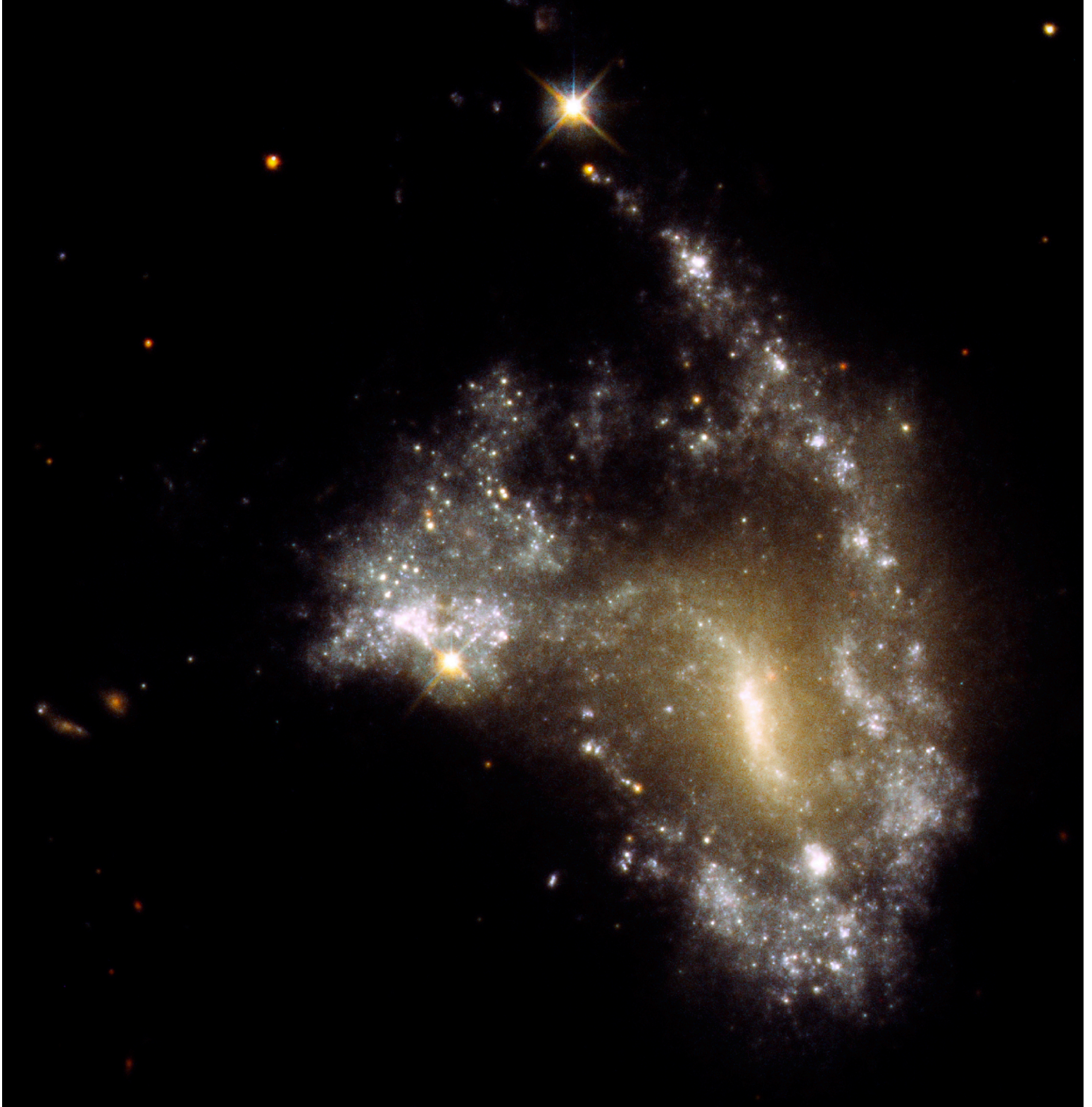


The ECLIPSE

The Newsletter of the Barnard-Seyfert Astronomical Society



March 2024



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Theo Wellington
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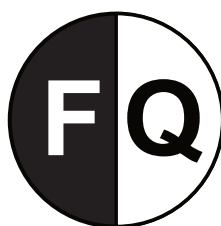


