

# The ECLIPSE

*The Newsletter of the Barnard-Seyfert Astronomical Society*



*October 2024*



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Contact BSAS officers at  
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Technicians encapsulated NASA's Europa Clipper spacecraft inside payload fairings on Wednesday, Oct. 2, 2024, in the Payload Hazardous Servicing Facility at NASA's Kennedy Space Center in Florida. The fairings will protect the spacecraft during launch as it begins its journey to explore Jupiter's icy moon, Europa. The mission will help scientists determine if the moon could support life. NASA and SpaceX are targeting launch at 12:31 p.m. EDT on Thursday, Oct. 10, 2024, from Launch Complex 39A at Kennedy Space Center in Florida.

Credit: [NASA/Ben Smegelsky](#)

**On the cover:** This composite image of Arp 107, created with data from the James Webb Space Telescope's NIRCam (Near-Infrared Camera) and MIRI (Mid-Infrared Instrument) reveal a wealth of information about the star-formation and how these two galaxies collided hundreds of million years ago.

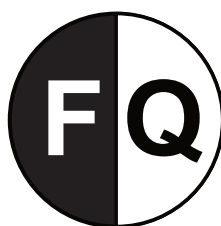
The near-infrared data, shown in white, shows older stars, which shine brightly in both galaxies, as well as the tenuous bridge of gas and stars that runs between them. The vibrant background galaxies are also brightly illuminated in this wavelength.

On the other hand, MIRI data shows the young stars and star-forming regions in vibrant orange and red. Our view in the mid-infrared provides the best view of the collision point, given the noticeable gap at the top of the spiral galaxy. This collision not only began a new bout of star formation in the region, but also an endearing smile.

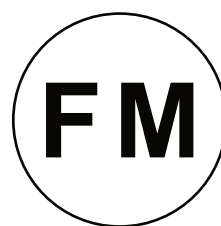
[NASA](#), [ESA](#), [CSA](#), [STScI](#)



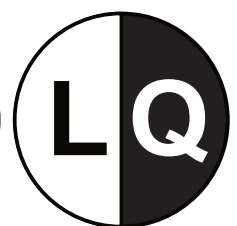
Oct 2  
Nov 1



Oct 10  
Nov 8



Oct 17  
Nov 15



Oct 24  
Nov 22

## Book Review: Mythos reviewed by Robin Byrne

If you are like me, when you hear the name Stephen Fry, you think of one or more of the television shows he has appeared in (A Bit of Fry and Laurie, Jeeves and Wooster, Black Adder, QI, ...), but he is also an accomplished writer as well. *Mythos: The Greek Myths Reimagined* is a collection of the Greek tales, but told in a style that is unmistakably that of Stephen Fry.

You may be thinking, "That's all very well, but what has this got to do with astronomy?" I'm so glad you asked! While not every story has an astronomical connection, many of the myths do, in fact, relate to the astronomical world. In some cases, it may be the source of a name we're familiar with, such as an asteroid or moon. Other tales have a more direct link. We learn the myths associated with why we have seasons, and why the Earth has different climate zones. Of course, there are tales that relate to the creation of certain constellations, including some that are less familiar, such as the origin of Corvus, and the tale behind Ophiuchus.

The myths seem to have a handful of purposes and recurring themes. Like the stories of why we have seasons and climate zones, many of the myths relate to explaining the origin of various natural phenomena, ranging from lightning to people to spiders, and all points in between. Other myths revolve around various love stories, most of which end tragically. Some are cautionary tales about why you should never make a god angry, and the horrible consequences that will ensue. And several warn, in a variety of ways, about how "pride goeth before the fall." Stephen Fry's wit, and the clever dialog he attributes to the cast of characters, leave the reader highly amused on every page.

