

PRESIDENT'S CORNER

By Dell Vance



Ann-Maree Vance

June was a good month for hot weather. We also had a good turnout at the annual CVAS potluck at Willow Park. We saw some of our newer members out for the event and it was good to get to know them. Blaine Dickey brought his SeeStar telescope for some Solar observing. It is definitely getting a lot of attention from the club members. Blaine has been producing some very impressive images. Hard to imagine that a 50mm telescope can get such great views.

Bruce Horrocks has been teaching the Summer Citizens about astronomy. They are a very lively class and have great questions. Bruce is a very skilled speaker, and the presentations are well done. Dale Hooper and I have also participated in the events. The final class was a star party on June 27.

On my personal astronomy efforts, I sent my CGEMII mount off to get it repaired and it came back the last week of June. One of the motors/encoders was damaged when the mount took an unexpected

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VectorPortal

UPCOMING EVENTS

Star Parties

- August 9: Bear Lake State Park
- August 16: Millville City
- September 27: Newton Library

Club Meetings

- September 19: 7:00 p.m. at the Logan Library. We will have club elections. Please consider serving on the Executive Committee.
- Meetings are at 7:00 p.m. on the third Thursday of the month, at the new and improved Logan Library!

Keep up to date by visiting our website:



President's Corner, cont'd from p. 1

route when slewing to a star. The result was the cables wrapped around the scope and locked it up so it couldn't move. The mount continued to try to move the telescope and damaged the RA motor assembly. The lesson I learned from this experience is that when using a telescope remotely, be sure to set some RA and DEC limits on the equipment. Also, be sure to test the movements initially under local operation. I thought I had done this and have been operating my telescope for over a couple of years with no problems. Obviously, I was not expecting the unit to take a whole different route for slewing. The good news is, "I'm back!"

In July, we had a solar party for the Little Wonders Learning Center in Nibley. Dale Hooper and I worked with about 45-60 young children. It is always an interesting experience to help youngsters. Tom coordinated a stary party for Bear Lake State Park. They requested

two nights, July 26 and August 9. Both are expected to be heavily attended. If you wish to participate in the August 9 event, contact Tom Westre and let him know.

We also have star parties set up for Millville City on August 16 and Newton Library on September 27.

I would like everyone to start thinking about the club elections in September. I know that is a ways off yet, but sometimes we have to think about it before we are willing to put our name in for club positions. I plan to step down this fall as president. I've had the opportunity to serve now for a total of six years and it is definitely time for some new folks to have the opportunities. There are several things that you can do to serve if you are interested. The main positions are President, Vice-President, and Secretary-Treasurer.

Thanks again for all your support.

Clear Skies!

달 관측 *Osseviamo la Luna* 观看月亮 PERHATIKAN
 Observe चाँद को देखो OBSERVONS BULAN
 the Moon Observamos LA LUNE راقبوا القمر
 月を見よう *La Luna* *Obserwacji Księżyca*
 Betrachte den Mond

International
Observe the Moon
 SEPTEMBER 14, 2024 Night

#ObserveTheMoon moon.nasa.gov/observe

Mark your calendars for Saturday, September 14, 2024, the next International Observe the Moon Night. Join hundreds of thousands of people from all over the world in learning about lunar science and exploration, taking part in celestial observations, and honoring cultural and personal connections to the moon.

Explore [the NASA website](https://www.nasa.gov/observe) to learn more about the program and find helpful event hosting tips and resources.

STARRY NIGHTS IN THE NEVADA DESERT

By Blaine Dickey

Not long ago, my wife and I embarked on a journey to the Great Basin National Park, located near Baker, Nevada. Our anticipation was high; we planned to explore Lehman's Cave and embark on a hiking trail leading us to several alpine lakes. The cave did not disappoint, but the trails to the lakes were unexpectedly challenging due to heavy snow on the trail, contrary to the easy hike described in the park's literature. We had also looked forward to a star party at an amphitheater near the visitor's center, but the overcast evening dashed our hopes.

However, my weather app predicted clearer skies after 2:00 a.m. the next morning. Despite the unusual hour, I was resolved to experience the night sky in a place with minimal light pollution like Baker, Nevada. So, I set my alarm, and despite my tiredness, I prepared myself, gathered my binoculars, Seestar, headlamps, and set off to a spot I had chosen earlier.