BROKEN INGENUITY CLOSE UP: NASA's Ingenuity Mars helicopter with at least one of its original four rotor blades completely snapped off, as seen from afar by the Perseverance rover. [NASA / JPL-Caltech / LANL / CNES / IRAP / Simeon Schmauß](#)

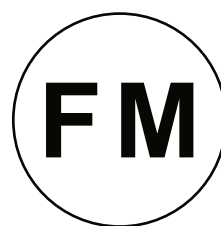
On the Cover: Galaxy AM 1054-325 has been distorted into an S-shape from a normal pancake-like spiral shape by the gravitational pull of a neighboring galaxy, seen in this Hubble Space Telescope image. A consequence of this is that newborn clusters of stars form along a stretched-out tidal tail for thousands of light-years, resembling a string of pearls. They form when knots of gas gravitationally collapse to create about 1 million newborn stars per cluster. [NASA, ESA, STScI, Jayanne English \(University of Manitoba\)](#)



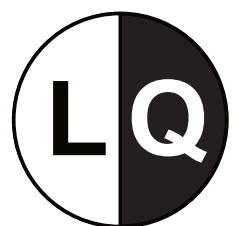
Mar 10
Apr 8



Mar 16
Apr 15



Mar 25
Apr 23



Mar 3
Apr 1

Happy Birthday Nicolas-Louis de Lacaille by Robin Byrne

This month we celebrate the life of a man who is responsible for naming many of the constellations we can't see from here. Nicolas-Louis de Lacaille was born on March 15, 1713 in Rumigny, France. While his mother gave birth to a total of 4 sons and 6 daughters, Nicolas was the only son to survive, and only three of his sisters lived, all of whom later became nuns. Their father, Charles, was retired from the military and well educated, so he took charge of educating Nicolas. Charles' interest in mechanical devices likely influenced what Nicolas was taught, and that definitely had an impact on Nicolas' later life.

Nicolas left home to study at the Collège de Mantes-sur-Seine, not far from Paris. In 1729, after receiving a scholarship, he moved to the Parisian Collège de Lisieux. Here, Nicolas studied philosophy and rhetoric. In 1732, Nicolas entered the Collège de Navarre with the intention of becoming a priest, to honor his father's dying wish. It was here that his interests took a turn in a different direction after reading Euclid's Elements. Lacaille taught himself geometry and started studying astronomy in his spare time. Lacaille decided to devote his life to astronomy and mathematics, but not without becoming a deacon first.



After graduation, Lacaille, with the help of Paris Observatory Director Jacques Cassini, was hired to survey the coast of France. He then joined Cassini at the Paris Observatory as Cassini's assistant. In 1739, he was tasked with remeasuring the French meridian arc. In recognition of his two years of effort in this endeavor, a pyramid was erected in his honor in the town of Juvisy-sur-Orge. Lacaille was also honored with admission to the Royal Academy of Sciences and hired as a Professor of Mathematics at the University of Paris. While at the university, Lacaille had a small observatory built.

One of Lacaille's passions was to find a way of measuring the distances to the planets using trigonometry. To make this attempt, he proposed an expedition to the Cape of Good Hope, where he could have a large baseline between observations made in Paris and in the Cape. In 1750, the expedition was approved and funded by the Academy of Sciences, but with the primary task being to catalog the southern sky. A year later, Lacaille arrived at his destination. At the Cape, Lacaille constructed an observatory, where, over the course of two years, he observed and catalogued over 10,000 stars and 42 nebulous objects. But because his personal goal was to measure the parallax of the Moon, he observed it at the same time as a colleague observed the Moon in Europe. Their results were successful enough to establish the distance to the Moon.

