

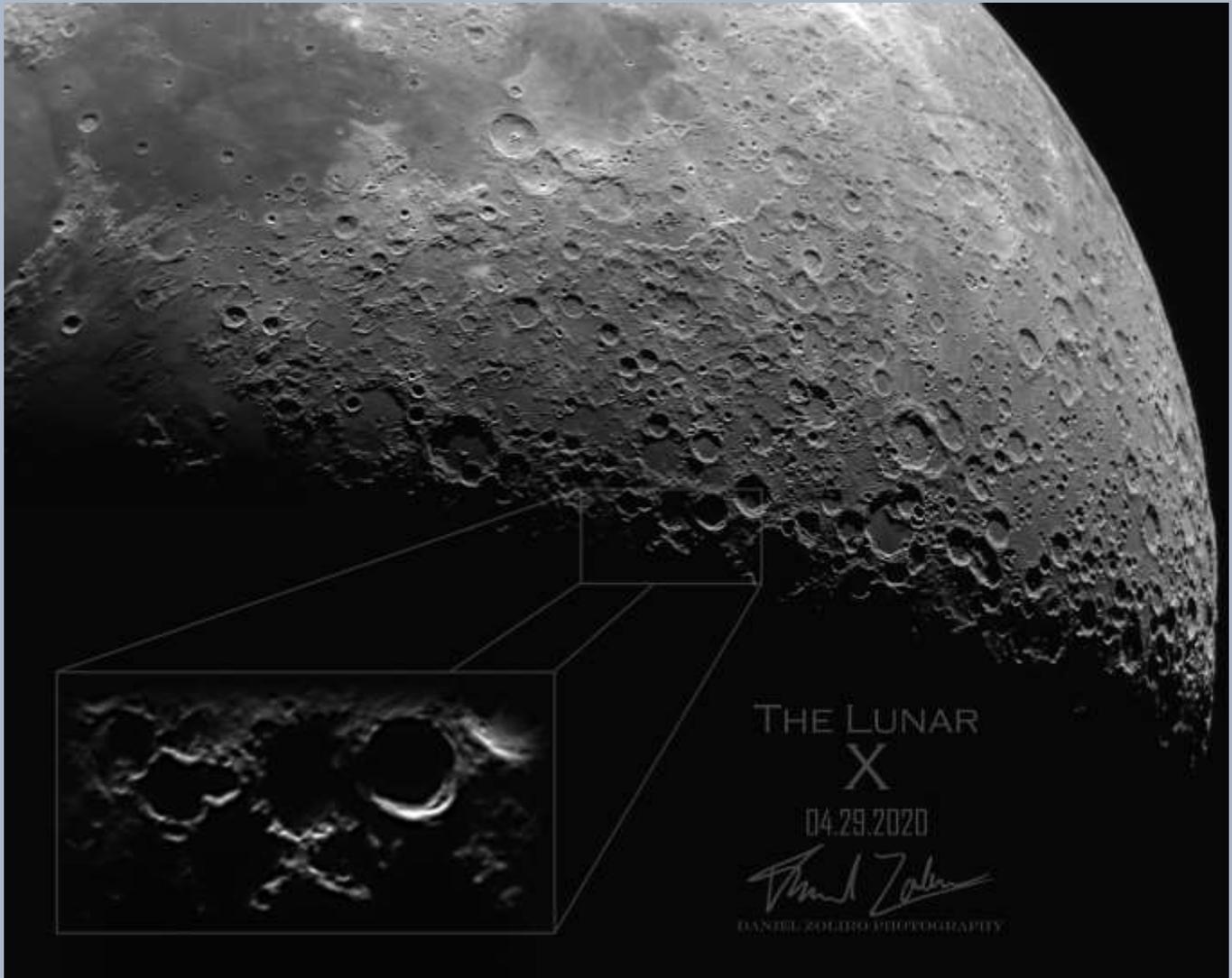


OBSERVER

JUNE 2020

Bringing Stars to the eyes of Tulsa since 1937

Editor – John Land



Daniel Smith sent in this great composite of the Lunar X phenomena he took on April 29th. He used a Celestron 9.25" SCT scope with a QHY183m imaging camera.

