

ASTRONOMY CLUB



OF TULSA

OBSERVER

NOVEMBER 2021

Bringing Stars to the eyes of Tulsa

since 1937 Editor - John Land



Andromeda
Galaxy M 31

Whirlpool
Galaxy M 51

Pinwheel
Galaxy M 33

Images by Don Bradford at Okie-Tex were taken with a 102mm AR refractor on a Explore Scientific EXOS2 equatorial mount and ZWO ASI294MM Pro camera, all computer controlled by the ASIAIR Pro. The image of the Andromeda Galaxy (M31) was a 60 sec exposure in Bin 2. The Whirlpool Galaxy (M51) and Pinwheel Galaxy (M33) were both 120 Sec exposure in Bin 2. , the ASIAIR Pro provides precise Go-To and automatic image centering through plate solving.

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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](#)

OBSERVING NIGHTS MOVING TO SATURDAY soon

This will allow us to start earlier near sunset as Standard Time Returns

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

PLEASE READ THE OBSERVING NIGHT GUIDELINES ON PAGE 4

Friday	Nov 5	6:45 PM	Members Only nights - this is after Sunset
Saturday	Oct 30	6:00 PM	DST Members & also Limited RSVP Guests
Saturday	Dec 4	4:30 PM	CST Members Only

Event Pending if enough interest - since this is Thanksgiving weekend

Saturday Nov 27 4:30 **CST** Members Only - Check Website to confirm

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

We are pleased to announce our return to **IN PERSON** club meetings.

Friday Dec 10 - 7:00 PM at the Jenks High School planetarium

In order to resume In Person meetings safely we are asking that those who attend:

1. Observe Social Distancing - the planetarium is large so please leave ample space between yourself or group and others.
2. Since we are using Jenks Public Schools facilities, we are subject to their policies.

Access to School Buildings for Parents and Visitors All individuals entering a school building or JPS facility will be required to wear a mask or face covering.

<https://www.jenksps.org/vnews/display.v/ART/5f1f0c9d16134>



A 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 Blaes](#)

President's Message John Land



Greetings to all our Astronomy Club of Tulsa Members.

At our October meeting we elected a new set of officers and board members to lead us for the upcoming year. You can see all of their pictures on a later page in the newsletter. 2022 looks to be a landmark year for our club. Our club was founded in the summer of 1937, and this will be our 85th Anniversary! I'm looking forward to celebrating this next year with you and will welcome any ideas you having to help us to make it a memorable year.

This past year and a half we have gained a significant number of new members. Many of you are new to astronomy. One of our goals for the coming year is to come up with ways to help mentor and encourage you in your quest to learn more about the night sky. Your input is welcomed on how we can do that better.

The long-standing success of the Tulsa Astronomy Club is a testimony to four generations of dedicated volunteers who were willing to share their time and efforts to share their enthusiasm of the stars. I am hoping many of you younger members will step forward to become more actively involved to ensure the continued success of our club to generations to come. The kids, youth and young adults of today are the ones who will envision bold ideas to explore the universe of tomorrow!

You can get involved by volunteering to help with observing nights, workdays at the observatory, helping with public events as they open up. Our newsletter editor would welcome articles about your astronomy adventures, pictures you have taken, memories of astronomy related vacation destinations, observing tips to pass along etc. Articles don't have to be long a paragraph or so and maybe a picture to go along with it.

Looking forward to seeing many of you and family at our Nov 6 club dinner. May we all remember to give Thanks this Season for all the blessings of this past year.

John Land - President

John Land - *"We all enjoy being out under dark skies enjoying the hunt for the many treasures in the night sky. So that we all can continue to do so safely year after year we must act responsively to do so in a safe manner to respect the health of others."*

Guidelines for Members' and Guests at Observatory Nights.

Our goal is to ensure enjoyment of our hobby while respecting the health and safety of others.

Our Member Only nights are near the new moon for the best deep sky observing. Members may bring family or a couple of guests with you. - No large groups please.

Guest RSVP Nights - Near the third quarter moon, we are also working to be open for non-member guests may join us to learn about the night sky. So that we don't get overwhelmed with unpredictable large numbers we are asking Guest to RSVP on our website in advance. Watch our website for Guest night dates.