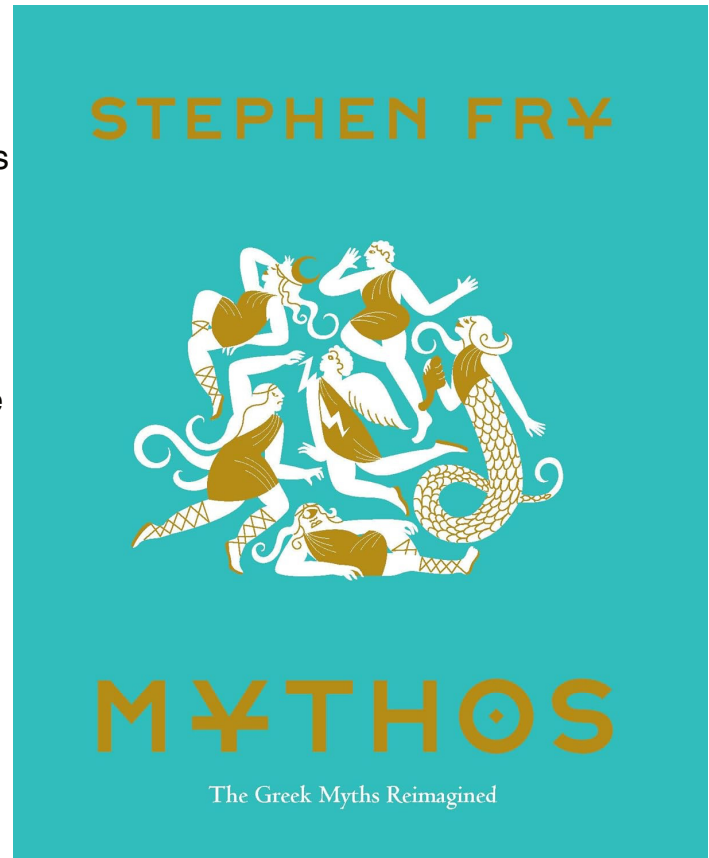
In addition to the myths, Fry's prodigious use of footnotes add another level to the book. In many cases, we learn the connection between names of the mythological characters and words we use to this day. He also includes notes about places mentioned in the stories and where they are found in relation to a modern-day map. Other footnotes may be his own personal thoughts about a topic, or which of the different versions of a story he prefers.

To provide a visual representation of the myths, Fry made use of classical works of art that depict moments from the tales. Many of the works are well known, but seeing the artwork in context with the myth upon which they are based adds another dimension to both the myth and the work of art.