While at the Cape of Good Hope, Lacaille decided to create additional constellations to the ones that had been devised by Portuguese and Dutch navigators. Lacaille subdivided some of the larger constellations, as well as creating precise boundaries for all of the southern constellations. The constellations he created are: Antlia (the Air Pump), Caelum (the Engraving Tool), Circinus (the Drawing Compass), Fornax (the Furnace), Horologium (the Clock), Mensa (the Table Mountain),

Microscopium (the Microscope), Norma (the Carpenter's Square), Octans (the Octant), Pictor (the Painter's Easel), Pyxis (the Mariner's Compass), Reticulum (the Reticule), Sculptor (the Sculptor), and Telescopium (the Telescope). Obviously, his interest in the sciences and mechanical devices influenced many of his choices of imagery.

Also while at the Cape, Lacaille made measurements to determine Earth's radius in the southern hemisphere, to see if Earth was oblate or not. His results indicated that Earth was more flattened towards the south pole than the north. It was later determined that nearby Table Mountain influenced his measurements by gravitationally deflecting the plumb bob used while determining local zenith.

In 1753, Lacaille left the Cape, but with a detour to two islands, Mauritius and Reunion, on orders to determine their precise longitudes. It took 10 months to complete, and Lacaille found the work tedious and boring, but once completed, he finally was able to head home.

His long journey across the ocean made Lacaille aware of how difficult it is to determine longitude at sea. With that in mind, he set about creating tables with accurate positions of the Moon, to be used for navigational purposes. Lacaille continued working in Paris, with projects such as developing a method to determine the orbits of comets (and in the process was the one who suggested naming one comet in particular as Halley's Comet), studies of astronomical refraction, and creating logarithmic tables and ephemerides. In 1757 he self-published a book of the 400 brightest stars, called Fundamental Astronomy, which he didn't sell, but instead gave away for free to anyone who had an interest in using it.

In 1762, Lacaille took ill, possibly from overwork, gout, or both. He ultimately succumbed on March 21st of that year. He was only 49 years old, and had not yet published the majority of his own observations. Lacaille's southern constellations were published the year after his death, but it wasn't until 1847 that Francis Baily assembled all of Lacaille's Cape of Good Hope observations into a catalogue, which was published by the British Association. Lacaille's name lives on in the form of a crater on the Moon, as well as an asteroid that was named for him.

Nicolas Lacaille did an amazing amount of work for such a short life. While many of his accomplishments aren't as relevant today, by far his most lasting contribution, the creation of fourteen constellations, is one that will forever be remembered. While we may not see them in our skies, perhaps a trip south of the Equator (or at the very least, a trip to the planetarium) will provide an opportunity to view these stellar pictures that came from the mind of this month's honoree - Nicolas Lacaille.

References:

[Nicolas-Louis de Lacaille - Wikipedia](#)

[Nicolas-Louis de Lacaille; Written by I J Falconer, J G Mena, J J O'Connor, T S C Peres, E F Robertson, University of St Andrew](#)

[Lacaille 250 years on by Brian Warner; Astronomy & Geophysics, Volume 43, Issue 2, April 2002](#)

Constant Companions: Circumpolar Constellations, Part II

By Kat Troche

As the seasons shift from Winter to Spring, heralding in the promise of warmer weather here in the northern hemisphere, our circumpolar constellations remain the same. Depending on your latitude, you will be able to see up to nine circumpolar constellations. This month, we'll focus on: Lynx, Camelopardalis, and Perseus. The objects within these constellations can all be spotted with a pair of binoculars or a small to medium-sized telescope, depending on your [Bortle scale](#) – the darkness of your night skies.

Double Stars: The area that comprises the constellation Lynx is famous for its multiple star systems, all of which can be separated with a telescope under dark skies. Some of the notable stars in Lynx are the following:

- 12 Lyncis – a triple star that can be resolved with a medium-sized telescope.
- 10 Ursae Majoris – a double star that was once a part of Ursa Major.
- 38 Lyncis – a double star that is described as blue-white and lilac.

Kemble's Cascade: This [asterism](#) located in Camelopardalis, has over 20 stars, ranging in visible magnitude (brightness) and temperature. The stars give the appearance of flowing in a straight line leading to the Jolly Roger Cluster (NGC 1502). On the opposite side of this constellation, you find the asterism Kemble's Kite. All three objects can be spotted with a pair of binoculars or a telescope and require moderate dark skies.

