

ASTRONOMY CLUB



OF TULSA

OBSERVER

January 2022

Bringing Stars to the eyes of Tulsa

since 1937 Editor - John Land



This dark, dense globule IC 1396A located in Cepheus is commonly called the Elephant's Trunk Nebula. Image by Brian Wattenbarger with a William Optics Zenithstar 61 paired with a Skywatcher HEQ5 Pro mount and imaged with a ZWO ASI533MC-Pro astrocam

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Astronomy Club Events

Check our website AstroTulsa.com events section for updates

Observatory ONLY OPEN for SCHEDULED EVENTS. [Click for Observatory Map](#)

During Winter Months Dress in layers with hat and gloves

Our rural site is cooler than in town - there is a classroom to warm up

Saturday Jan 22 5:00 PM **Guest and Members night**

Guests are encouraged to RSVP on our website events, so we know how many to prepare for.

Saturday Jan 29 5:15 PM **Members Only night**

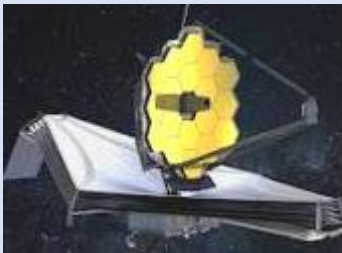
Open to members and their immediate family

Saturday Feb **Guest and Members night** - Details to be announced

Saturday Feb 26 5:45 PM **Members Only night**

NOTE: If weather conditions are unfavorable or hazardous forecasts predictions our events may be postponed or cancelled. Please check our website before heading out.

Astronomy Club Meeting - Friday Jan 7 - 7:00 PM - IN PERSON club meetings.



At Jenks High School planetarium 105 E B Jenks OK
Our Program will feature a couple of timely and interesting videos on the James Webb Infrared Telescope which was launched Christmas morning. The program will feature an interview with Senior Project Scientist for JWT Dr John Mather, who gives a simple but accurate explanation of How the James Webb Telescope Works. Along with another video detailing the

Insane Engineering challenges of designing it work flawlessly a million miles away at cooled to just 4 degrees above Absolute Zero (-- 452.47 degrees F !)

OBSERVING NIGHT GUIDELINES

With the post-holiday spike in Covid and Flu cases we want to keep our guests and members safe. We ask you to please be thoughtful of the health safety of others around you.

- 1 At observing sessions, please observe social distancing when not with persons of your group.
- 2 Ask if you may join others at their telescope.
- 3 Observe spacing in the classroom and respect those who choose to wear a mask for protection.
- 4 If you or a person in your household is showing signs of illness, please postpone your visit for another date.

When at the Jenks High School, we need to observe their guidelines. The Current Policy states All Jenks Public School staff members, **visitors**, and students in grades 3-12 will be required to wear face coverings. Any exceptions require the approval of the site principal.

These policies are for the protection of the students who use the buildings as well as yourself.

President's Message John Land



Greetings to all our Astronomy Club of Tulsa Members and Guests.



Welcome to 2022 ! Entering a new year is a time to look hopefully forward to the promise of new adventures and accomplishments for the coming year. Our Tulsa Astronomy Club was founded in 1937, so this year will mark our 85th year of sharing our enthusiasm for the night sky together. Like myself many of you can trace your love of stargazing back to a sparkling starlite sky away from city lights. Whether you are a long-time veteran of the night skies or a novice staring in amazement, there is a certain peacefulness that fills our soul with the wonder of the night sky. Intriguing questions arise as to what mysteries await discovery behind the curtain of darkness and the shining jewels of light scattered across the expanse of space?

One of my favorite [Jenks High school planetarium shows](#) developed by the students is based on the children's book ["My House has Stars"](#) It features stories from children of many cultures across the world - from house boats in Bangladesh to rooftops in the city looking up in wonder at that stars. These stories are read by the voices of younger students giving you a sense of childlike wonder.