You can see details of how the Lunar X is formed and when it will be visible again in the article on pages 10 & 11. Also images other members sent in.

Got a great image you'd like to share?
Send it to our newsletter Editor with details about it

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Astronomy Club Events

Details at <http://astrotulsa.com/Events.aspx>

All Public Events for June and July 2020 are suspended

Phased in Public Events for August and the Fall
Are being formulated based on how the current Health situation evolves.
Check our website www.AstroTulsa.com events section for updates

Members ONLY Events with Social Distancing Guidelines in Effect

- JUNE:** **Friday, June 12, 8:30 PM**
Saturday, June 13, 8:30 PM (backup)
- Friday, June 19, 8:30 PM**
Saturday, June 20, 8:30 PM (backup)
- JULY:** **Friday, July 10, 8:30 PM**
Saturday, July 11 8:30 PM (backup)
- Friday, July 17, 8:30 PM**
Saturday, July 18, 8:30 PM (backup)

Check our website www.AstroTulsa.com events section for updates

PRESIDENT'S MESSAGE

BY TAMARA GREEN



Hey Y'all!

I have a couple of important announcements for you all.

We, as officers and board-members-at-large of the Astronomy Club of Tulsa are SLOWLY re-opening the observatory, but for **MEMBERS AND IMMEDIATE HOUSEHOLD ONLY** until further notice. Due to the continuing COVID-19 pandemic, we do not have any public events planned at this time. It will likely be at least late August or September before we resume public events. The officers and board will be meeting via Zoom pretty regularly to discuss plans for events according to the progress of the pandemic. If you have any positive input suggestions about how we can make this transition period better, please feel free to email the officers. (emails at end of newsletter or Contacts section of Website)

For members-only events, we ask that you please limit the people you bring with you to your IMMEDIATE FAMILY/HOUSEHOLD, and please no children under the age of 12.

We do not want anyone becoming sick with this potentially serious disease.

See Events Page 2 for schedule of members events for June & July

We are also planning to have a members-only picnic on Saturday, August 15.

More info will be coming soon on that, so stay tuned!

That's all I have for now. Hopefully, I will be able to give you all more info next month.

Clear Skies, Tamara Green

Guidelines for Members Only Observing Night

No guests – other than immediate family – no large family groups.

This will be a phased in effort in order to protect our members while also enjoying observing.

These are Guidelines for trial openings for May and June.

Members are asked to cooperate with the following policies.

- 1. Observers are asked to stay in FAMILY UNITS - instead of mixing with other groups (Family Units are persons living in same residential setting regardless of relationship) Kids should be 12 or older and stay with their family.**
- 2. Maintain SIX FOOT Social Distancing between observing groups.**
- 3. Use your OWN OBSERVING EQUIPMENT – instead of sharing telescopes etc**
- 4. MASKS are Optional but RECOMMENDED when in close proximity. If you have a mask you may wear it if it makes you feel safer.**
- 5. OBSERVATORY CLASSROOM WILL BE CLOSED - Unless on way to the restroom**
- 6. REST ROOM – use good hand washing and hygiene – We will provide hand Sanitizer. -Clean up all surfaces as you leave the restroom area.**
- 7. OBSERVATORY DOME and TELESCOPE will be CLOSED.**

**** If you know you have been exposed to persons with Covid-19 or if you are showing symptoms of this or other illness**

Please Stay Home until you are fully recovered and Fever and Symptom free.

If you have health issues that may put you at added risk, we recommend you stay home for now. Keep in Mind these hopefully temporary measures as we move forward toward normalcy.