Double Cluster: The constellation Perseus contains the beautiful Double Cluster, two open star clusters (NGC 869 and 884) approximately 7,500 light-years from Earth. This object can be spotted with a small telescope or binoculars and is photographed by amateur and professional photographers alike. It can even be seen with the naked eye in very dark skies. Also in Perseus lies Algol, the Demon Star. Algol is a triple-star system that contains an eclipsing binary, meaning two of its three stars constantly orbit each other. Because of this orbit, you can watch the brightness dim every two days, 20 hours, 49 minutes – for 10-hour periods at a time. For a visual representation of this, revisit NASA's [What's Up: November 2019](#).

From constellations you can see all year to a once in a lifetime event! Up next, find out how you can partner with NASA volunteers for the April 8, 2024, total solar eclipse with our upcoming mid-month article on the [Night Sky Network](#) page through NASA's website!

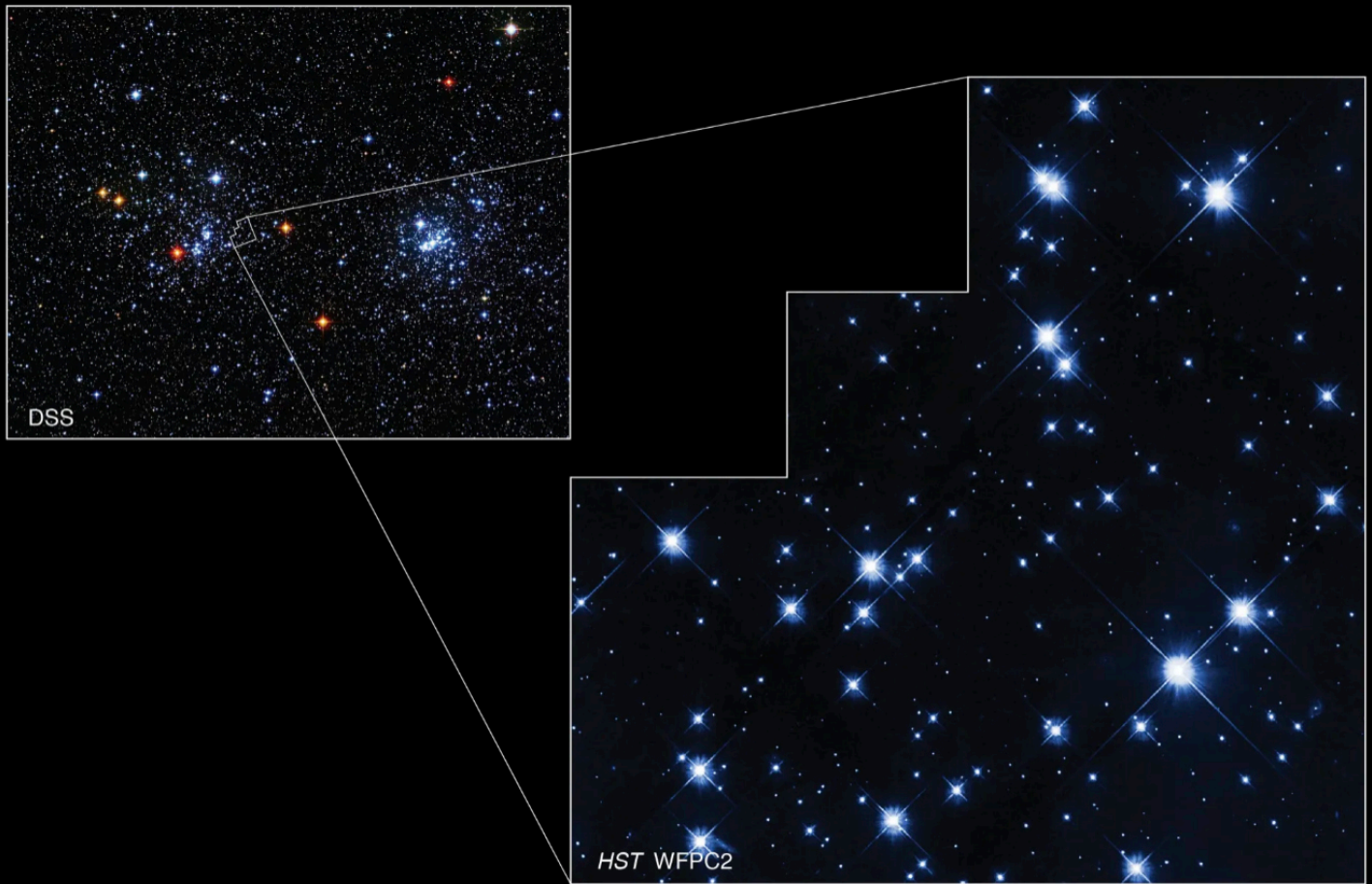
This article is distributed by NASA's Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!