Further down in this newsletter is an article about Orion and a link to the many names and [patterns that various cultures see](#) in this region of the sky. A simple look at the names of constellations and stars will reveal that our modern knowledge of the heavens has come to us through long millennia of star lovers across the world. These sky watchers carefully recorded what they observed, recognized repeating patterns of their motions and pondered the workings of the heavens above them.

I often visit the website Astronomy Picture of the Day ([APOD](#)) which frequently features images made by astronomy lovers from all parts of the globe. Some of the most stunning images comes from a group called [The World at Night](#) Among the most amazing are nightscapes from a photographer in Iran featuring the same familiar stars we enjoy here. The image I chose for my article section is titled *"Who Owns the Sky"*. We all share this SAME FRAGILE ["Pale Blue Dot"](#) of a planet under the same amazing canopy of starlight.

Sadly, over these past two trying years too many people have become focused on our differences. The news and social media are awash with articles - both real and exaggerated - which illicit fear, mistrust, anger and sometimes violence.

As we enter this New Year 2022, I encourage you to focus on all that unites us. Let's resolve to continue ["Bringing Stars to the Eyes of Tulsa since 1937"](#)

John Land - President

Watch *YouTube* recordings of Club meetings is available of our -
September 10 - [Lunar Impact Craters with Michael Hann](#)



October 22 - [Making Osage Hills State Park a Dark Sky friendly site](#) with John Blaesi

December 10 - [History of and Building a Radio Telescope](#) with Michael Hann



Click on these images
to links on the Internet

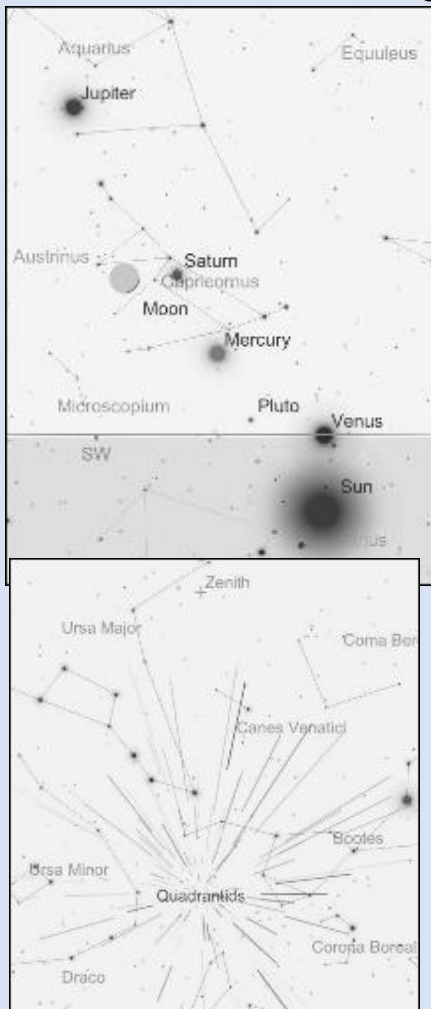


See our [website observing page](#) for a collection of [Interactive Sky Watching Tools](#)
Moon phases - Sun rise & Set - [Make your own custom interactive sky chart](#) and more

January Skies. -

Moon Phases - - New Jan 2 - - 1st Q Jan 9 - - Full Jan 17 - - 3rd Q Jan 25 - - New Jan 29

Look for a thin crescent moon near the SW horizon on **Jan 4th** Five degrees to the Left of Saturn with Mercury hanging below 8 degrees above the horizon. By **Jan 5th** the moon will have moved within 5 degrees of Jupiter. **12th & 13th** it passes Pleiades and Hyades clusters in Taurus. Early morning risers on **Jan 29** can look for a thin waning crescent passing near Mars and Venus low on the SE horizon.



PLANETS: Well, I was in error on the December sky notes. **Jupiter and Saturn** will still be early evening sights in January but sinking lower to the SW each passing day. Saturn passes behind the Sun at superior conjunction on Feb 4th. Jupiter will hand around until its solar conjunction Mar. 5th.

