini, and, in the east, Jupiter.

Astronomical League www.astroleague.org; duplication is allowed and encouraged for all free distribution.

Barnard-Seyfert Astronomical Society
Minutes of the Monthly Membership Meeting
Held on Wednesday, September 16, 2026

The Barnard-Seyfert Astronomical Society met at the Edwin Warner Park Nature Center for the regular monthly meeting on Wednesday, September 16, 2026, Steve Hughes presiding. The meeting was called to order at 7 PM. Steve recognized 2 visitors at the beginning of the meeting.

Cliff Mygatt, Astronomical League Observing Program Director, presented via Zoom, an overview of the Astronomical League observing programs. The impact of smart telescopes on amateur observing was briefly touched on. As well as long term observing programs, there are short term challenge programs. The "Constellation Hunter" program was pointed out as a starting point for beginners. Information on observing programs is available from <http://www.astroleague.org>.

The minutes of the August 19, 2026, meeting were adopted without discussion.

Membership Report: Gene reported 36 new members year-to-date.

Treasurer's Report: Natalie reported that the Truist balance was \$7,347.55 and the PayPal balance was \$205.94.

Social Media Report: Donna reported that the Facebook page (<https://www.facebook.com/bsasnashville>) had 3,110 followers.

Previous events: The joint Dyer Observatory-BSAS public star party scheduled for September 12 at Edwin Warner Park had about 470 visitors.

Upcoming events: A star party is scheduled for 10/3/26 at the Shelby Bottoms Nature Center. The Bowie Nature Fest is scheduled for 10/10/26 at the Bowie Nature Park. This is a daytime event. Solar observing will be provided. The Natchez Trace Parkway site at Pea Ridge (Mile Marker 435.3) will be available to permit holders on 10/10/26. All outdoor events are weather permitting.

Bylaws: There was a frank discussion of the proposed bylaws.

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

Respectfully submitted,

Bud Hamblen
Secretary

Happy Birthday Iapetus by Robin Byrne

This month we celebrate the discovery of a very unique moon. On the evening of October 25, 1671, Italian astronomer Giovanni Cassini gazed at Saturn through his telescope. He noticed a small dot to one side of the planet. After repeated observations showed some motion, he knew that he had discovered a new moon - his first. At that time, the only known moon of Saturn was Titan, and the four Galilean moons of Jupiter were the only moons known to exist around other planets, so Cassini's discovery was a big deal!

When Cassini spotted this new moon, it was to the west of Saturn. As the moon travelled around the planet to the eastern side, something unexpected happened - Cassini couldn't see it! He tried for years to spot it on the eastern side, each time having no luck. It wasn't until 1705, when he had access to a much better telescope, that he finally saw it, though it was clearly much fainter than when on the western side. Cassini hypothesized that this moon must orbit Saturn with the same side always facing the planet, while at the same time having one hemisphere that is much darker than the other.

The original naming scheme for moons of Saturn involved Roman numerals. When this system was implemented, more Saturnian moons had been discovered. Being the fifth most distant known moon of Saturn, it was named Saturn V. This later became Saturn VIII when more moons were found. In 1847 John Herschel suggested naming Saturn's moons after the brothers and sisters of the Titan Cronus (the Greek version of Saturn in mythology), and so the name Iapetus, one of the brothers, was chosen. In mythology, Iapetus is the father of Prometheus, who is considered the progenitor of the human race.

Compared to the other bright moons of Saturn, the orbit of Iapetus is much larger and more tilted, taking 79 days to complete one orbit. Being over 2 million miles from Saturn, Iapetus experiences very minimal tidal forces, so it has not undergone the same sort of distortion and melting that the closer moons have experienced. However, as Cassini had surmised, Iapetus is tidally locked with Saturn, always presenting the same side to the planet, meaning that a day on Iapetus also takes 79 Earth days. With an orbital tilt of about 15°, Iapetus travels above Saturn's equatorial plane enough to have a great view of the rings. The other moons, which stay closer in line with Saturn's equator only see the ring system edge-on, but because the rings are not very thick, there isn't much to see from that view.

It wasn't until we started sending spacecraft to Saturn that we started to learn more about this odd little moon. While Pioneer 11 did fly by Saturn in 1979, it did not take any images of Iapetus, so it wasn't until Voyager 1 arrived in 1980 that we got an up-close look. Voyager 1 confirmed what Cassini had suspected over 300 years earlier - Iapetus is indeed much darker on one side and brighter on the other. Voyager 2 sent back more images about nine months later. But it really wasn't until the Cassini spacecraft arrived in 2004 that we got a good look at this moon. With five fly-bys and superior imaging ability, Cassini helped us to learn much more about Iapetus.