In the appearance of left to right: constellations Perseus, Camelopardalis, and Lynx in the night sky. Also featured: Cassiopeia as a guide constellation, and various guide stars.

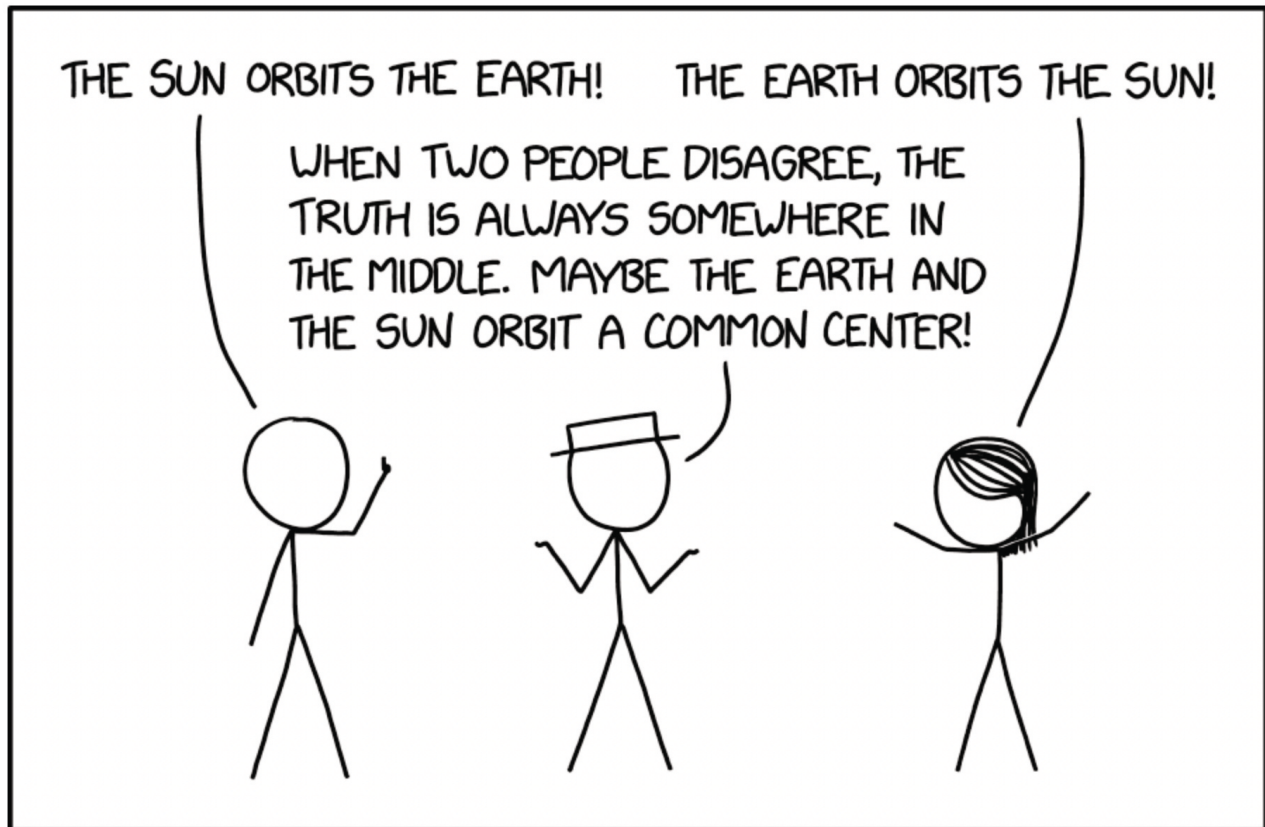
Credit: Stellarium Web

DOUBLE CLUSTER IN PERSEUS



A ground-based image from the Digitized Sky Survey (DSS) in the upper left shows Caldwell 14, the Double Cluster in Perseus, with an outline of the region imaged by Hubble's Wide Field and Planetary Camera 2 (WFPC2).

xkcd



IT'S ANNOYING WHEN PEOPLE ARE RIGHT BY ACCIDENT.

Next Membership Meeting:

Wednesday, March 20 at 7:30 pm

Dyer Observatory
1000 Oman Drive
Brentwood TN 37027

Barnard-Seyfert Astronomical Society Minutes of a Regular Meeting of the Board of Directors Held on Wednesday, February 7, 2024

The regular meeting of the Board of Directors of the Barnard-Seyfert Astronomical Society was held on February 7, 2024, online, Dr. Tom Beckermann presiding. Logged in on Zoom were Tom Beckermann, Chip Crossman, Tony Drinkwine, Bud Hamblen, Andy Reeves, Kat Underwood, Theo Wellington and Steve Hughes.

The January 3, 2024, minutes were adopted without discussion.

Membership report: the current membership count is 173.

Treasurer's report: the Truist bank balance was \$5,709.69 and the PayPal balance was \$360.03. Checks deposited: \$349.00. Included were proceeds from the silent auction at the December meeting, the 2024 RASC Observers Handbook, and membership dues. Expenses for January were:

Zoom fee: \$17.47 Zoom fees are now paid by direct debit from the bank account.

Astronomical League dues: \$60.00. An updated membership roster also was sent to the AL.