As I approached a desert road a few miles from town, I turned onto a quiet road and drove a short distance. Finding a wide spot in the gravel road, I parked my car. Stepping out, I was greeted by a breathtaking view of countless stars and the Milky Way, stretching from the southern to the northern horizon. Some remnants of the previous night's clouds lingered in the western sky, but they did little to obstruct my view of the Milky Way and the eastern sky.

After setting up my Seestar scope behind my car and settling into a comfortable camping chair, I powered on my Seestar and began my stargazing session. Back home, imaging M6 and M7 with my wide-field Seestar was challenging due to obstructions like trees and buildings. But here in Nevada, the view was unobstructed. I also aimed to image both sides of the Veil Nebula in the Cygnus constellation, which was conveniently positioned overhead. Messier 24, NGC 6992, NGC 6960, M22, M16, and M6 were also on my imaging list. As each image formed on my tablet, I used my binoculars to explore the Milky Way. The night passed without any interruptions from passing cars, preserving my night vision.

Dawn arrived around 4:00 a.m. I hadn't managed to image all my targets that morning, so I repeated the process the following morning, this time under completely clear skies. The experience was serene and peaceful as I sat next to my Seestar, gazing at the star-studded sky.

As dawn approached again, I powered off my Seestar, packed it up, and returned to my hotel room. Some might find it odd to go to such lengths, but for me, the unforgettable experience was well worth the lost hours of sleep.

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EXECUTIVE COMMITTEE

- President: Dell Vance; avteam.dell@gmail.com
- Vice President: Dale Hooper; dchooper5@gmail.com
- Secretary-Treasurer: Bonnie Schenk-Darrington; bschenkdarr@gmail.com
- Night Sky Network Coordinator: Dell Vance; avteam.dell@gmail.com
- Public Relations: Bruce Horrocks; bruceh@gembuildings.com
- Webmaster-Librarian: Tom Westre; twestre45@aol.com

Starry Nights, cont'd from p. 4



Top images from left to right: M24, NGC 6992, and NGC 6960.
Bottom images from left to right: M22, M16, and M6.

All images courtesy of the author.

TON 618 WITH THE SEESTAR S50

By Dale Hooper

The object Ton 618 (from the Tonantzintla Catalog) has been a personal project of mine. I'm currently collecting data for an image of it using my 14-inch Edge HD, QHY 16200a and PixInsight. But I also was curious to see if I could create a reasonable image of this using my Seestar S50.

TON 618 is a hyperluminous quasar and Lyman-alpha blob near the border of Canes Venatici and Coma Berenices (RA 12h 28m 24.97 sec, Dec +31deg 28m 37.6 sec). At the center of TON 618 is an ultramassive black hole with a mass of **40.7 billion solar masses!** This is the most massive known black hole in the northern hemisphere skies. The light we see now left TON 618 10.8 billion years ago and it has a comoving distance (current distance) of 18.2 billion light years. It shines with a luminosity 140 trillion times that of the sun.

One thing that makes TON 618 extremely unusual is that it is surrounded by what is known as a Lyman-alpha blob. This is an enormous nebula of gas which has a diameter of at least 330,000 light-years, which is twice the diameter of our Milky Way. The extreme radiation from the quasar is pumped into the nebula, which then glows brightly in the ultraviolet (at the Lyman-alpha neutral hydrogen line wavelength).