Although COVID numbers have decreased it remains a serious health issue for those who become ill. It is still advised to have a mask available to wear when you are in close proximity to people other than your group. When you are **INSIDE the classroom or viewing in our dome telescope, we request **to respect others health by wearing a mask when requested**. This mask guideline does not apply to younger children. We will leave that to their parent's discretion.**

If you decide to join other members at their telescope, we would still advise that you ask their permission. Our Rest Room and Classroom areas are Open. Please exercise proper hand washing and other common health hygiene practices. Please Avoid Smoking or Vaping on the observing grounds or building.

Autumn nights often cool off rapidly. Dress in layers to be comfortable as the temperature drops. This is a rural setting so closed toed shoes are recommended. Temperatures in on our hilltop observing grounds are cooler than city forecasts. Please do not spray insect repellents around our telescopes. Remember to bring some drinks and maybe a snack to refresh yourself.

Long time astronomy club member **Jerry Ray Mullennix**, 1956 -2021, passed away after a brief illness on October 21st, 2021. Jerry was a lovable regular at observing nights. He always had a beloved dog with him and loved to spin humorous tales for anyone who came by to visit. He also had an ingenious camera mount he clamped to his car window to take astronomy photos. Jerry served as our newsletter editor for a few years and also served on our club board. After retiring a few years ago, he found some land with dark sky near Atlers, OK and established his observing abode called "OLEO ACRES" - and described it as "One of the Cheaper Spreads" He and his current dog Astro had a mobile home on the site. His family suggests that instead of flowers to make a donation to the Astronomy Club of Tulsa. Link to his > [Full Tulsa World Obituary](#)



2021 -2022 Astronomy Club Officers & Board



**President
John Land**



**Vice President
Bryan Kyle**



**Secretary
Jerry Cassity**



**Treasurer
John Newton**

Board Members



Don Bradford



Jim Danforth



Adam Koloff



Tamara Green



**Michael
Blaylock**



**James
Taggart**



Skip Whitehurst



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

November Skies. - November is here the leaves are beginning to show their glorious colors. CST (Central *Starlight* Time) returns on Nov 7 and the sun sets at 5:20 PM !

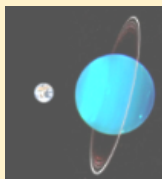
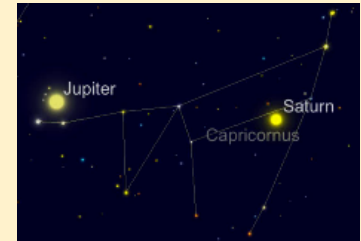
Its plenty dark to start observing by 6:00 PM

Moon Phases - - New Nov 5 - - 1st Q Nov 11 - - Full Nov 19 - - 3rd Q Nov 27

The moon passes Venus Nov 7, Saturn Nov 10 & Jupiter Nov 11.

Venus - reached its maximum evening elongation Oct 29 and appearing like a 25" wide quarter moon. It's orbit now takes it between the Earth and the Sun. By month's end it will be 54% larger (38'8") and look like a fat waxing crescent. By Christmas it will be hugging the horizon at sunset looking like a thin crescent 57" wide. Galileo was the first to record his observations of the planet's changing phases and used it as proof the Venus must orbit the Sun and not the Earth. Watch a good animation of Venus motions on <https://www.shadowandsubstance.com/>

Following their spectacular close conjunction in Dec 2020, **Jupiter and Saturn** are now 15 degrees apart. The two gas giants are both in Capricorn crossing the median in the south as dusk arrives. Be to put in some observing time for these two before they leave the evening sky at the end of the year.



The planet Uranus reaches opposition Nov.9th. At magnitude 5.7 it can be seen in binoculars. However, its location the star sparse region between Aries and Pisces makes it a challenge to locate. Once you've found it turn you telescope toward this distant orb. At 80 to 100 X it will appear as a tiny blue green disc distinguishing itself from the stars. See your details and charts at [Uranus Queues Up for Opposition](#)

For the more diligent observer try these objects. The dwarf planet **Ceres** also is at opposition Nov 27. At magnitude 7.6 it can be seen in small telescopes. The best way to identify these smaller bodies is the locate the general star field in a low power eyepiece and make a sketch of all the stars in your view. Then come back a couple of days later and determine which object moved. Magnitude 7.8 **Neptune** can still be found near the tip of Aquarius' Water Jar. Magnifications of 100 X or more will show it as a tiny steel blue orb.