National Park Service fee for the Natchez Trace Parkway permit: \$50.00

Liability insurance annual premium: \$315.00.

Social media report: the Facebook page has 2.2K likes and 2.3K followers. "X" (formerly Twitter) has 327 followers. Instagram has 220 followers. Mrs. Donna Drinkwine volunteered to help with Facebook.

A Robertson County public school has asked to buy 600 eclipse glasses.

Star parties: The January star party was snowed out. Steve Hughes reported that the February 2, 2024, star party at the Hidden Lake Trailhead, Harpeth River State Park, was well attended. There were 4 telescopes and about 50 or 60 guests. A private star party is scheduled for February 10 at Natchez Trace mile marker 435.3, but the weather forecast was not favorable. A public star party is scheduled for February 17 at the Shelby Bottoms Nature Center. The private Messier Marathon will be April 5-6.

Meetings: Mark Kochte will make a presentation via Zoom on the continuing New Horizons spacecraft mission at the February 17 general meeting. Billy Teets will make a presentation on E. E. Barnard at the March 20 general meeting. Future meeting topics may include starquakes and geomagnetism.

Resolution 2024-02-07: Awards for astronomy related projects presented at the Middle Tennessee Science and Engineering Fair. First place is \$100, second place is \$50, and third place is \$25. Each award also includes an annual membership in the BSAS, and an invitation to present the project to the club. The motion was made by Tom and seconded by Kat. Adoption was unanimous.

Steve Hughes was nominated to fill the vice president slot. The vote by the membership will be at the next membership meeting.