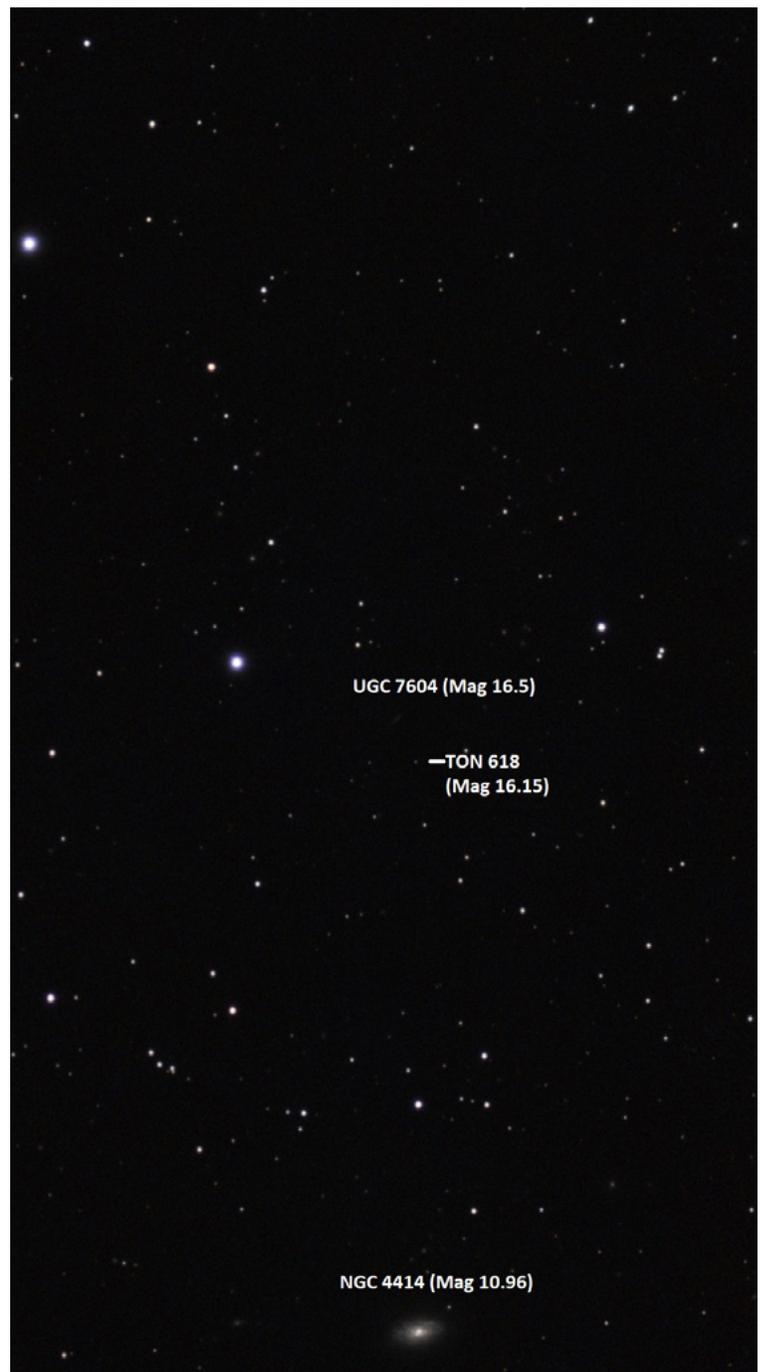
The ultraviolet light from TON 618 is highly redshifted ($z=2.219$) but still shows up as visible blue light when observed from earth.

I was able to collect about 49 minutes of image data for TON 618 (using 10-second subs) stored as FITS files. The free imaging software SIRIL was then used to process the data. I chose SIRIL because it has a really easy-to-use preprocessing script for Seestar FITS files. TON 618 has an apparent visual magnitude of 16.15 (Aladin/SIMBAD). Also found in the image is the edge-on galaxy UGC 7604 (magnitude 16.5), NGC 4414 (magnitude 10.96) and a few other galaxies that are around magnitude 16. So, it is quite apparent that the Seestar can be used to live-stack objects that are fairly dim, and you can have a lot of fun doing it.

Clear skies!