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

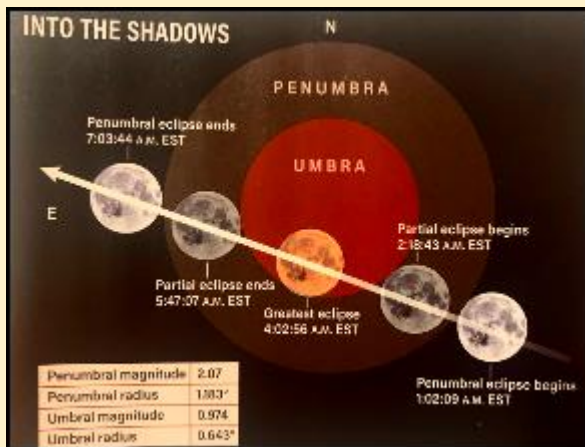
Mars and Mercury are still hanging out near the Sun in the predawn sky.



Found this great website for to make printable finder charts for **Planets, Asteroids or Comets** You can customize it for your location. <https://in-the-sky.org/findercharts2.php?id=7&town=4553433>

Volcanic Comet Blows it Top ! Comet 29P/Schwassmann-Wachmann is challenging old ideas. Astronomers call it a comet, but, really, "giant space volcano" might be a better description. It's a 60-km-wide ball of ice orbiting the Sun beyond Jupiter, and it appears to be one of the most volcanically active bodies in the entire Solar System.





**Friday Moring Nov 19 - 1:19 AM to 4:47 AM
Maximum eclipse 3:03 AM**

A 97% Lunar Eclipse will be visible after midnight the morning of Friday Nov 19th. Anyone who has clear sky to see the moon can witness the event.

You won't need any special equipment to witness the event although a pair of binoculars or small telescope will enhance your view. Look for the moon high in the SW as the eclipse begins. Look for the Pleiades star cluster in Taurus above the moon. As the eclipse continues the moon will sink lower in the sky toward the west.

If you don't have time (or energy) to watch the whole event, the optimum times to watch would be from 2:30 to 3:30 AM with maximum at 3:03 AM CST Watch an animation at <https://www.shadowandsubstance.com/>

**The Earth's shadow will first become visible at 1:19 AM as a tiny nibble on the top of the moon. Over the next 104 minutes the shadow will crept lower on the moon until only a tiny sliver of sunlight will be visible when maximum eclipse occurs at 3:03 AM Then the moon will emerge from the shadow until the eclipse ends at 4:47 AM
The eclipse occurs simultaneously for everyone in the USA. Only the times will change depending on your time zone. Times above are for Central Standard Time.**

A Lunar Eclipse occurs when the full moon passes directly through the Earth's shadow. The inner portion of the Earth's shadow is called the Umbra. That portion of the moon receives no direct sunlight. However, the portion of the moon within the shadow will take on an orange to reddish hue. This results as the Earth's atmosphere bends the light of all the sunrise and sunsets around the Earth's rim.

Reverence

By Brad Young

A time to get, and a time to lose; a time to keep, and a time to cast away; (Ecc. 3:6)

It ain't the life you choose, it's the life you live - "What You Give" by Tesla

Everyone from the rabbi of Ecclesiastes to Tesla (the rock group, not the scientist) has told us to cherish that which we might lose at any time and be thankful for the wonder that befalls us. This is particularly true within the pursuit of astronomy, including the fellowship and wonderful dark skies of our star parties.



Of course, the worst kind of loss is that taken from you. The 2020 Okie-Tex Star Party (OTSP) was taken from us due to covid, but this made returning in 2021 that much sweeter. The OTSP is held at Camp Billy Joe in the tip of the Oklahoma panhandle near Black Mesa. This year was exceptional for many reasons besides returning after a cancellation. A new building was put up replacing the marquee that had been problematic in the past. The dates also ran Friday night to Friday night, a huge improvement in my opinion. Although attendance was down a bit, there were still over 300 registered and it had the usual eclectic mix of imagers and visual astronomers from all over North America, and plenty of presentations to attend. The only downside was the slight inconvenience of the very necessary covid restrictions, and as usual I didn't win any door prizes.