Mercury makes a good appearance the first couple of weeks. It can be seen withing 4 degrees lower right of Saturn from Jan 10 to Jan 15. You'll need a good line of sight to the SW horizon and binoculars will help also. **Mars** is slowing separating from the Sun in the morning sky but at a tiny 4.2 arcsec disk and dim magnitude 1.5 it won't be a worthy telescope sight for many months. **Venus** reaches inferior conjunction Jan 3rd passing between earth and the sun. It will swiftly emerge into the morning sky for a conjunction with the Mars Feb 5th.

Neptune and **Uranus** are still accessible by telescope throughout January and February. Neptune is near the water jar of Aquarius and Uranus is in Aries.

2022 Printable Finder Charts [For Neptune](#) [For Uranus](#)

Quadrantid meteor shower peaks in the predawn sky on Jan 4. The peak period of the Quadrantids only lasts a few hours. Like the Geminids the Quadrantids are associated with an asteroid. Asteroid 2003 EH1 has an orbital period of 5.5 years. The shower owes its name to the now-defunct constellation Quadrans Muralis which once occupied that region between Boötes and Draco. Although the shower can sport peak rates of over 100 per hour in dark skies it is not well observed due to its timing in coldest part of winter.

This Year, Looking Up

Volume 21, Issue 20

By Brad Young

I hope you each had a safe and enjoyable year. Things are still tough – but the sky is always there to ponder and keep our minds off trouble for a little while. My personal observing “numbers” are located [here](#). Most of that is boring but the point of this article is that looking back at a year can be more than nostalgic.

Whether you keep records or not, you can review in your mind how events like conjunctions, eclipses, comets, etc. looked to you. Perhaps you thought they were fascinating and appreciated good weather. Or how disappointing it was when the clouds rolled in. Maybe there was a special night or two, with no big event going on. Instead, you had a great night at the scope, or attended a star gaze with a bunch of friends (or strangers). Or did you just lay in a chair and soak in the beauty of the night?

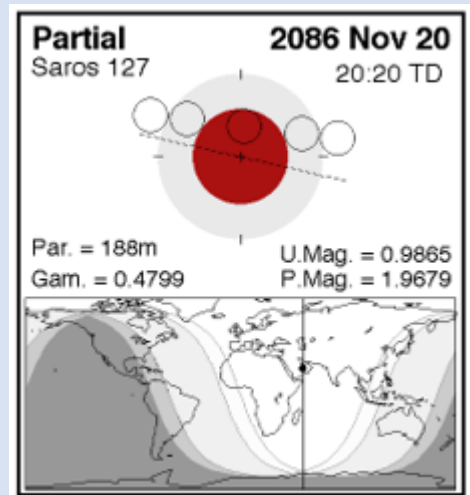
Thinking about the year going out may inspire you to catch every photon and peaceful moment you can in the years to come. I wrote an [article](#) last year about 2020 being unique. Of course, every year is, and 2021 was no slouch. But beyond the obvious “real world” issues, astronomically, the seeing was good.

Odds and Sods



The Okie-Tex Star Party is in Kenton, OK, the last town before the New Mexico line. Oklahoma University has a football team (you may have heard of it). Their former coach, Lincoln Riley, quit unexpectedly right after a loss to their rival, Oklahoma State. I went to University of Tulsa, so I don't care, but a few (read: all) of OU's fans were upset. A Ponca City State Legislator proposed a bill naming the last **three inches** of State Highway OK-325 west of Kenton as [Lincoln Riley Highway](#). Can't wait to see the road again, with the new signage next September.

This year's [oh so close to being total] partial lunar eclipse was very long and won't be exceeded until February 8, 2669. It was also quite deep at an umbral magnitude of 0.9742 (97.42% of diameter of the moon in deep shadow). I wondered, when the next deeper (but not total) eclipse be? This turned out to be past my lifetime, but perhaps not past some of you reading this article. A 98.65% partial eclipse occurs on [November 2, 2086](#). This time, the very tip top of the moon will stay just out the darkness. You may have to travel a bit though, as the max eclipse is only visible in Eurasia and Africa:



What I'd really like to see is the day we have our first annular eclipse of the moon. The moon is, after all, receding at about 4 cm (1.5 inches) a year due to the tides. However, we see our last total solar eclipse from earth in about 600 million years. [Selenites](#) see a much larger earth than we see moon passing across the sun, so I would say we have billions of years to wait.