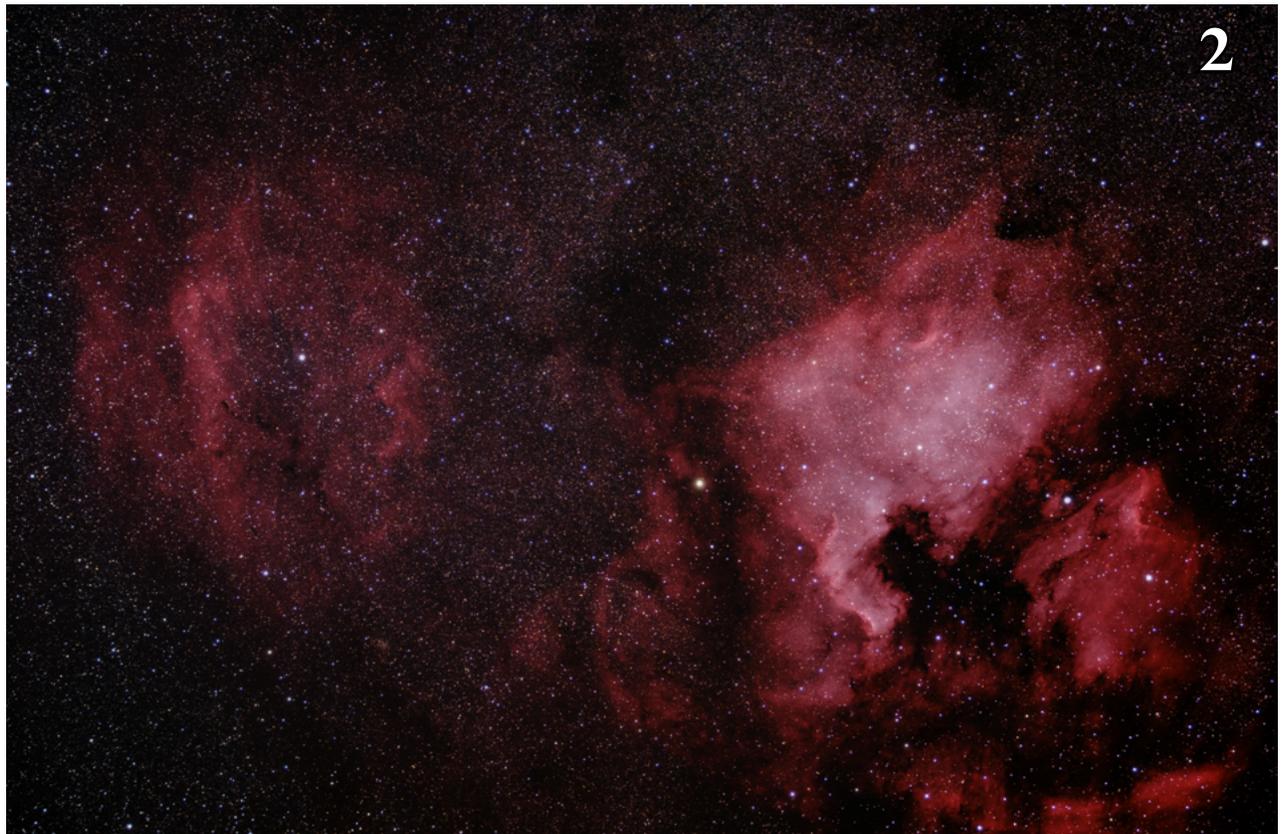
*References: https://en.wikipedia.org/wiki/TON_618#cite_note-shem-10; <https://simbad.cds.unistra.fr/simbad/sim-id?Ident=Ton+618&>; <https://www.livescience.com/whats-the-biggest-black-hole-in-the-universe#:~:text=This%20monster%2C%20appropriately%20named%20TON,roughly%2040%20billion%20solar%20masses.>

Image courtesy of the author.



ASTROPHOTOGRAPHY GALLERY

Recent Images by Club Members



ASTROPHOTOGRAPHY GALLERY

Recent Images by Club Members

Tom Sorensen

Here's what I've been working on this month!

Image 1: The milky way over Bryce Canyon from Sunrise Point. Taken with a Sony A7II with a star tracker.

Image 2: The North America Nebula (NGC 7000), the Pelican Nebula (IC 5070), and the Clamshell Nebula (SH2-119). This was about 21 hours of duo-narrowband (Ha-OIII) data and 7 hours of RGB data taken near Spiral Jetty (28 hours total). I used a Sony A6000 (astro modified), TPO 180 astrophotography lens, and a ZWO AM5 mount with guiding. I processed the image with DeepSkyStacker, Photoshop, and Starnet++.

