

# ASTROFILES

## Auburn Astronomical Society Newsletter

**December 2021**

*Newsletter Editor — John Wingard — [jwin1048@gmail.com](mailto:jwin1048@gmail.com)*

### Moon Phases

December 26 — Last Quarter  
January 2 — New Moon  
January 9 — First Quarter  
January 17 — Full Moon  
January 25 — Last Quarter  
February 1 — New Moon  
February 8 — First Quarter  
February 16 — Full Moon

### Stay in touch with us



<http://www.auburnastro.org>



<https://www.facebook.com/groups/79864233515/>

### News and events

As 2021 draws to a close, we hope that 2022 will be a better year for everyone and will allow us to regain some sort of stability to our routines. Beginning in January, we have a star gaze planned for **Saturday, January 29, 2022** at **Kiesel Park in Auburn**. This event is for the Kreher Preserve and Nature Center in Auburn. As additional details are available an e-mail reminder will be sent out closer to the time of the event. We ask that any AAS members that can make the event to come and bring your scopes.

This is also a reminder to renew your annual dues to the AAS. Dues are \$20.00 for the year and a membership renewal form is at the end of this newsletter. We hope to soon have a way to pay your dues electronically via PayPal, but until such time you need to send them in by mail to the address on the membership form. Thanks also to a few members that have already sent in their dues renewals for 2022.



AAS member Mike Lewis photographed Comet Leonard on December 19, 2021 from Alexander City, AL. The comet is currently visible low in the southwestern sky after sunset and will remain visible in early January until it rounds the Sun. Assuming it does not break up, its path is such that it will then be ejected from the Solar System, never to return again.



The AAS would like to welcome the following new member to our group:

Walt Boutwell—Pike Road, AL



## More AAS Member Astrophotography — Jay Hall



*Above* — The Horsehead Nebula (Barnard 33) and The Flame Nebula (NGC2024) Rendered in SHO palette. This famous object is located in Orion and is approximately 1,500 light years distant. The Horsehead is basically a dark dust cloud in front of a more luminous emission nebula. This area, along with the famous Orion Nebula (M42) is one of the most photographed objects in the night sky.



*Above*—The Great Andromeda Galaxy (M31) is a barred spiral galaxy approximately 2.5 Million light years away. It is also the nearest galaxy to our own Milky Way galaxy. In a very dark sky it is actually visible to the naked eye.



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 [night-sky.jpl.nasa.gov](http://night-sky.jpl.nasa.gov) to find local clubs, events, and more!