JUNE Sky Show – Planets, Meteors and Comets

June Moon Phases	Full	3rd Quarter	New	1st Quarter
	Fri 5	Sat 13	Sun 20	Sun 28

Morning Planets – You have to rise early to do morning observing in June – Sunrises at 6:08 AM **Jupiter, Saturn** transit due South about 4:00 AM June 10 and rise before mid-night. By late June they begin rising in the SE about 10:00 PM Jupiter reaches opposition July 14 and Saturn July 20, so make plans to observe these gas giant planets often. June 8 & 9 the waning gibbous moon forms a line with these planets.

Mars continues its eastward journey through Aquarius and into Pisces rising about 2:00 AM. Watch as it continues to gain magnitude as it reaches opposition Oct 12. **Venus** is at inferior conjunction between Earth and Sun June 3. Look for it to become the “Morning Star” low in the ENE by late June. **Mars and Neptune are in conjunction June 13** with the 3rd quarter moon nearby. **Uranus** will become observable in western Pisces by late June.

Mercury is the **lone evening planet** passing through the lower regions of Gemini the first week of June. Look for it as a “golden star” about 15 degs up in the WNE. But it will soon sink below the horizon by later June.

Summer Solstice June 20 at 16:44 CDT – Rises at 6:05 Set 20:42 CDT 14hr 36 min Daylight



May 30, 2020 2:22 PM American astronauts Bob Behnken and Doug Hurley were launched on the Space X Dragon Crew system. This was the first launch from American soil on American made rockets since Atlantis Shuttle launch on July 8, 2011



Comets traverse the June skies.

After reading Stan Davis’ article on the following pages, you may want to try your luck at locating these ghostly visitors to our night sky.

Comet Lemmon C/2019 U6 makes its closest approach to Earth June 29 possibly reaching 5.5 magnitude. Look for it low in the SW at dusk.

Observers had high hopes for **Comet SWAN C/2020 F8** however it is fading rapidly after its good showing in the Southern Hemisphere. It is still accessible low in NW at Dusk.

Comet NEOWISE C/2020 F3 is currently at 8th mag and continuing to brighten as it has its closest approach on July 23 Its currently low in the NW but will improve late in June.

Comets **PanSTARRS C/2017 T2** continues to hold steady at 8 to 9th mag as it passes through the bowl of the Big Dipper during June.

You can find excellent current observation data and orbit details on these comets at **Gideon van Buitenen’s** very excellent page <http://astro.vanbuitenen.nl/comets>

Are you interested in viewing comets?

By Stan Davis

Well if you are, there are three in the evening sky and one in the morning. I have always liked to find and view comets. They are unique astronomical objects just visiting us for a short time before they move on. I would have said unique objects that are within our own solar system, but I guess now that is not accurate. They believe Comet Oumuamua was the first to be identified as interstellar comet while Comet 2I/Borisov is now the second such interstellar object known to have passed through the solar system.

Not sure what started my interest in them, but I would say comets are probably the reason that I got interested in Astronomy. Even long before I purchased my first telescope, I attempted to take photos of comets. My first was Halley's comet in 1986. My daughter was in John Land's astronomy class in Broken Arrow High School. I would have never known where it was or even how to look for it. John had a star party at the high school, so my daughter and I attended. I viewed it through multiple scopes and had nice visit with John. He took the time to show me where to look.



I went home and for several nights took my DLSR camera out on a tripod and took pictures. This was in the film days, so I took them to a one-hour photo place to get them developed. I told them to develop them all, no matter whether they look good or not. I would pay for them no matter what the quality of the picture. So, I return short time later to see what the photos looked like. He said I didn't develop them, because nothing turned out. So, I explained to him again, that they were photos of Halley's comet and the pictures would be a fuzzy blur with some white spots or streaks. He finally developed them and that's what they were, but I could see the comet and the stars matched a pattern that I had from an article in Sky & Telescope magazine. I was very happy that I got those shots. When you look at it be sure to take in mind that I only think this is it. To best

of my knowledge that is the Halley's comet. Taken from my backyard in Broken Arrow. I didn't even write down the date. I just found six images and a small note with different length of exposures written it. From what I remember it was barely naked eye. I had to get to a place in the backyard that limited the light. Setup my film camera on a tripod and tried 10 – 35 second exposures.