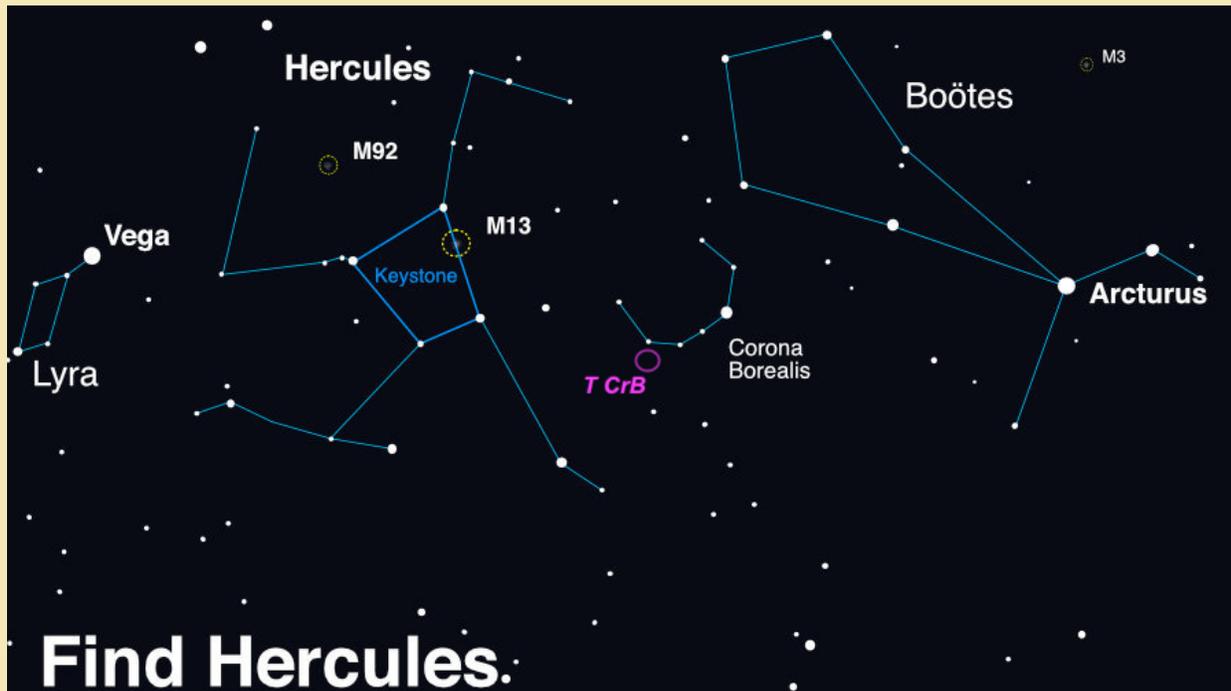
Image 3: The milky way at Rozel Point Oil Field near Spiral Jetty. Taken with a Sony A7II on a stationary tripod. Edited in Lightroom.



JULY NIGHT SKY NOTES: A HERO, A CROWN, AND POSSIBLY A NOVA!

by Vivian White

High in the summer sky, the constellation Hercules acts as a centerpiece for late-night stargazers. At the center of Hercules is the “Keystone,” a near-perfect square shape between the bright stars Vega and Arcturus that is easy to recognize and can serve as a guidepost for some amazing sights. While not the brightest stars, the shape of the hero’s torso, like a smaller Orion, is nearly directly overhead after sunset. Along the edge of this square, you can find a most magnificent jewel: the Great Globular Cluster of Hercules, also known as Messier 13.



Look up after sunset during summer months to find Hercules! Scan between Vega and Arcturus, near the distinct pattern of Corona Borealis. Once you find its stars, use binoculars or a telescope to hunt down the globular cluster M13 (and a smaller globular cluster M92). If you enjoy your views of these globular clusters, you’re in luck—look for another great globular, M3, in the nearby constellation of Boötes. Credit: Stellarium Web.

Globular clusters are a tight ball of very old stars, closer together than stars near us. These clusters orbit the center of our Milky Way like tight swarms of bees. One of the most famous short stories, *Nightfall* by Isaac Asimov, imagines a civilization living on a planet within one of these star clusters. They are surrounded by so many stars so near that it is always daytime except for once every millennium, when a special alignment (including a solar eclipse) occurs, plunging their planet into darkness momentarily. The sudden night reveals so many stars that it drives the inhabitants mad.

Back here on our home planet Earth, we are lucky enough to experience skies full of stars, a beautiful moon, and regular eclipses. On a clear night this summer, take time to look up into the Keystone of Hercules and follow this sky chart to the Great Globular Cluster of Hercules. A pair of binoculars will show a faint, fuzzy patch, while a small telescope will resolve some of the stars in this globular cluster.

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A Hero, cont'd from p. 8

A red giant star and white dwarf orbit each other in this animation of a nova similar to T Coronae Borealis. The red giant is a large sphere in shades of red, orange, and white, with the side facing the white dwarf the lightest shades. The white dwarf is hidden in a bright glow of white and yellows, which represent an accretion disk around the star. A stream of material, shown as a diffuse cloud of red, flows from the red giant to the white dwarf. When the red giant moves behind the white dwarf, a nova explosion on the white dwarf ignites, creating a ball of ejected nova material shown in pale orange. After the fog of material clears, a small white spot remains, indicating that the white dwarf has survived the explosion. Credit: NASA/Goddard Space Flight Center.