## Hunting the Hunter: Observing Orion

David Prosper

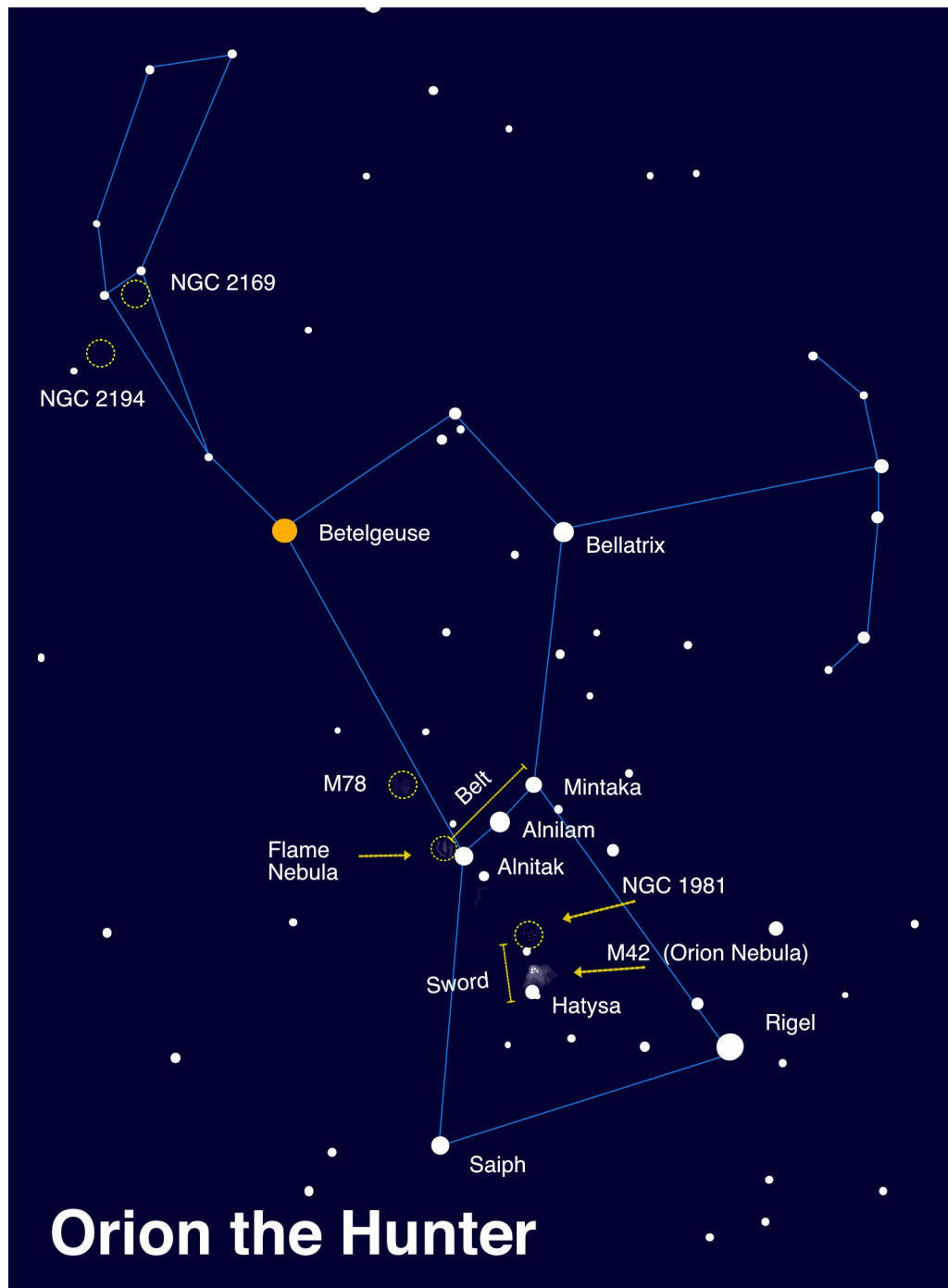
If you are outside on a clear January night, it's hard not to notice one distinctive star pattern above all: **Orion!** While we've covered Orion in earlier articles, we've never discussed observing the constellation as a whole. Perhaps you've received a new telescope, camera, or binoculars, and are eager to test it out. Orion, being large, prominent, and full of interesting, bright objects, is a perfect constellation to test out your new equipment and practice your observing skills - for beginners and seasoned stargazers alike.

In Greek mythology, Orion is a strong hunter, with numerous legends about his adventures. Being such a striking group of stars, cultures from all around the world have many myths about this star pattern. There are so many that we can't list them all here, but you can find a wonderful interactive chart detailing many cultures' legends on the Figures in the Sky website at [figuresinthesky.visualcinnamon.com](http://figuresinthesky.visualcinnamon.com).

What sights can you see in Orion? Look above the variable orange-red supergiant "shoulder star" Betelgeuse to find the stars making up Orion's "club," then move across from Betelgeuse towards the bright star Bellatrix (Orion's other "shoulder") and the stars of his bow and arrow - both essential tools for the Hunter. Many interesting sights lie near Orion's "belt" and "sword." Orion's belt is made up of three bright giant stars forming an evenly spaced line: Alnitak, Alnilam, and Mintaka. Move from the belt stars towards the stars Rigel and Saiph (Orion's "feet" or "knees") to arrive at Orion's distinctive Sword, parts of which may appear fuzzy to your unaided eyes. Binoculars reveal that fuzz to be the famed Orion Nebula (M42), perched right next to the star Hatysa! Diving in deeper with a telescope will show star clusters and more cloud detail around the Nebula, and additional magnification brings out further detail inside the nebula itself, including the "baby stars" of the Trapezium and the next-door neighbor nebula M43. Want to dive deeper? Dark skies and a telescope will help to bring out the reflection nebula M78, the Flame Nebula (NGC 2024), along with many star clusters and traces of dark nebula throughout the constellation. Very careful observers under dark clear skies may be able to spot the dark nebula known as the Horsehead, tracing an equine outline below both the Belt and the Flame Nebula. Warning: the Horsehead can be a difficult challenge for many stargazers, but very rewarding.