Not to keep complaining about the summer weather, but as mentioned above I had no deep sky observations from July 4 to September 9, 2021. A stretch of two months, in prime observing season, with so little seen, may be an infamous record for me. It is certainly a record for the last quarter century, as I still have my astronomy observing journals from Volume 6 (starting 12/27/1996) to present and checked. *Note: the demise of Vol 1-5 (1980-1996) is a melancholy tale for another time.*

Certainly, 2021 marked a return to space missions, a few of which I observed or imaged [going out or flying by](#). Lucy, IXPE, NEO-1, CUTE, CHASE, DART and soon, the James Webb Space Telescope went to space, and the Solar Orbiter swung low enough to be seen in binoculars on its gravity assist flyby. And hundreds more Starlinks satellites were launched; think of them what you will, in the days right after launch they can be quite stunning to observe.

Several crewed missions launched, including the first to the core of the Tiangong Space Station, and private space tourism became real. Odyssey (US Space Force) was sent up to track space debris, followed swiftly by another anti-satellite test by Russia and thousands of new pieces of debris. The first payload, albeit a postcard, from the British Antarctic Territory was sent to space in 2021. Other, more substantial systems were sent up from Paraguay, Myanmar, Moldova, Tunisia, and Kuwait, representing their first objects in orbit.

Finally, I hate to bring THAT up, but just remember we were all still without a vaccine at the beginning the year 2021. Most of us could not attend meetings or conferences, star parties or even have a beer with our friends. We've come a long way – clubs are meeting again, having outreach, and viewing get-togethers, and it may even improve next year. I look forward to 2022, observing the sky and enjoying the best outdoor nature hobby that involves polished glass surfaces set in cylindrical tubes at night.



<https://hafsnt.com/index.php/annual-reports/>

<http://www.warrenastro.org/was/newsletter/WASP-2020-10.pdf>

<https://www.oklahoman.com/story/news/2021/12/07/oklahoma-lawmaker-wants-name-highway-section-after-lincoln-riley/6425113001/>

<https://eclipse.gsfc.nasa.gov/LEcat5/LE2001-2100.html>

<https://hafsnt.com/index.php/satellite-observing/>

Telescope Scope Buggy For SALE \$ 475

Contact Byron Labadie poisonokie@aol.com

Tired of the back breaking ordeal of trekking Tripod, counterweights, and scope out to the yard. This scope buggy can do it all while keeping the scope fully assembled ! 10-inch tires - Capacity 110-125 lbs - Span 33" - 34".





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 nightsky.jpl.nasa.gov to find local clubs, events, and more!