I also took pictures of Hale-Boop and Hyakutake. They both were naked eye. That is one of the best features of comets is that they could become naked eye. They are the best and most spectacular in my opinion. I did do a better job of Documenting Hale-Boop. I wrote on the back March 21, 1997. It too was taken from my backyard in Broken Arrow. Different camera and tripod. Don't remember if it was film or digital.

**< Comet Hale-Bopp
March 21, 1997**

Well since then I have joined the Astronomy Club of Tulsa, purchased a few telescopes and I attempt to observe and log deep sky objects along with my comets. I would encourage any of you out there to take the time to try to locate and view comets. I just earned my Silver Comet observing award from the Astronomical League in March of 2019. I am now working my Gold certificate. The Astronomical League has many excellent programs for a great variety of interests. Please take the time to check them out. It is always fun to complete one of their programs. You get a very nice certificate with a pin and the satisfaction of a job well done.

<https://www.astroleague.org/al/obsclubs/AlphabeticObservingClubs.html>
<https://www.astroleague.org/al/obsclubs/comet/comet.htm>

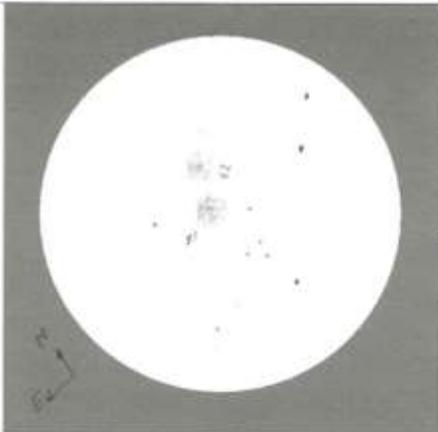
You have multiple ways to observe them, binoculars, telescopes or even observatory telescopes and if possible naked eye. You can use two observations before 2001. So, my observation of Halley's comet would have qualified if I had found my pictures when I submitted it but they were in the attic buried. I didn't use it. While at Okie-Tex last year I observed a couple comets and was wondering if I had enough for the Comet certificate. So, I got busy and tried to find and organize my observations.

Yes, work toward organization of your observations. I had them in notebooks, computer files. Once I got them all together, I had more than enough for the Silver. It spanned a time frame of twelve years. 2007 – 2019. My first observations were very crude just some notes in a notebook.

Date: 2/21/09	Object: Saturn	Mag:	
Time: 10:52 PM	Type: Planet	Size:	
Site/Session: MOUNT	Constellation: Leo	PA:	
Telescope: Lx200	Filter:	11.55 PM 02-21-09	
Seeing/Transp: Good	Eyepieces: 12mm 22mm 312f		
Comments: Very nice this first time I have it without any edge on. Could three moons - too far away.			
Date: 2/21/09	Object: Lulin	Mag:	
Time: 10:40 PM	Type: Comet	Size:	
Site/Session: MOUNT	Constellation: Virgo	PA:	
Telescope: Lx200	Filter:	11.55 PM 02-21-09	
Seeing/Transp: Good	Eyepieces: 22mm Kuyper 115x		
Comments: well defined comet core material extended out in circular pattern. Also seen with binoculars could see tail beginning in down wind direction two brighter stars above it are out of FOV in scope			
Date: 2/21/09	Object: Coms	Mag: 7.45	
Time: 11:38 PM	Type: Asteroid	Size:	
Site/Session: MOUNT	Constellation: Leo	PA:	
Telescope: Lx200	Filter:	11.55 PM 02-21-09	
Seeing/Transp: Good	Eyepieces: 22mm Kuyper 115x		
Comments: Not sure where finder and telrad moved to objects check RA-DEC			

Once I joined the Astronomy Club of Tulsa and was doing my Messier program, I got more organized and downloaded a form for logging my observations. I usually draw a very crude sketch of my observations to document the star pattern in the field of view. They are not artistic, just something I can use to make sure I had the correct object in view. Below is a preview of the form I use, with an observation of Comet Lulin. You will quickly notice I am not an artist, but I think it adds to the observation to attempt to sketch my FOV.