This is just a taste of the riches found within Orion's star fields and dust clouds; you can study Orion for a lifetime and never feel done with your observations. To be fair, that applies for the sky as a whole, but Orion has a special place for many. New telescopes often focus on one of Orion's treasures for their first test images.

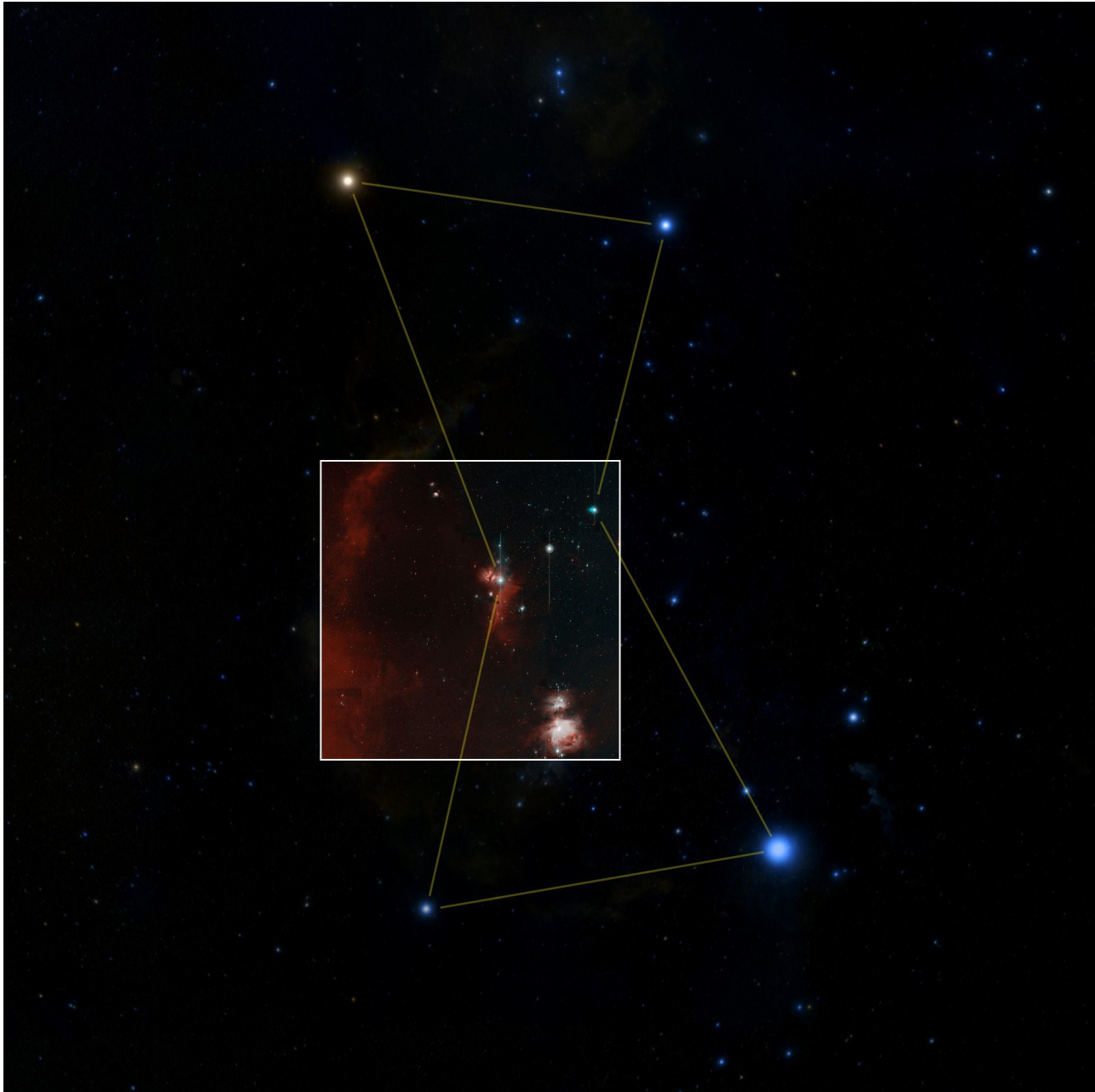
You can discover more of NASA's research into Orion's stars - as well as the rest of the cosmos - online at [nasa.gov](http://nasa.gov).