Bonus! Between Hercules and the ice-cream-cone-shaped Boötes constellation, you'll find the small constellation Corona Borealis, shaped like the letter "C." Astronomers around the world are watching T Coronae Borealis, also known as the Blaze Star, in this constellation closely because it is [predicted to go nova sometime this summer](#). There are only five known nova stars in the whole galaxy. It is a rare observable event and you can take part in the fun! The Astronomical League has issued a [Special Observing Challenge](#) that anyone can participate in. Just make a sketch of the constellation now (you won't be able to see the nova) and then make another sketch once it goes nova.

All images courtesy of NSN.

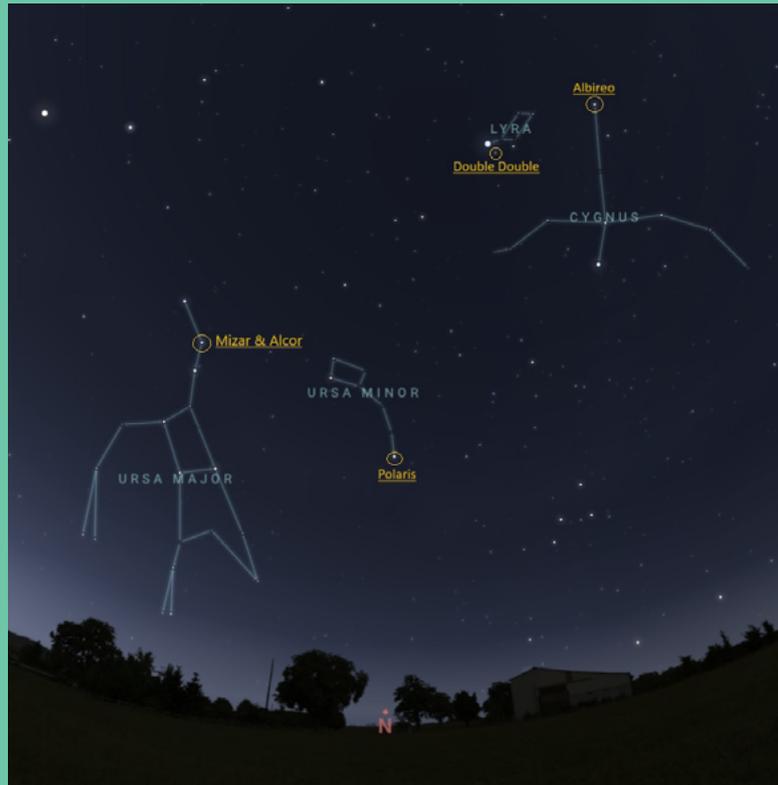


This article is distributed by NASA's Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit <https://nightsky.jpl.nasa.gov/> to find local clubs, events, and more!

AUGUST NIGHT SKY NOTES: SEEING DOUBLE

by Kat Troche

During the summer months, we tend to miss the views of Saturn, Jupiter and other heavenly bodies. But it can be a great time to look for other items, like globular star clusters such as Messier 13, open star clusters such as the Coma Star Cluster (Melotte 111), but also [double stars](#)!



Mid-August night sky constellations with the following multiple star systems highlighted: the Double Double in Lyra, Albireo in Cygnus, Polaris in Ursa Minor, Mizar and Alcor in Ursa Major. Credit: Stellarium Web

What Are Double Stars?