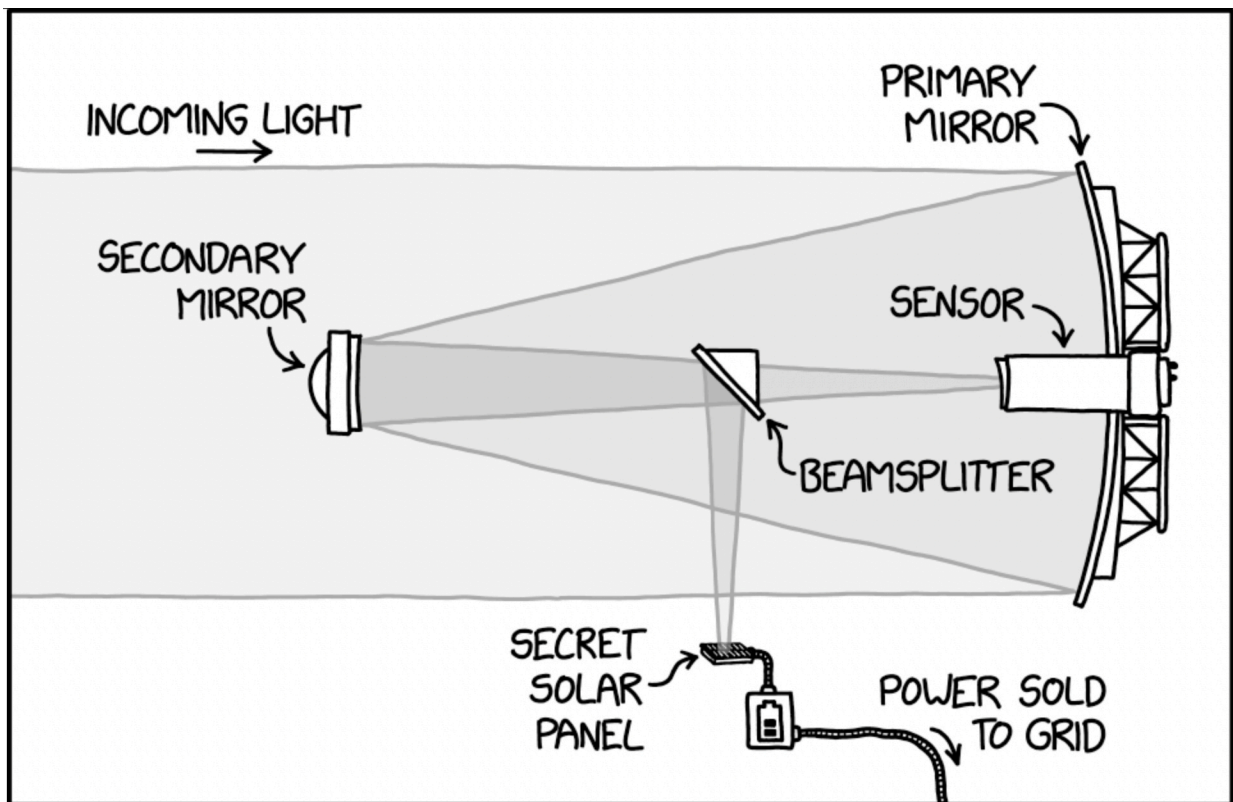
*Mythos: The Greek Myths Reimagined* was a thoroughly delightful book to read, and I highly recommend it. *Mythos* is the first in a three-part series, with the remaining two books being *Heroes*, and *Troy*. I have not yet read those two, but after reading *Mythos*, I most definitely will be, and you should, too.

### References:

*Mythos: The Greek Myths Reimagined* by Stephen Fry; Chronicle Books, 2017.



xkcd



ASTRONOMY NEWS: THE INTERNATIONAL ASTRONOMICAL UNION HAS FINALLY BANNED BEAMSPLITTERS, OPTICAL DEVICES USED BY SCIENTISTS TO EMBEZZLE LIGHT FROM THEIR INSTRUMENTS.

## Catch Andromeda Rising!

By Dave Prosper  
Updated by Kat Troche

If you're thinking of a galaxy, the image in your head is probably the Andromeda Galaxy! Studies of this massive neighboring galaxy, also called M31, have played an incredibly important role in shaping modern astronomy. As a bonus for stargazers, the Andromeda Galaxy is also a beautiful sight.

Have you heard that all the stars you see at night are part of our Milky Way galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, its trillion stars appearing to our eyes as a 3.4 magnitude patch of haze. Why so dim? Distance! It's outside our galaxy, around 2.5 million light years distant - so far

away that the light you see left M31's stars when our earliest ancestors figured out stone tools. Binoculars show more detail: M31's bright core stands out, along with a bit of its wispy, saucer-shaped disc. Telescopes bring out greater detail but often can't view the entire galaxy at once. Depending on the quality of your skies and your magnification, you may be able to make out individual globular clusters, structure, and at least two of its orbiting dwarf galaxies: M110 and M32. Light pollution and thin clouds, smoke, or haze will severely hamper observing fainter detail, as they will for any "faint fuzzy." Surprisingly, persistent stargazers can still spot M31's core from areas of moderate light pollution as long as skies are otherwise clear.