Northern Hemisphere observers can find Orion during January evenings in the east/southeast skies. Can you spot the Orion nebula with your naked eye, in Orion's sword? How does it look via binoculars or a telescope? What other details can you discern? Please note that some deep sky objects aren't listed here for clarity's sake. For example, M43, a nebula located directly above M42 and separated by a dark dust lane, is not shown. Orion's Belt and Sword are crowded, since they star-forming regions! You can read more in our November 2019 article *Orion: Window Into a Stellar Nursery*, at [bit.ly/orionlight](http://bit.ly/orionlight).

Image created with assistance from Stellarium.





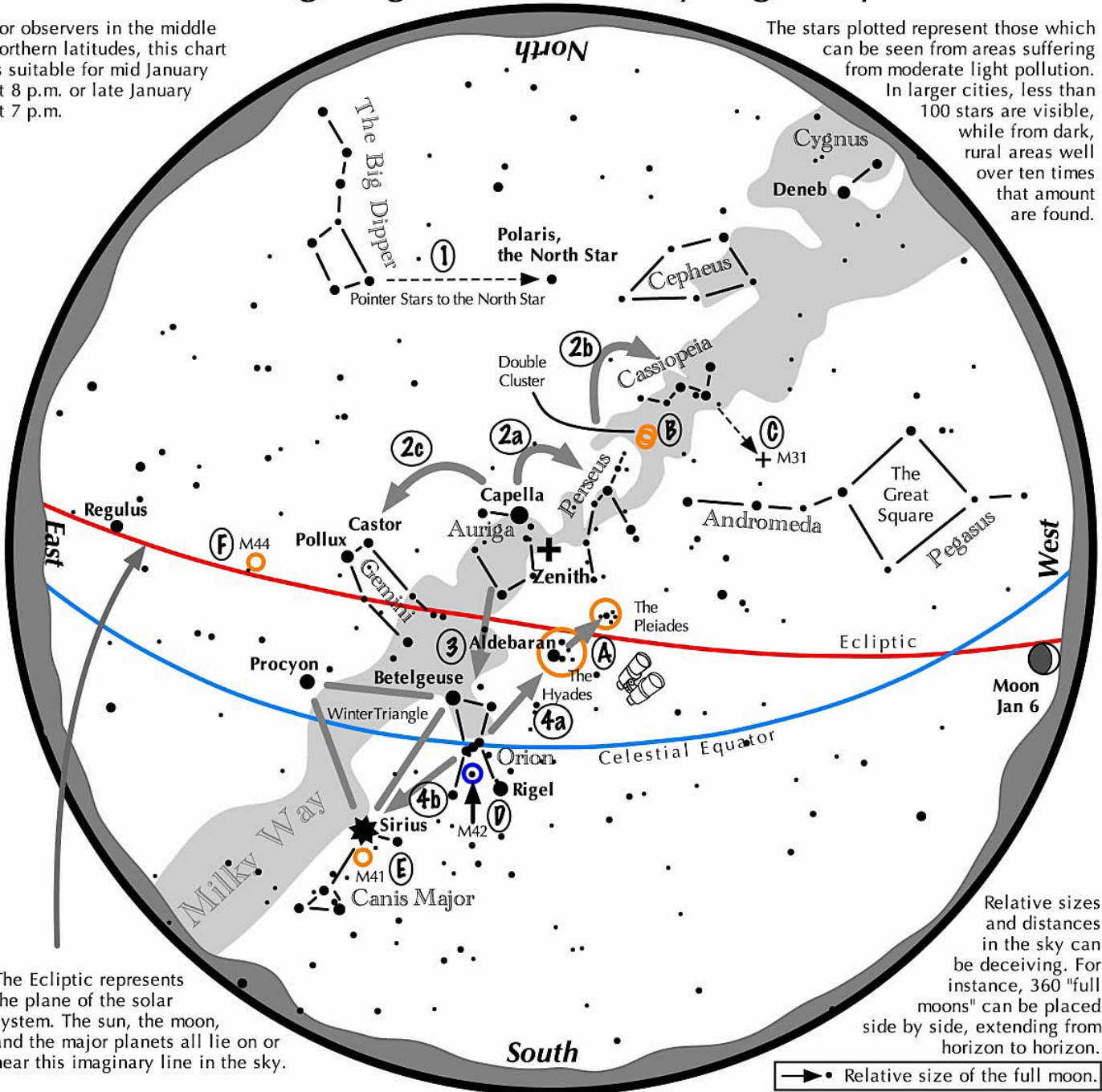
*The inset image is the “first light” photo from the Zwicky Transient Facility, a large survey telescope designed to detect changes in the entire night sky by detecting “transient objects” like comets, supernovae, gamma ray bursts, and asteroids. For many astronomers, amateur and pro alike, Orion is often the “first light” constellation of choice for new equipment!*