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Combining all of the data from the images, we know that Iapetus, despite being the third largest moon of Saturn, is still relatively small, with an average diameter of 1472 miles. But it is not perfectly round. Iapetus is an oblate spheroid, with its equator about 46 miles wider than its axis pole-to-pole. Typically, for an object the size of Iapetus to be so flattened, it would have to spin much faster than Iapetus' 79 day rotation period. One thought is that it did once rotate very quickly and solidified while still in its oblate shape, but over time the rotation slowed as it became tidally locked with Saturn.

Based upon its density, Iapetus is estimated to be composed of about 80% ices, with only about 20% of its interior composed of rocky materials. Iapetus is heavily cratered, with at least five of its craters being over 200 miles wide. The largest crater, Turgis, is 360 miles wide with a rim that extends up to 10 miles high. Other features seen on Iapetus include scarps and landslides. By convention, geologic features on Iapetus are all named for places and characters found in the French poem "The Song of Roland." The one exception to that rule is the name for the dark half of Iapetus, which is called Cassini Regio, after Giovanni Cassini.

But WHY is one side darker than the other? It seems to be a multi-part process that led to this bizarre arrangement. It actually begins with another of Saturn's moons, Phoebe. Phoebe has a retrograde orbit of Saturn, meaning it travels in the opposite direction compared to Iapetus. When various asteroids and meteors hit the surface of this moon, plumes of debris were knocked into space. Exposure to sunlight would have slightly darkened this material. Because of Iapetus' oddly shaped orbit, it then plowed through this cloud of debris, coating its leading hemisphere with material from Phoebe. This initial coating would not have been nearly as dark as it currently is. The next effect is because of Iapetus' slow, 79 day rotation. With such a long day/night cycle, when the darker half is in sunlight, it has an extended time to warm up and get measurably warmer compared to the lighter, more reflective half (about 30°F warmer). That higher temperature will cause any ice in the debris coating to sublime, leaving the remaining coating ever so slightly darker. The sublimated ice then migrated to the lighter and cooler hemisphere to refreeze, causing that hemisphere to become progressively lighter. As this process repeated with every 79 day orbit, the contrast between the two halves continued to increase. Currently, the dark half of Iapetus has an albedo (reflectivity) of about 0.04, which is similar to coal, while the light half has an albedo around 0.55, which is similar to Europa's icy surface. This leads to an apparent magnitude as seen from Earth of 10.2 for the bright half when Iapetus is to the west of Saturn, and 11.9 for the dark half observed when it is to Saturn's east.

The unusual coloring of Iapetus isn't its only unique feature. Images of Iapetus, even from a distance, show that its shape seems to resemble a walnut. This is because Iapetus has a ridge that runs around its equator. The ridge is approximately 12 miles wide and 8 miles high (placing it among the tallest mountains in the solar system), and it circles the entire moon. On the side facing away from Saturn, distinct mountains are visible and were first noticed in images from the Voyager 1 and 2 spacecraft, so they are unofficially called the Voyager Mountains.

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Given that the ridge has many craters, it must be nearly as old as Iapetus, but how did it form? While there are many hypotheses, ranging from a remnant of its earlier fast rotation frozen into place, to material from a long-lost ring system that fell to the moon's surface, the truth is we do not know why Iapetus has this bizarre equatorial ridge.

On October 4 of this year Saturn reaches opposition, so it is well-placed to view it all night long throughout this month. With Iapetus having such a large and tilted orbit, it will be visible the entire month, too. At the start of October, Iapetus will be to Saturn's west and should appear brighter. By the end of the month, it will be to Saturn's east and appear fainter. So get out your telescope, enjoy views of Saturn, but also try to spot Iapetus and see if you notice how much its brightness changes. And while you're at it, thank Giovanni Cassini for discovering this fascinating little moon.

References:

Iapetus - Wikipedia

[https://en.wikipedia.org/wiki/Iapetus_\(moon\)](https://en.wikipedia.org/wiki/Iapetus_(moon))

Iapetus - NASA Science

<https://science.nasa.gov/saturn/moons/iapetus/>

Iapetus (moon) - EBSCO, by Fisher, C. Alton Hassell and David G., 2023

<https://www.ebsco.com/research-starters/history/iapetus-moon>



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 bsas.nashville.com. Frame not included.



Next BSAS meeting
Wednesday, Oct 21, 7:00 p.m.

Warner Park Nature Center
7311 Tennessee Highway 100
Nashville, TN 37221