Modern astronomy was greatly [shaped by studies of the Andromeda Galaxy](#). A hundred years ago, the idea that there were other galaxies beside our own was not widely accepted, and so M31 was called the "Andromeda Nebula." Increasingly detailed observations of M31 caused astronomers to question its place in our universe – was M31 its own "island universe," and not part of our Milky Way? Harlow Shapley and Heber Curtis engaged in the "Great Debate" of 1920 over its nature. Curtis argued forcefully from his observations of dimmer than expected nova, dust lanes, and other oddities that While M31's disc appears larger than you might expect (about 3 Moon widths wide), its "galactic halo" of scattered stars

and gas is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already

mingle with our Milky Way's own halo, which makes sense since our galaxies are expected to merge sometime in the next

few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant the "nebula" was in fact an entirely different galaxy from our own. A few years later, Edwin Hubble, building on Henrietta Leavitt's work on Cepheid variable stars as a



“standard candle” for distance measurement, concluded that M31 was indeed another galaxy after he observed Cepheids in photos of Andromeda, and estimated M31’s distance as far outside our galaxy’s boundaries. And so, the Andromeda Nebula became known as the Andromeda Galaxy.

These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope’s longest-running observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT). Dig into NASA’s latest discoveries about the Andromeda Galaxy, on their [Messier 31](#) page.



Generated version of the Andromeda Galaxy and its companion galaxies M32 and M110.

Credit: Stellarium Web

While M31’s disc appears larger than you might expect (about 3 Moon widths wide), its “galactic halo” of scattered stars and gas is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already mingle with our Milky Way’s own halo, which makes sense since our galaxies are expected to merge sometime in the next few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant galaxies powered by black holes at their center. The Hubble team studied the composition of M31’s halo by measuring how the quasars’ light was absorbed by the halo’s material.

Credits: NASA, ESA, and E. Wheatley (STScI)



*This article is distributed by NASA’s Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!*

## **Barnard-Seyfert Astronomical Society Minutes of a Regular Meeting of the Board of Directors Held on Wednesday, September 4, 2024**

The regular meeting of the Board of Directors of the Barnard-Seyfert Astronomical Society was held September 4, 2024, online, Dr. Tom Beckermann presiding. Logged in were Tom Beckermann, Chip Crossman, Bud Hamblen, Steve Hughes, Keith Rainey, Andy Reeves and Theo Wellington, comprising a quorum.

The minutes of the board meeting of August 7, 2024, as printed in the September 2024, edition of the Eclipse, were adopted without discussion.

Membership report: Keith reported 204 members.

Treasurer's Report: Theo reported Truist bank balance: \$8,054.44 (\$4,574.87 equipment fund, \$3,479.57 general fund). PayPal balance: \$668.30, (3 new members and one renewal since member meeting). Expenses: \$17.47 for Zoom account

Social media: Theo reported Facebook is liked by 2.3K and followed by 2.5K. "X" has 335 followers.

Star parties and outreach: Past events - Edwin Warner Park event was held on August 10. Ron hosted a star party on August 23. The Water Valley Overlook was clouded out August 31. Future events: Bowie Nature Park is scheduled for September 7. NASA's Observe the Moon event is scheduled for September 14 (the club does not have an event planned). Water Valley Overlook (members-only) is planned for September 28. Pickett State Park has a dark sky celebration scheduled for October 4 (<https://tnstateparks.com/events/details/#/?event=dark-sky-celebration-weekend> – the club does not have an event planned). Bells Bend Outdoor Center has a public star party on October 12 (possible naked eye comet).

Upcoming meetings: Dr. Jeff Grey will talk about cosmic distances at the September meeting.

Liberty Creek Elementary would like to have telescopes on October 1.

There being no further business, the meeting adjourned.

Respectfully submitted,

Bud Hamblen  
Secretary

### **Next Membership Meeting:**

Wednesday, October 16 at 7:30 pm

Dyer Observatory  
1000 Oman Drive  
Brentwood TN 37027

## **Barnard-Seyfert Astronomical Society Minutes of the Monthly Membership Meeting Held on Wednesday, September 18, 2024**

The Barnard-Seyfert Astronomical Society met at Vanderbilt's Dyer Observatory and on-line by Zoom on Wednesday, September 18, 2024, Dr Tom Beckermann presiding. Sixteen persons signed in at Dyer and about 13 zoomed in.