*Image Credit: Caltech Optical Observatories*

# Navigating the mid January Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid January at 8 p.m. or late January at 7 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 winter 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.
- 2 Face south. Overhead twinkles the bright star Capella in Auriga. Jump northwestward along the Milky Way first to Persues, then to the "W" of Cassiopeia. Next Jump southeastward from Capella to the twin stars Castor and Pollux of 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 to the red star Aldebaran, then to the Hyades, and the Pleiades star clusters. Travel to the southeast from the Belt stars to the brightest star in the night sky, Sirius.

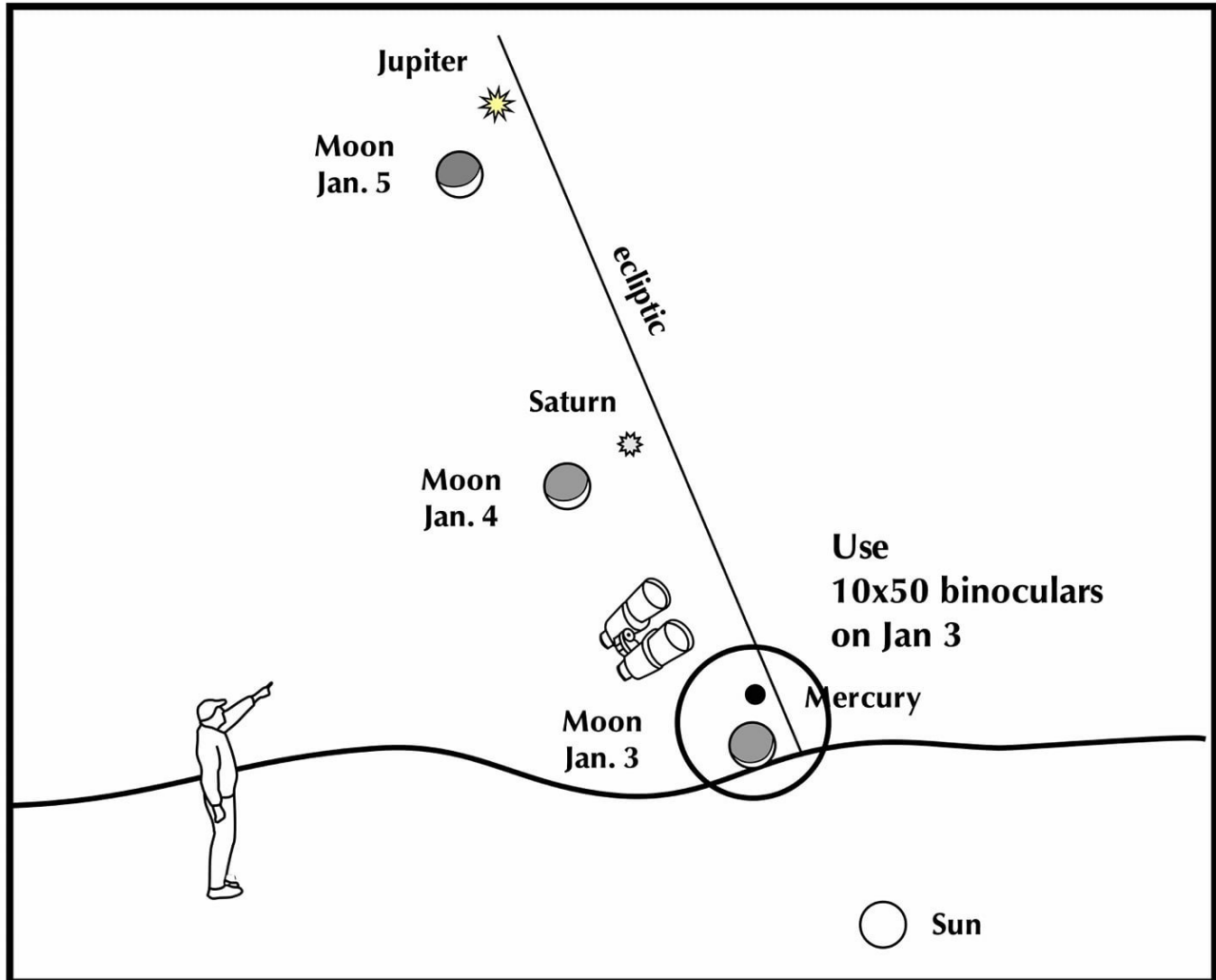
### Binocular Highlights

- A: Examine the stars of the Pleiades and Hyades, two naked eye star clusters.
- B: Between the "W" of Cassiopeia and Perseus lies the Double Cluster.
- C: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.
- D: M42 in Orion is a star forming nebula. E: Look south of Sirius for the star cluster M41. F: M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux.



Astronomical League [www.astroleague.org/outreach](http://www.astroleague.org/outreach); duplication is allowed and encouraged for all free distribution.

**If you can see only one celestial event in the evening this January, see this one.**



- Look in the southwest beginning 30 minutes after sunset on January 3.