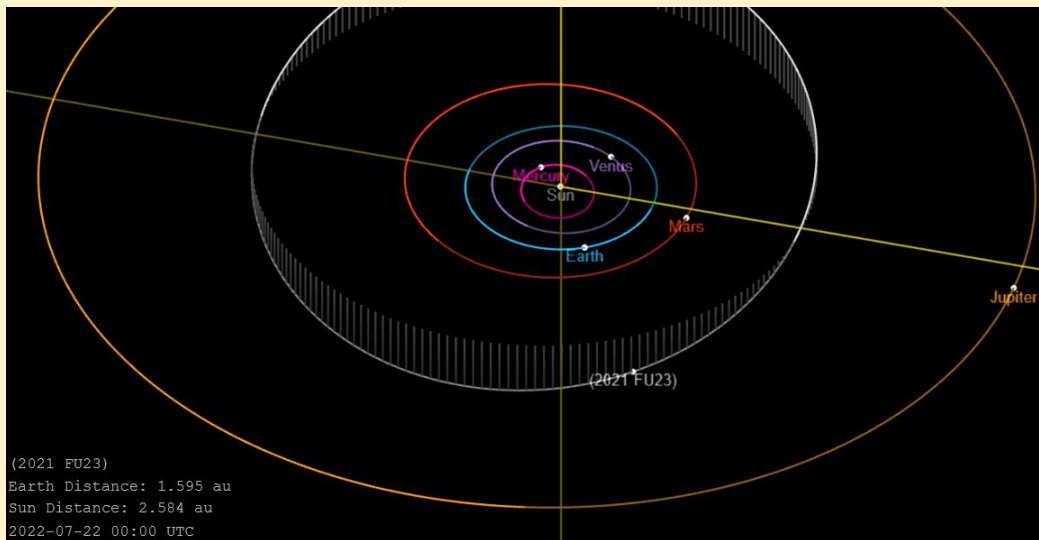
What I learned this year is to revere other amateur astronomers and the dark sky again. I have never been a highly social person, and often treated OTSP as my peak of the year mad dash to see everything, except my friends and observing buddies. I've been going since 2006 and I've only missed two, both times to attend another star party, so I didn't expect the feeling of loss that having one canceled would evoke. Every year, when I make that last walk out the road to my car (I stay off-site) I reflect on the year gone by and the fun just had. This year had a special pang to it; not just leaving the dark sky but the party itself. In all the years past, I had still been working, and this was my one truly dark annual astronomy trip to get everything I could. This year was more about getting everything there was.



Even though I loaded my telescope and started [driving to Camp Billy Joe](#) in rain, only the first and last night were cloudy. That provided a good rest before and after a long drive. And the rest was improved by some good news.

PRELIMINARY DISCOVERY OF A NEW MAIN BELT ASTEROID

Just before leaving, I learned that the team I'm on had been given a preliminary asteroid designation for one we found during our examination of PanSTARRS images to check for near Earth objects. Assuming anyone finds it again, we will be able to name it. At the top of my list next July when is that opposition again. You can see data on this object, and plot its orbit and motion at [2021 FU23](#)



Screenshot of link output showing 2021 FU23 orbit at next opposition in July 2022

I'm lucky to be on a team of asteroid hunters named Route 66 Rocks. The team is:
Vic Grossi - Lake County Astronomical Society (Northern IL)
Mike Hotka - Longmont (Colorado) Astronomical Society
Brad Young - Astronomy Club of Tulsa

We are sent images from the PanSTARRS sky survey and blink the sets of multiple images taken tens of minutes apart to check for Near Earth Objects. This effort is coordinated by the International Astronomical Search Collaboration or IASC.

Of course, most of the objects that we report are already known or have been identified on a preliminary basis before. After having been involved in this initiative monthly for several years, we have identified a main belt asteroid that has been given the preliminary designation of 2021 FU23.