Respectfully submitted,

Bud Hamblen
Secretary

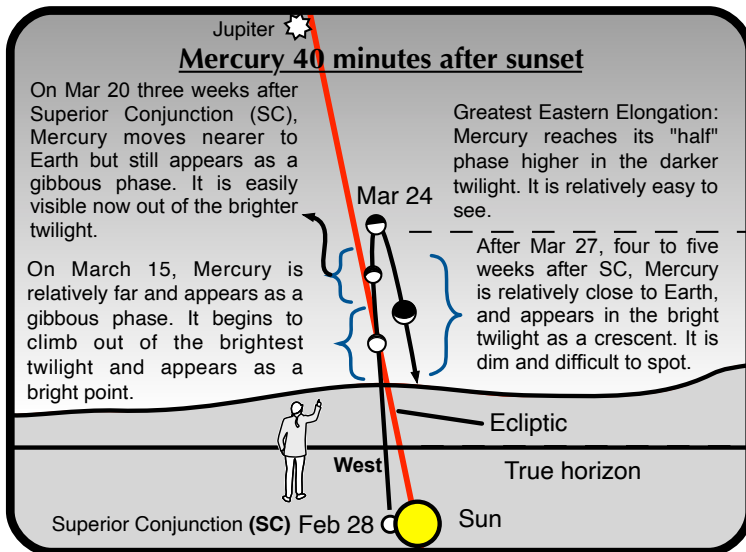
Barnard-Seyfert Astronomical Society Minutes of the Monthly Membership Meeting Held on Wednesday, February 21, 2024

The Barnard-Seyfert Astronomical Society met on-line via Zoom on Wednesday, February 21, 2024, at 7:30 PM, Dr Tom Beckermann presiding. The in-person meeting had to be canceled because of inclement weather.

The minutes for the January 17, 2024, meeting were adopted without discussion

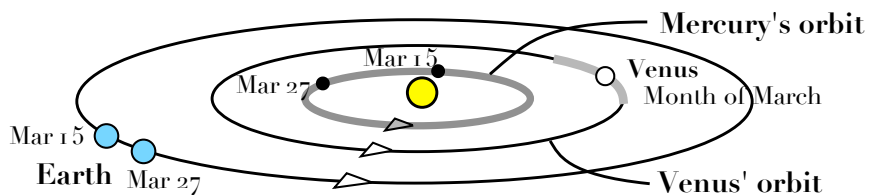
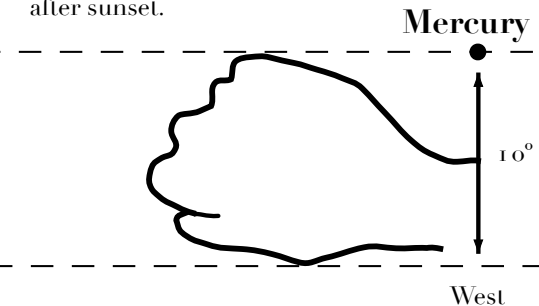
Respectfully submitted,

Bud Hamblen
Secretary



Mercury in the Evening!

Mercury appears about "1 fist width" above the true horizon forty minutes after sunset.



Mercury's best evening apparition of 2024!