- Mercury feebly shines low above the horizon with the very thin crescent moon glowing immediately below it.
- The moon is 1.2 days past new (for East Coast viewers).
- Above Mercury is Saturn and above Saturn is bright Jupiter.
- The moon lies next to Saturn in the evening of January 4 and below bright Jupiter on January 5.





## Auburn Astronomical Society Membership Application Form

Name:

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Address:

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City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Date of Application\* \_\_\_\_/\_\_\_\_/\_\_\_\_

E-mail:

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Telescope(s):

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Area(s) of special interest:

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Enclose: \$20.00 for regular membership, payable in January. *Full-Time* student membership is half the Regular rate.

\* For ***NEW*** members joining after January, refer to the prorated Dues Table below:

Jan \$20.00	Feb \$18.33	Mar \$16.66	Apr \$14.99	May \$13.33	Jun \$11.66
Jul \$10.00	Aug \$8.33	Sep \$6.66	Oct \$4.99	Nov \$2.33	Dec \$1.66

Make checks payable to: Auburn Astronomical Society and return this application to:

Auburn Astronomical Society  
c/o John Wingard  
5 Wexton Court  
Columbus, GA 31907

For questions about your dues or membership status, contact: [jwin1048@gmail.com](mailto:jwin1048@gmail.com)

**Thank you for supporting the Auburn Astronomical Society**