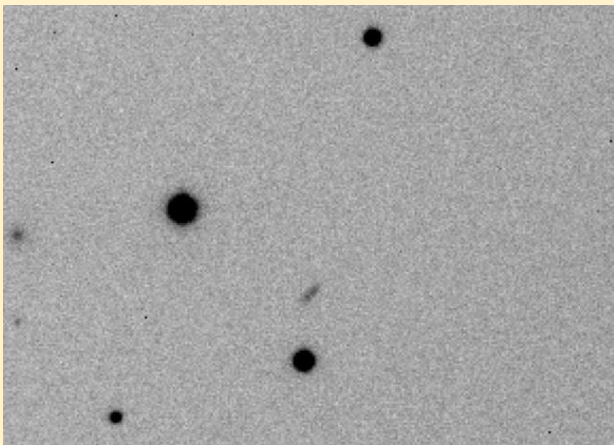
Truly a team effort, each of the three of us received the same sets, blinked some individually and then reported what was found. Then the reports are correlated by Vic and any discrepancies are resolved with the team by him. Besides the obvious need for all the objects found to be agreed on by all members, this involves checking to ensure all the time and position data matches well, and that known objects are identified correctly. He also must follow guidelines on SNR (signal to noise ratio), path, minimum number of images, etc. Finally, within three days of receipt of the images a joint report is sent to the IASC.

The next step of this adventure is to try to image the object again, hopefully at its next opposition in July 2022. It will be in the southern sky, at below -30 deg declination, so my plan is to use remote telescopes in Australia and Chile to try to catch it. Obviously, if you have any way of imaging that far south, everyone is welcome to try and help us catch it again. If it is recovered, my team will be able to name it and it will receive a permanent designation and number.

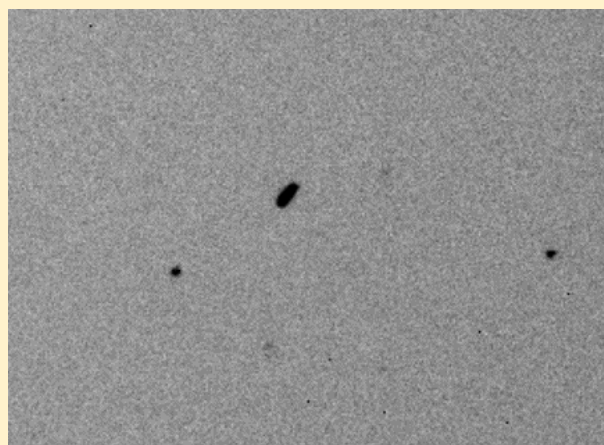
This is important work that needs to be done and citizen scientists at nearly any level of expertise in amateur astronomy can help. Visit the [IASC website](#) for more information.

OBSERVING THE LUCY SPACECRAFT ON HER WAY OUT

And then after I got home, I was able to image the [Lucy spacecraft](#) and its rocket about 18 hours after launch, already nearly as far out as the moon. You can see a .gif of those images [on spaceweather.com](#) and its [image gallery](#).



Lucy Spacecraft

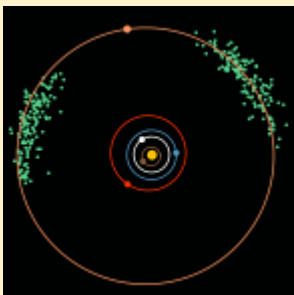


Centaur rocket

Imaging satellites is not easy, even using a remote telescope like I did. I used the T11 telescope in Mayhill, NM, operated by iTelescope.net, using [this method](#). The hard part is getting good predictions for their location; there are many ways to do this, but that may be a subject for another time.

So, it was another fantastic trip to OTSP. And the whole month of October has proven to be one of the best I can remember for my astronomical pursuits. I also participated in the [International Observe the Moon Night](#), several Jovian moon events, and much more. But the highlight was returning to the dark sky and seeing friends again. The new normal must include *both*, or it can't be normal.

Next time I will include sketches and descriptions of some of the surprises I found at OTSP deep in the NGC catalog as I continue my (possibly insane) [quest to complete them all visually](#). And, even after 40 years of observing, I learned some new tricks and pitfalls this year that I'd like to share.



The **LUCY** spacecraft's mission is to explore the region of the Trojan asteroids. Several hundred objects which orbit in the L4 and L5 regions of gravitational stability 60 degrees ahead of and behind Jupiter. These may represent ancient objects that are relics of the early time in which the planets were forming.