I have used multiple programs over the years to log my observations. I now use Skytools 3 pro. For me it works the best of any I have had. I am able to print star charts to take to field if necessary. I also use it during my observing sessions for immediate feedback and charts.



Observer's name: Stan Davis

Comet: C/2019 Y3 (Suzume)

Date / Time: 2/12/2019 11:27 PM Y2 12:30 AM both CDT

Observing location: Home Skirtail

Instrument / eyepiece / magnification / field of view: 15770 Bircodur stabilized

Comet sky location (constellation, nearest star, or RA/DEC): Leo used PAS 55mm Apertura (5.4x) (Leo 2) Helix 2019 07h 07m 27.6s 22° 02' 30"

Sky & Star steadiness		Sky transparency	
boiling (circle one)	steady	Un-aided zenith magnitude limit	
5 4 3 2 1	1	4-6	

Comet description (magnitude, coma size, condensation, tail(s), color, shape, texture, motion):
 faint irregular appearance more condensed tail(s) neither left center stable or right from
 it moves about the star mostly still up a slight wobble motion
 actual magnitude 7.3

Observing notes (difficulty, observing partners, interesting objects in field, general comments):
 started out with about mag 10.00 in position. Full phase until 11:30. So decided had to be back
 second time if observation done. High air & low transparency.



Note: This can be the second drawing of the same comet above to show motion compared to background stars. Or, if a second position is indicated in the first drawing, this can be a different comet observation.

Comet: C/2019 W2 (African)

Date / Time: 9/21/2019 21:51 X1 22:49 X2

Observing location: Okie - Tex Sunday

Instrument / eyepiece / magnification / field of view: Meade LX-200 1115x

Comet sky location (constellation, nearest star, or RA/DEC): And Ant E RA 05h 32m 32.3s DEC +27° 23' 47"

Sky & Star steadiness		Sky transparency	
boiling (circle one)	steady	Un-aided zenith magnitude limit	
5 4 3 2 1	1		

Comet description (magnitude, coma size, condensation, tail(s), color, shape, texture, motion):
 small fuzzy irregular object Not very bright could not see tail
 second observation moving almost perpendicular to PA. No change in appearance until about
 22:00

Observing notes (difficulty, observing partners, interesting objects in field, general comments):
 Total 11.00 second field mag 10.00 in position in center. Still very faint

After submitting my observations to program coordinator, he suggested a different form and to get two observations to show the comet's movement. I am now using his form to record my comet observations. This is the recommend form shown below. I do like using it for my comet observations, more room to sketch each observation in one field of view. Sometimes the second observation can't be completed in one setting because the movement too small to note.

I have always liked to view and track comets, I would say they are my favorite objects to observe. I usually try to take images of them after an observation.

I started with my camera on a tripod for stabilization, to my camera on tripod with a Polaris Star Tracker. Still not satisfied with the images I have my new scope on an equatorial mount. The images are much improved with my new setup.

On the next page are a couple images I took on May 9, 2020 with my new scope. The comets are very small and are not great eye-catching photos, but I still enjoy capturing them anyway. Now that I have a better instrument to image them, I can't wait for another great comet to along for me to image.

Remember comets are an object that can sometimes be viewed with the naked eye, you don't need any equipment except your own eyes to enjoy the view. That's the way I started out.