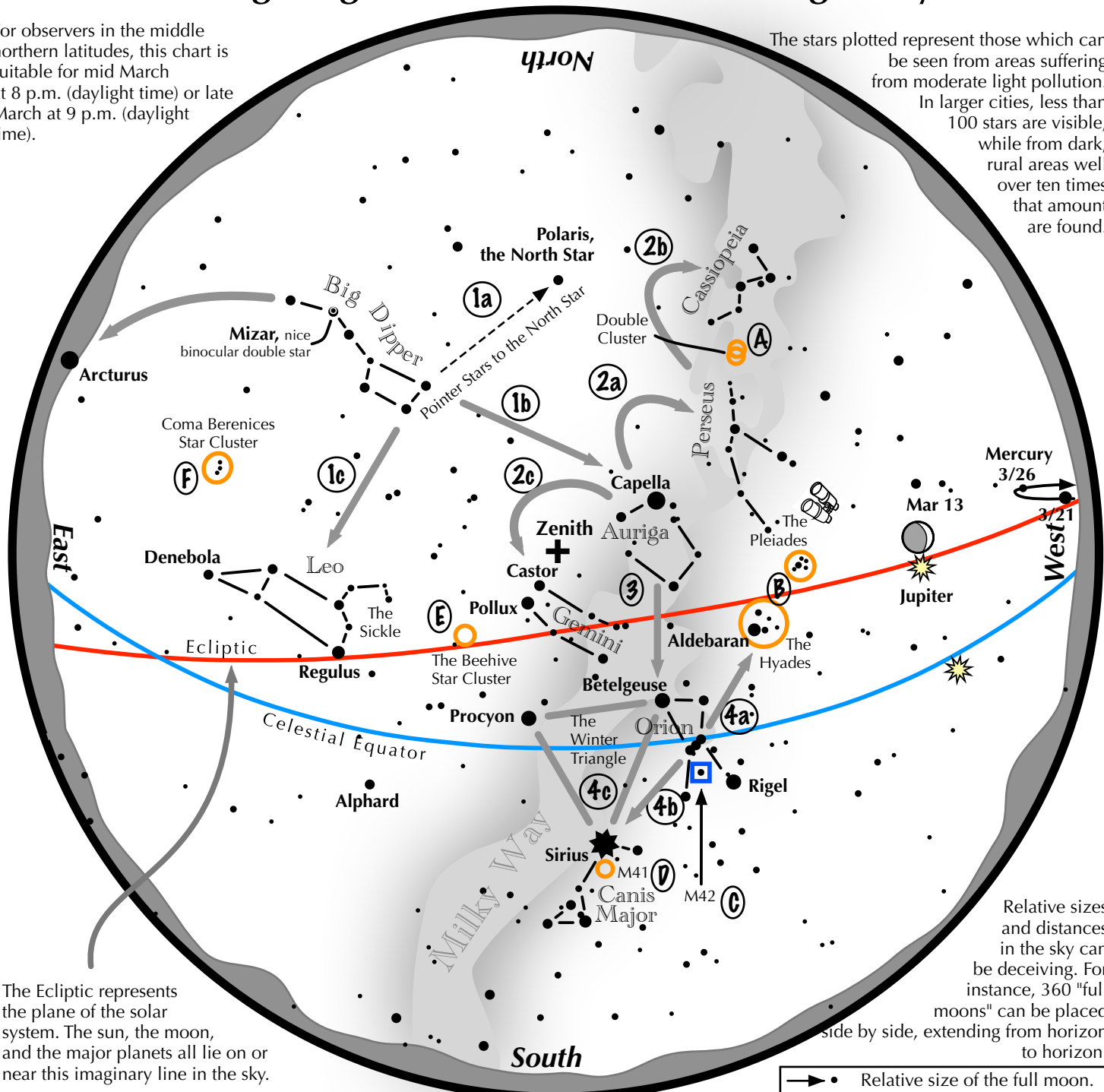
From 40 to 60 minutes after sunset after March 15th, look to the west for a point of light shining low above the horizon.

- Outstretch your arm and make a fist. Place one side at the true horizon. At its other side should be Mercury.
- Over the next week, the little planet rises slightly higher each evening into the darker twilight while brightening, making it easier to spot.
- On the 24th, Mercury appears as far from the set sun as it will be. This point in its orbit is called Greatest Eastern Elongation. Just three nights later as it descends in the twilight, it will become much more difficult to spot.

Navigating the mid to late March Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid March at 8 p.m. (daylight time) or late March at 9 p.m. (daylight time).

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 March night sky: Simply start with what you know or with what you can easily find.

- 1 Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star. Its top bowl stars point west to Capella in Auriga, nearly overhead. Leo reclines below the Dipper's bowl.
- 2 From Capella jump northwestward along the Milky Way to Perseus, then to the "W" of Cassiopeia. Next jump southeastward from Capella to the twin stars of Castor and Pollux in Gemini.
- 3 Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star Rigel.
- 4 Use Orion's three Belt stars to point northwest to the red star Aldebaran and the Hyades star cluster, then to the Pleiades star cluster. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius. It is a member of the Winter Triangle.

Binocular Highlights

A: Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** M42 in Orion is a star forming nebula. **D:** Look south of Sirius for the star cluster M41. **E:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **F:** Look high in the east for the loose star cluster of Coma Berenices.





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. Frame not included.



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.

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. If you need more information, write to us at 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.