Dr Jeff Grey talked about cosmic distances and other topics.

Minutes: The minutes from the August 21, 2024, general meeting were adopted without discussion.

Membership report: Keith Rainey reported that the club roster on Night Sky Network numbered 217.

Treasurer's report: Theo Wellington reported that the Truist bank balance is \$8,022.22 and that the PayPal balance is \$715.58. There were five new members and one renewal since the last meeting. Expenses included Zoom and new parts for the refurbished loaner telescope.

Social Media report: Theo reported that the Facebook page (<https://www.facebook.com/bsasnashville/>) has 2.3K likes and 2.5K followers, and that "X" (@BSASNashville) has 336 followers.

Previous star parties and events: Steve Hughes participated in solar viewing at the Adventure Science Center on August 24. Weather was bad for the August 31 members-only star party at Natchez Trace Mile Marker 435.3. The public star party at Bowie Nature Park was well attended.

Upcoming star parties and events: A public star party is scheduled for Bells Bend Outdoor Center on October 12. A members' only star party is scheduled for September 28 at Water Valley Overlook (permit needed). The Bowie Nature Park Nature Fest is scheduled for September 21 from 9AM to 4PM. Chuck Schlemm will be in spaces E2 and E3. A Dark Sky celebration is scheduled for Pickett State Park October 4-6.

The URL for the YouTube video of this meeting is: <https://www.youtube.com/live/T537yEXOud8>