You can read more at <https://skyandtelescope.org/astronomy-news/nasa-launches-lucy-mission/>

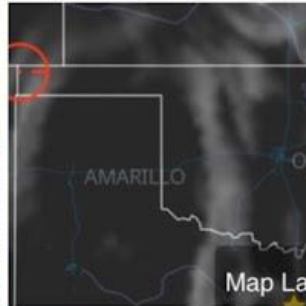
Potpourri of Okie-Tex photos.

Nearly 350 astronomy enthusiasts from across the country attended the Okie-Tex Star Party in far western Oklahoma Oct 1 to 9, 2021. OKSP takes place on the 4400 ft high Black Mesa area under some of the darkest sky on the planet. The Milky Way is a river of light stretching SW to NE. Over 20 Tulsa Club members attended. The bottom left image shows several of the Tulsa scope.

This year we enjoyed the new air all weather meeting building which include nice restrooms and a small data access area. Meals were served in the older building with the kitchen. Jody's Catering staff served great meals as usual.

Bottom image from top of east Mesa overlooking observing area by Bob Lieser.

"Enjoying" ? Local Critters exploring the area





Top Row: Great Give Away - Marilyn Land and Deborah Chapman - Bob & Judy Lieser



Middle: John & Marilyn Land

Nick Kuhn (Rt) and friend Paul Kirzak from CA.

Owen Green enjoying some reading.



Bottom
Jim Danforth and Sons.

Left > Right

Jerry Cassity 16" Dob
Steve Chapman 8" Dob
Tamara Green 16" Dob

Don Bradford and his camera set up

John Land - 102 mm

Jim Danforth - 8" Scope

For more photos try [Okie-Tex Facebook](#) page





Bob Lieser - Circumpolar star trails with iPhone and NightCap app

Below Left
iPhone 12 image shared by Stan Davis



Right
iPhone X - Dippers and Draco - John Land





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!

Weird Ways to Observe the Moon

David Prosper

The International Observe the Moon Night was on October 16 this year– but you can observe the Moon whenever it's up, **day or night!** While binoculars and telescopes certainly reveal incredible details of our neighbor's surface, bringing out dark seas, bright craters, and numerous odd fissures and cracks, these tools are not the only way to observe details about our Moon. There are more ways to observe the Moon than you might expect, just using common household materials.

Put on a pair of sunglasses, especially polarized sunglasses! You may think this is a joke, but the point of polarized sunglasses is to dramatically reduce glare, and so they allow your eyes to pick out some lunar details! Surprisingly, wearing sunglasses even helps during daytime observations of the Moon.

One unlikely tool is the humble plastic bottle cap! John Goss from the Roanoke Valley Astronomical Society shared these directions on how to make your own bottle cap lunar viewer, which was also suggested to him by Fred Schaaf many years ago as a way to also view the thin crescent of Venus when close to the Sun: "The full Moon is very bright, so much that details are overwhelmed by the glare. Here is an easy way to see more! Start by drilling a 1/16-inch (1.5 mm) diameter hole in a plastic soft drink bottle cap. Make sure it is an unobstructed, round hole. Now look through the hole at the bright Moon. The image brightness will be much dimmer than normal – over 90% dimmer – reducing or eliminating any lunar glare. The image should also be much sharper because the bottle cap blocks light from entering the outer portion of your pupil, where imperfections of the eye's curving optical path likely lie." Many report seeing a startling amount of lunar detail!

You can project the Moon! Have you heard of a "Sun Funnel"? It's a way to safely view the Sun by projecting the image from an eyepiece to fabric stretched across a funnel mounted on top. It's easy to make at home, too – directions are here: bit.ly/sunfunnel. Depending on your equipment, a Sun Funnel can view the Moon as well as the Sun– a full Moon gives off more than enough light to project from even relatively small telescopes. Large telescopes will project the full Moon and its phases, with varying levels of detail; while not as crisp as direct eyepiece viewing, it's still an impressive sight! You can also mount your smartphone or tablet to your eyepiece for a similar Moon-viewing experience, but the funnel doesn't need batteries.