Have a good time and keep looking up. Stan Davis

Earn your own Comet Observer's Certificate See the requirements at <https://www.astroleague.org/al/obsclubs/comet/comet.htm>

Gideon van Buitenen's very excellent comet page <http://astro.vanbuitenen.nl/comets>



Atlas C/2019 Y1 2020/05/09 21:39 CDT Canon D70 ISO 1600 40-60sec exposures
Skywatcher Espirit 80ED Super APO f/5
Stan Davis

Comet Atlas C/2019 Y1 May 9, 2020 21:39 CDT



Panstarrs C/2017 T2 2020/05/09 22:31 CDT Canon D70 ISO 1600 40-60sec exposures
Skywatcher Espirit 80ED Super APO f/5
Stan Davis

Comet PANSTARRS C/2017 T2 May 9, 2020 22:31 CDT



Club members **Adam Koloff** and **Daniel Smith** were invited to do an interview for an article in the May issue of *TULSA PEOPLE* magazine about their love of astronomy and especially photographing the many wonders of the night sky. They announced this on our Astronomy Club members only Facebook page.

Daneil Smith posted

My buddy Adam Koloff and I had an opportunity to do an interview with the Tulsa People magazine about our astrophotography. It can be frustrating at times, but we've slowly been getting better at it. It's amazing what can be seen of God's creation with amateur astronomy equipment.

Adam Koloff

Still hard to believe someone wanted to talk to me about astrophotography. Grateful for the opportunity to share, and learn from so many talented folks. Thank you Blayklee Freed, Cydney, and Greg Bollinger for letting us have a spot! And many thanks to my partner in deep space crime Daniel Smith.

You can read the article to learn how they both got into astronomy and their growing interest in astrophotography.

https://www.tulsapeople.com/the-voice/celestial-snapshots/article_722dd3e8-8bd1-11ea-9cab-0bab72a3b227.html?fbclid=IwAR2CiYpJLzQaEimXU_jNTsphEyAW0yqc4&rIM9J2pKaafRxR0YTBUOgayDU

Tip - click on the arrows at the top right corner on the image to see the rest of their images.

Observing the Lunar X phenomena

On Weds April 29, 2020 several area astronomy enthusiasts had the opportunity to observe an interesting shadow pattern on the moon Nicknamed the “Lunar X” The illusion of Lunar X is created by sunlight falling on the raised rims/ridges between the craters La Caille, Blanchinus, and Purbach. It is only visible for about 4 hours centered around about 6 hours before 1st Quarter. Look for it along the terminator about 1/3 of the way up from the southern end.

Future Dates **June 27, 2020** – 8:36 p.m. **August 25, 2020** – 7:54 p.m.
Central times **October 23, 2020** – 8:32 p.m. **December 20, 2020** – 11:00 p.m.
Great YouTube video details - <https://www.youtube.com/watch?v=cwwJoQ-7-E>