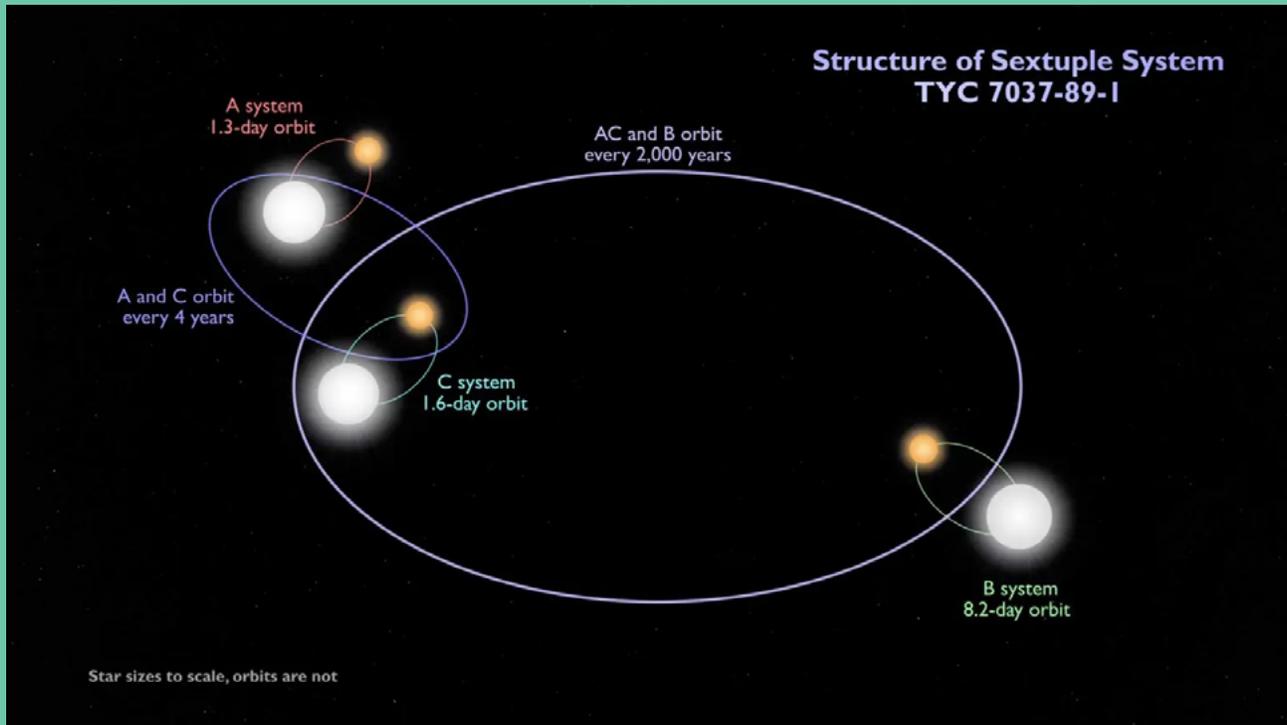
If you have seen any movies or read any books that refer to having two suns in the sky, that would be a double star system. These star systems typically come in two types: Binary and optical doubles. Binary stars are two stars that are gravitationally bound and orbit each other, and optical double stars only appear to be close together when viewed from Earth, but in reality, are extremely far apart from another, and are not affected by each other's gravity. With a small telescope, in moderately light-polluted skies, summer offers great views of these stellar groupings from the northern hemisphere:

- **Double Double:** also known by its technical name, Epsilon Lyrae, this multiple star system appears as one star with naked eye observing. But with a small telescope, it can be split into “two” stars. A large telescope reveals Epsilon Lyrae's secret—what looks like a single star is actually a quadruple star system!
- **Albireo:** a gorgeous double star set—one blue, one yellow—in the constellation Cygnus.

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Double, cont'd from p. 10

- **Polaris:** while technically a multiple star system, our North Star can easily be separated from one star to two with a modest telescope.
- **Mizar and Alcor:** located in the handle of the Big Dipper, this pair can be seen with the naked eye.



This schematic shows the configuration of the sextuple star system TYC 7037-89-1. The inner quadruple is composed of two binaries, A and C, which orbit each other every four years or so. An outer binary, B, orbits the quadruple roughly every 2,000 years. All three pairs are eclipsing binaries. The orbits shown are not to scale. Credit: NASA's Goddard Space Flight Center.

Aside from looking incredible in a telescope or binoculars, double stars help astronomers learn about measuring the mass of stars, and about stellar evolution. Some stars orbit each other a little too closely, and [things can become disastrous](#), but overall, these celestial bodies make for excellent targets and are simple crowd pleasers.

All images courtesy of NSN.



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UPCOMING ASTRONOMY EVENTS AND ANNIVERSARIES

by Bonnie Schenk-Darrington



Wikimedia Commons

- August 1: Maria Mitchell was born in 1818 in Nantucket, Massachusetts. An American astronomer, she discovered the comet 1847 VI (now called [C/1847 T1](#)) and was the first woman to work as a professional astronomer and a college professor of astronomy.