NASA has big plans for a return to the Moon with the Artemis program, and you can find the latest news on their upcoming lunar explorations at [Artemis Mission Updates](#)

ACT Editor note: *You can also hold a stiff white sheet of paper above your eyepiece and produce a nice moon image. The sunspot activity is becoming more active. Building a Sun Funnel is a safe way to share views with kids or groups. Caution: Use Sun Funnels on small scopes only! A large scope can melt its plastic and damage your scope.*

TREASURER'S and MEMBERSHIP Report

BY JOHN NEWTON



As of Oct 25, we had **222 members** - **72 New members for 2021**

We welcome this month our newest members - **Patricia Hickey, Hunter Quinn, Viktor White, Ethan Willis, James Van Worth, and Stephen Miska** 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 Oct 25, 2021

Checking: \$ 3,650.70

Savings: \$ 13,786.65

Investments: \$ 32,045.39 (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**

Secretary Report Jerry Cassity



Astronomy Club of Tulsa BUSINESS MEETING RECORD 22nd October 2021

An Astronomy Club of Tulsa Business Meeting was conducted on the 22nd of October 2021 at the regular club meeting. A member quorum (20 minimum) was present for the meeting. Members were notified of the Meeting and Election via email on the 29th of September 2021.

Proposal to Amend the ACT By-Laws as follows.

Electronic Voting By-Laws Amendments

The following additions to the Astronomy Club of Tulsa By-Laws have been reviewed and approved by the Officers and Board members to submit to the club for a vote at the October 22, 2021, club meeting.

The reasoning for the amendments is to officially recognize that in our 21st century world Electronic communications is an effective means of allowing members to communicate and vote on various issues as needed. Our earlier by-laws assumed that a member needed to be physically present to cast a vote.

Article IV, add a new section 4 and renumber the remaining sections:

"4. Upon proper notice otherwise provided in the Bylaws and approval of the Board of Directors, any meeting of the membership may be held by electronic means permitting each member qualified to vote to participate and vote. In addition, with the same proper notice and board approval, a vote on specific issues may be noticed and received from qualified members by electronic means."

Article V, add a new section 8 and renumber the remaining sections:

"8. Upon proper notice otherwise provided in the Bylaws, any duly called meeting of the Board of Directors may be held by electronic means permitting each board member qualified to vote to participate and vote. In addition, with the same proper notice, a vote on specific issues may be noticed and received from voting board members by electronic means."

Election of Club Officers and Board Members for the 2021/2022 term as follows

Officers

President John Land
Vice President Bryan Kyle
Secretary Jerry Cassity
Treasurer John Newton

Board Members

Michael Blaylock
Don Bradford
Jim Danforth
Tamara Green
Adam Koloff
James Taggart
Skip Whitehurst

A ballot was presented to 28 members for voting with results as follows. Ballots were collected and counted by Jerry Cassity and confirmed by Brad Young. Results as follows.

Approve By-Laws Amendments **Yes**

Election of Officers

President - John Land	Yes
Vice President - Bryan Kyle	Yes
Secretary - Jerry Cassity	Yes
Treasurer - John Newton	Yes

Election of Board Members

Michael Blaylock	Yes
Don Bradford	Yes
Jim Danforth	Yes
Tamara Green	Yes
Adam Koloff	Yes
James Taggart	Yes
Skip Whitehurst	Yes

ASTRONOMY CLUB OFFICERS:

PRESIDENT – JOHN LAND
tulsaastrobiz@gmail.com

VICE PRESIDENT – BRYAN KYLE
bjk491990@aol.com

SECRETARY – JERRY CASSITY
jerrycassity@gmail.com

TREASURER – JOHN NEWTON
astrotulsa.tres@gmail.com

BOARD MEMBERS-AT-LARGE:

MIKE BLAYLOCK
DON BRADFORD
JIM DANFORTH
TAMARA GREEN
ADAM KOLOFF
JAMES TAGGART
SKIP WHITEHURST

STAFF:

FACILITIES MANAGER –
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PR AND OUTREACH – **Open Position**

GROUP DIRECTOR – **Open Position**

NIGHT SKY NETWORK – **Open Position**

WEBMASTER JENNIFER JONES

The Moon's the North Wind's Cooky

What the Little Girl Said

The Moon's the North Wind's cooky.
He bites it, day by day,
Until there's but a rim of scraps
That crumble all away.

The South Wind is a baker.
He kneads clouds in his den,
And bakes a crisp new moon that . . . greedy
North . . . Wind . . . eats . . . again!

— Vachel Lindsay

The poem is an excerpt for an
old children's book of poetry

Tomie dePaola's

Book of Poems

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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