4/29/20

Image Sequence by John Land



20:44 CDT



21:30 CDT



23:03 CDT

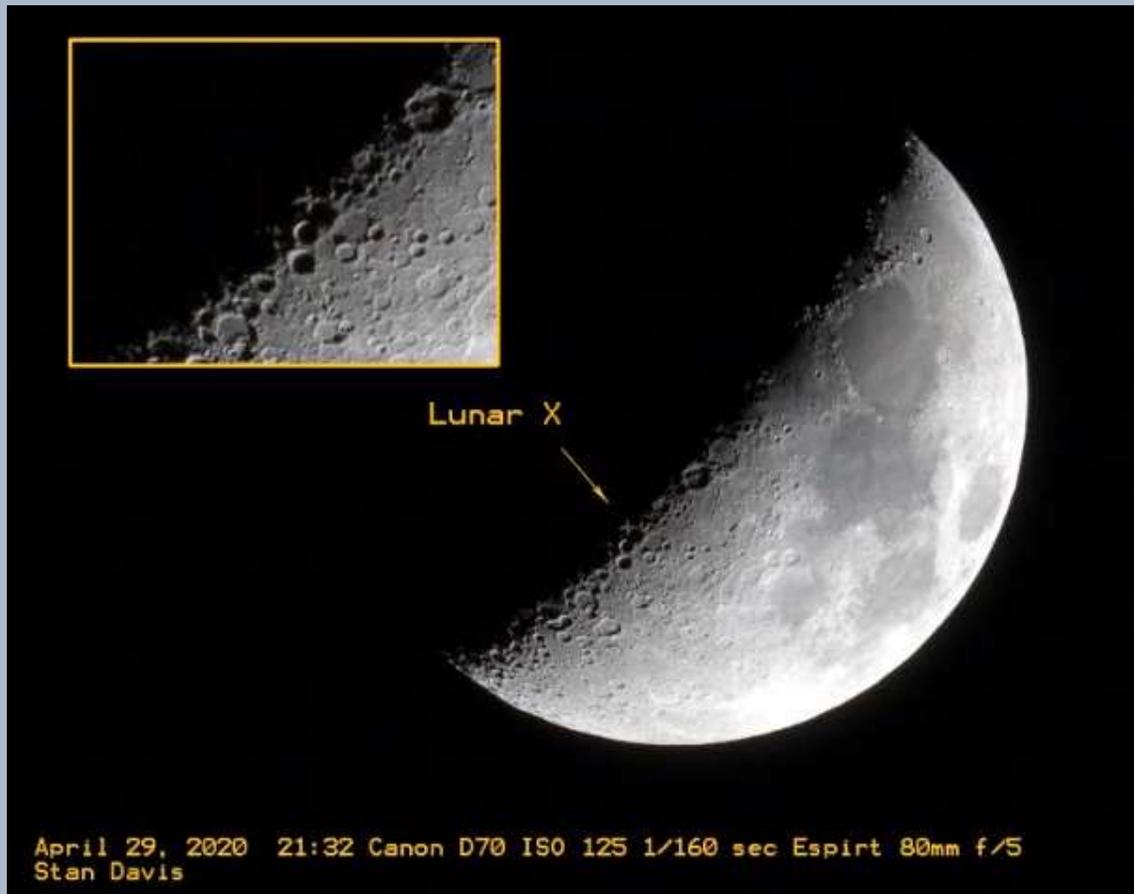
Meade 102mm Refractor - 179X - with Iphone X - aFocal projection with 7.6mm eyepiece



Image by

Jack Reeder

Celestron 8" Edge HD



My Grandson Nick and Granddaughter Chloe were here to view it with me. We looked at it with a Meade 26mm Plossl on my Espirt 80 mm F/5 which gave us a 3.4 degree view at 15x. The lunar X was easily seen. We later inserted a 2X barlow to magnify the view.



Jerry Mullennix Celestron 5" Schmitt F/10 using a low power eyepiece to capture entire moon with a cheap iPhone



John Grismore from the Bartlesville club Shares his image of the Lunar X

TREASURER'S and MEMBERSHIP Report

BY JOHN NEWTON



As May 24, 2020, the Astronomy Club of Tulsa has **158 members**

We welcome our newest members starting this month including

Eric Kingery, Evan Halton, Sarah and Colter Willhoite.

Hello and welcome to ACT!

Please be aware that due to the Novel Coronavirus (COVID-19) outbreak and for the safety of all our members health, the club has canceled public events for the next few weeks. However, ACT is attempting to relaunch scheduled events access the observatory grounds to our members with equipment. The dome will remain closed temporarily and social distancing remains. Updates to events will be sent to membership via emails. We appreciate your patience as we all get through this together.

Accounts as of May 24, 2020

Checking: \$ 7,804.11

Savings: \$ 6,784.05

Investments: \$ 23,403.34 (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 <http://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 whatever 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 **2020** 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.

<http://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.

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.**

Extreme Astronomer Test

Shared by Brad Young

1. 22 November 2065 – Venus transits Jupiter.