[an Astronomers Day](#) celebrates the accomplishments of women astronomers, and honors especially Maria Mitchell, whose birthday is August 1.

- August 4: New moon.

- August 8: Moon at apogee.

- August 14: Conjunction of Jupiter and Mars.

- August 12–14: Perseid meteor shower peaks.

- August 14: Margaret Lindsay Mur-



Wikimedia Commons

ray, Lady Huggins, was born in 1848, in Dublin, Ireland. She and her husband, William, were pioneers of spectroscopy. She cowrote the *Atlas of Representative Stellar Spectra* in 1899.

- August 15: Russian dogs Dezik and Tsygan achieved the first canine suborbital flight in 1951. You can read a brief history of animals in space [here](#).
- August 17: κ -Cygnid meteor shower peaks.
- August 19: Full moon.



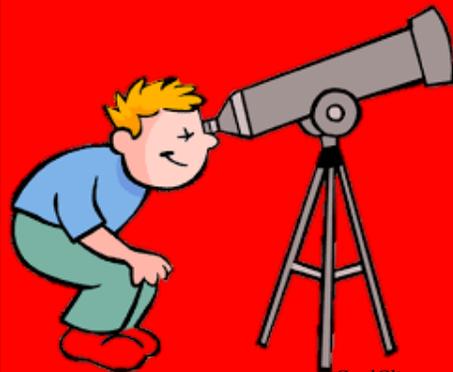
PNGlib and PNG Clip Art

- August 20: The Viking 1 Orbiter and Lander was launched in 1975.

- August 20: Moon at perigee.

- August 21: Moon occults Neptune. It will only be fully visible in Europe, western Russia, Africa, and northern Asia.

- August 31: Aurigid meteor shower peaks.



CoolClipart.com

Stumped? Befuddled?? Bamboozled???

Telescope Help Is Available!

When even your CVAS friends can't answer your obscure telescope questions, you might find it helpful to call Tom Sevcik

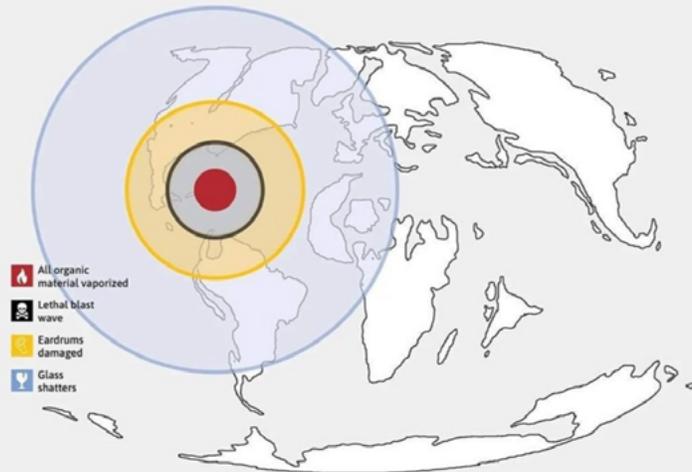
at the Clark Planetarium in Salt Lake City!

His number is (385) 468-1264. You can read his bio on the [Clark Planetarium website](#).

A LITTLE ASTRONOMY HUMOR



The Chicxulub Blast



Neil Armstrong's moon landing, 1969 (colorized)



CACHE VALLEY ASTRONOMICAL SOCIETY MEMBERSHIP APPLICATION FORM

Member # _____

NAME: _____
First Middle Initial Last

Address: _____
Street City State Zip Code

Home Phone: _____ Cell Phone: _____

Work Phone : _____ Occupation : _____

Email Address: _____

How did you learn about CVAS?

____ Website ____ Star Party ____ CVAS Member ____ Other _____

Membership: \$20 lifetime membership

Tell us about yourself: Do you have a special interest in astronomy? Do you have special skills? Are you willing to volunteer on CVAS projects or attend public outreach star parties? Astro equipment owned.

By signing this application, I acknowledge I have access to the CVAS website, cvas-utahskies.org, and the CVAS constitution. I agree to abide by the constitution.

Signature: _____ Date: _____

Bring this form to the meeting or contact **Bonnie Schenk-Darrington, Secretary/Treasurer** at bschenkdarr@gmail.com.