Respectfully submitted,

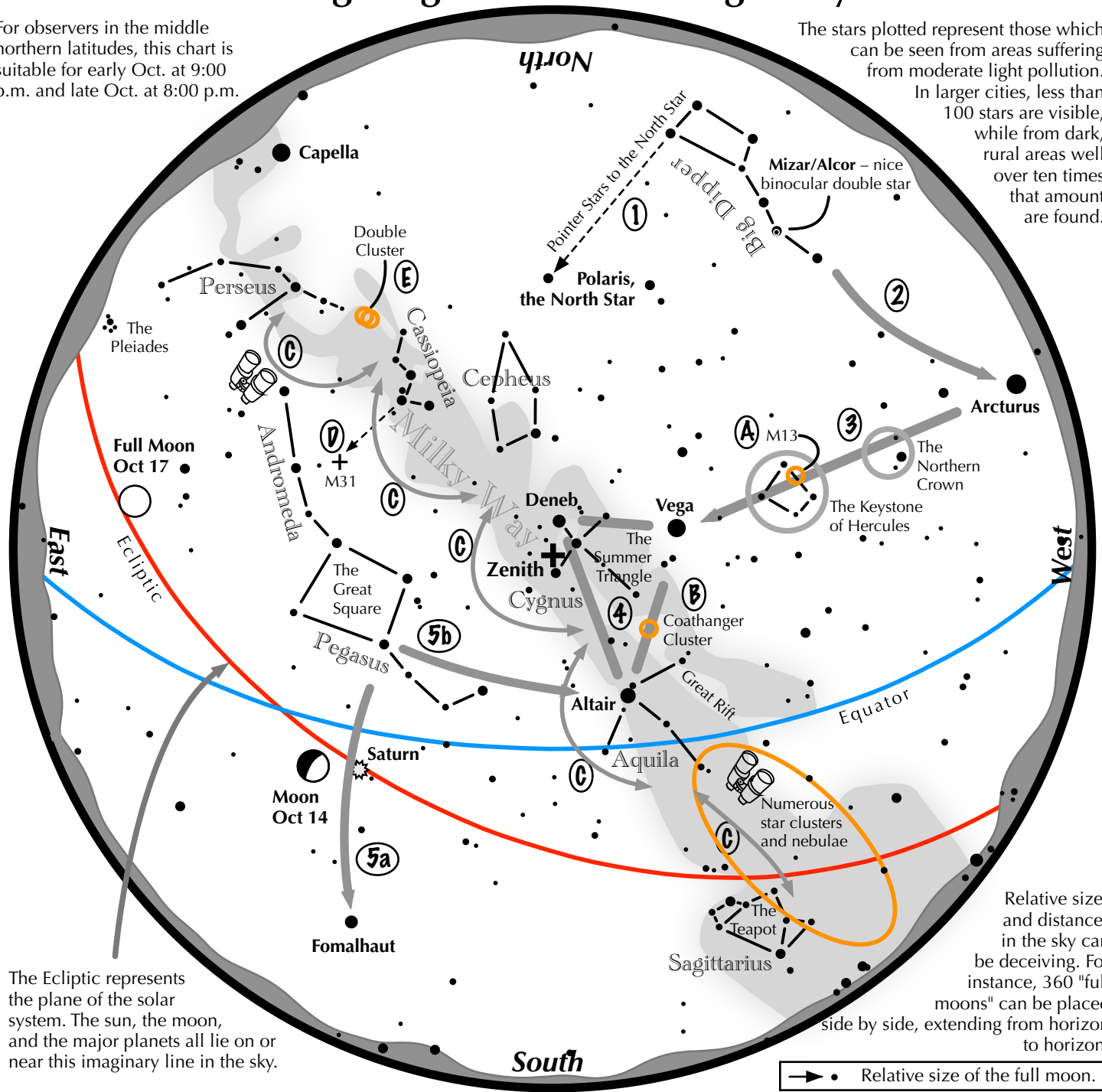
Bud Hamblen  
Secretary



# Navigating the October Night Sky

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.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

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

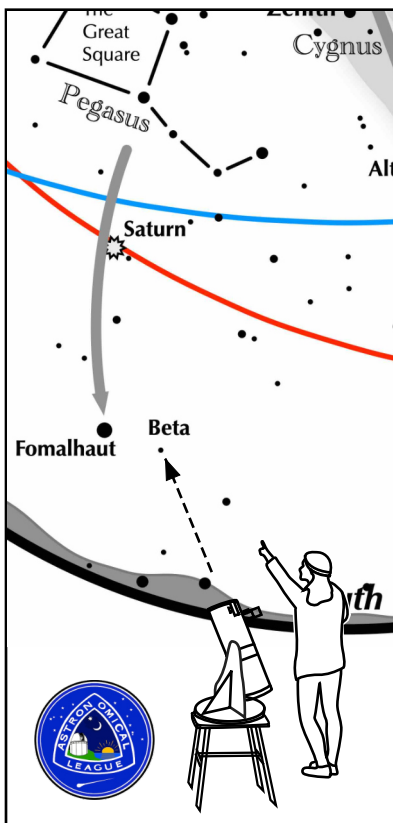
- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the early October evening sky.
- 3 To the northeast of Arcturus shines another star of the same 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.



## ASTRONOMICAL LEAGUE Double Star Activity



### Other Suns: Beta Piscis Austrini

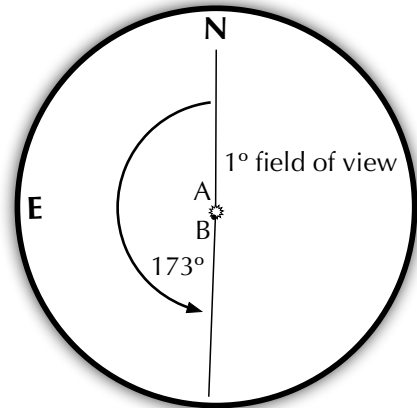
#### How to find Beta Piscis Austrini on an October evening

The two western stars of the Great Square point southward to the bright star Fomalhaut. One binocular field west lies 4.3 magnitude Beta Piscis Austrini.

#### Beta Piscis Austrini

A-B separation: 30 sec  
A magnitude: 4.3  
B magnitude: 7.1  
Position Angle:  $173^\circ$   
A & B colors:  
white, white

Suggested magnification:  $>20\times$   
Suggested aperture:  $>2$  inches





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.



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 Dyer Observatory 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).