Hunting the Hunter: Observing Orion

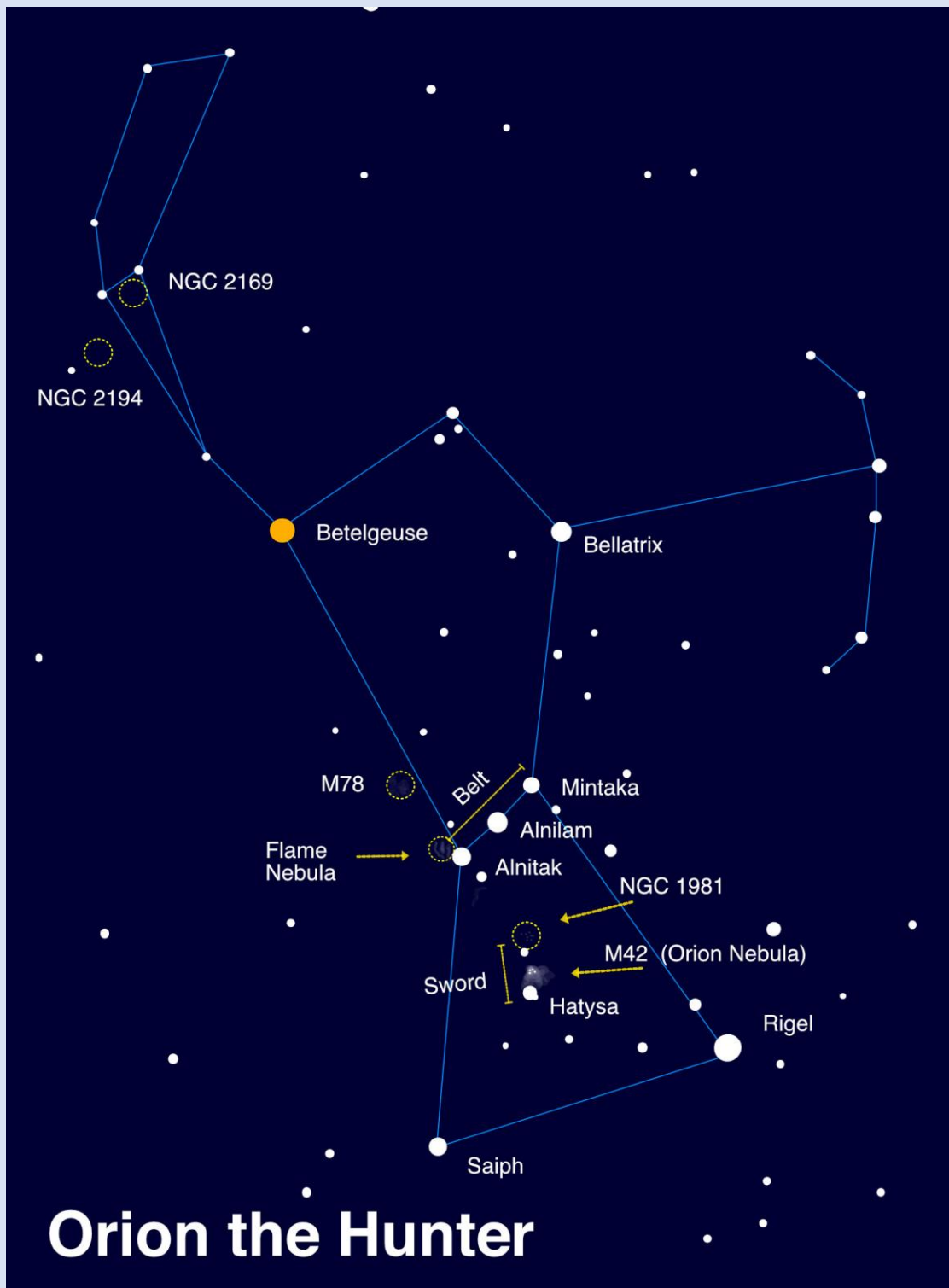
David Prosper

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.

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 <https://www.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 are star-forming regions! You can read more in our November 2019 article [Orion: Window Into a Stellar Nursery](#). 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

TREASURER'S and MEMBERSHIP Report

BY JOHN NEWTON



As of Dec 23, we had **214 members** - **86 New members for 2021**

We welcome this month our newest members - **Lissette Carlson, Grecia Porras, Samuel Hugli, Joseph Buck West, Remington Ullrich, Richard Perisho and Patti Perisho** Hello and welcome to ACT!

In addition, we want to recognize our long-term members who continue to renew their memberships with the club even in these restricted times. Finally, we can breathe easy again soon as restrictions continue to lift. Also, we look forward to seeing everyone at our virtual meetings by Zoom, General Meetings and at club events throughout the year when possible.

Accounts as of Nov. 19, 2021

Checking: \$ 5,559.70

Savings: \$ 13,786.65

Investments: \$ 32,785.17 (Value tends to fluctuate with markets).

The club now has **PayPal available for you** to start or renew memberships and subscriptions using your credit or debit cards. Fill out the registration form at <https://astrotulsa.com/page.aspx?pageid=16> **Click Submit** and you will be given the choice of either **mailing in your dues** with a check **or using PayPal** which accepts most major credit cards. A modest processing fee is added to PayPal transactions.

You may also renew your membership or join at one of our club events using your credit card by seeing one of our officers. We can take payments with the Square card reader. A small fee is also added on to these transactions.

ALSO NOTE: For our current members who are renewing their memberships, you can now go to a new link on the website to start your renewal process. On the home page, hover over the "Member" tab on the ribbon menu near the top of the page. Then select the "Membership Renewal" link and this will take to a page to fill out your information. Fill this out, submit it, then pay your dues by the method you choose.

NEWS NOTE: Both Sky & Telescope and Astronomy have free Digital subscriptions available with print subscriptions, or Digital subscriptions may be purchased separately. Details - Contact their websites

Membership rates for **2021** are as follows:

Adults: \$ 45 per year, includes Astronomical League Membership.

Sr. Adult: \$ 35 per year for those 65 or older, includes Astro League Membership.

Students: \$ 30 with League membership; Students: \$ 25 without League membership.

Additional Family membership: \$ 20 with voting rights and League membership.

\$ 15 with voting rights but without League Membership.

The regular membership allows all members in the family to participate in club events but only **ONE Voting Membership** and one **Astronomical League membership**.

Join Online – Add or renew magazine subscriptions. <https://www.astrotulsa.com/page.aspx?pageid=16>

Magazine Subscriptions: If your magazines are coming up for renewal, try to save the mailing label or renewal form you get in the mail. Forms are available on the club website. Both magazine now include online access with paid subscription.

Astronomy is \$ 34 for 1 year, or \$ 60 for 2 years. www.astronomy.com

To get the club discount you must go through the club group rate.

Sky & Telescope is \$ 33 per year <https://skyandtelescope.org/>

Sky & Telescope also offers a 10% discount on their products.

You may renew Sky & Telescope subscriptions directly by calling their number **-be sure to ask for the club rate**

Our club had a great opportunity to share our love of astronomy as a part of the **Gathering Place Winter Wonderland** events on Saturday Dec 18, 2021. Eleven of our members braved the near freezing temperatures to make it a special event for guests.

Several hundred people were there to enjoy the Christmas lights, entertainment, food vendors and to see Santa. We set up telescopes on the hillside lawn above the Boathouse to let guests view the planets and the moon.

We heard lots of exclamations such as “Wow” & “Awesome” and along with other joyous comments as they saw Saturn’s rings, Jupiter & its moons. It was especially fun to see the smiles on the children’s faces when they looked through our telescopes. Our new member Krystal Reyes used a kid level telescope focused on Venus that clearly showed its crescent shaped phase. She enjoyed hearing the children exclaim “*I can SEE IT*”!

Some of the scopes were even equipped with electronic imaging systems to see the Andromeda Galaxy, Pleiades and even caught an image of Comet Leonard C/ 2021 A1



Krystal, David, Brad Jack, John, Matt, Don, Skip, Dennis & Cathy





Nov 29, 2022
Member Nick Kuhn took his telescope
to share views of the planets with
Gerald Miller's Scout troop 2222
at John Knox Presbyterian Church



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OWEN AND TAMARA GREEN

SIDEWALK ASTRONOMY – **Open Position**

PR AND OUTREACH – **Open Position**

GROUP DIRECTOR – **Open Position**

NIGHT SKY NETWORK – **Open Position**

WEBMASTER JENNIFER JONES

*Had a long clever
Riddle to share but ran
out of room*

*Still looking for you
members to contribute.*

*This is Your CHANCE
to get Published by
getting your creative
juices flowing to create
amusing entries.*

Do you have ideas for our club In Person or ZOOM Meetings?

Want to share an observing experience or astrophoto.
Know someone willing to be a Guest presenter?

We would also welcome YOU to do a short 5-10
minute section of interest or new equipment you'd
like to review.

Create a Cartoon on a Space Theme

Contact our Editor John Land

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