Best seen from Guatemala, in deep morning twilight, 8° west of the Sun

- A. Book flight and hotel. You will be 99 years old. What is the issue?
- B. I will try to see it from here even if it is difficult
- C. I will watch it on YouTube
- D. I don't like Guatemala

2. You win the Powerball = \$2 billion. You:

- A. Buy ticket to Mars with Elon Musk
- B. Buy McDonald Observatory in Texas (and "shine it up a bit")
- C. Take 5 friends to Australia, give them all 12" scopes, buy yourself a 36"
- D. Pay off debt and send kids to college

3. You discover a new asteroid, and calculate that it is going to *hit Earth in 2 days* !

- A. Hand me my high-power eyepiece!
- B. Take one look and scramble to hidey hole
- C. Run to hidey hole
- D. I don't like asteroids

4. There is a new naked eye comet, and best placed tonight but its -5 F outside

- A. Hand me my high-powered eyepiece!
- B. Brrr, better put on the electric socks and hand warmers
- C. Too cold for me! I'll try to image it while I sit indoors sipping hot tea
- D. I don't like comets

5. A visitor says he read on the Interweb that the moon Venus and Mercury are going to make a smiley face tonight. So, jealous Mars gets as big and bright as the Full Moon, which is also happening (even though it's the mouth in the smile) and will be the Super Blue Blood Moon because it's being eclipsed by the star in the other dimension that NASA won't tell us about.

- A. You tell the person to perform a physically daunting task alone
- B. You laugh so hard you blow your face mask off and must self-isolate
- C. You smirk and explain that 99% of that story cannot ever happen
- D. Hand me my high-powered eyepiece!

Give yourself: 4 points for every answer "A", 3 points per B, 2 points per C, 1 point per D

Results

If you scored:

- 16-20** you are an **exxxtreme** amateur astronomer. Seek help from a licensed mental health provider
- 10-15** you are a serious amateur and enjoy observing
- 6-10** you are a stargazer, happy to see things or just chat
- 5** you are an imager

You are invited to come join us to learn more about
Astronomy and view the wonderful sights in the night sky.

Check our Events Page of Dates [Link to Events Page](#)



During the school year our club holds a
Monthly General Club meetings at
Jenks Public Schools Planetarium
105 East B St, Jenks, OK
Located North of the intersection of
1st and B St
Meetings begin at 7:00 PM

Take the elevator to the 3rd floor.

[Click for Google Map Link](#)

2020 See the [Fall Planetarium Show Schedule](#)
Then click the **Date Column** to sort them by show date



Sidewalk Astronomy Night

East side of Bass Pro in Broken Arrow near the lake.
101 Bass Pro Drive, Broken Arrow, OK

[Click Map Link here](#)

On a Saturday evening near the 1st Quarter moon Astronomy Club volunteers set up telescopes to share views of the moon, planets and other bright objects. It's a come and go event where shoppers and restaurant goers get a chance to experience glimpses of the universe with their own eyes.



ASTRONOMY CLUB OBSERVATORY

Located on a hilltop about 25 miles SW of Tulsa
Features: classroom, restroom, dome with 14-inch telescope
and an acre to set up your telescopes.

Weather permitting, we host two types of observing nights.

PUBLIC OBSERVING NIGHT on a Saturday

This event is open to individuals and families.
Club members set up telescope for public viewing.

* Groups need to make separate arrangements.

MEMBERS OBSERVING NIGHT usually on a Friday near new moon
Reserved for club members and their families to allow them to pursue observing projects.

The Observatory is **ONLY OPEN** for SCHEDULED EVENTS. [Link to Events Page](#)
[Click for Observatory Map](#)

CAUTION: **DO NOT** use GPS it will likely send you on some nearly impassible back roads.

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NIGHT SKY NETWORK –
Open Position

WEBMASTER JENNIFER JONES

Found this old cartoon clipping cleaning out some old boxes. One of my students did the handwritten addition. Maybe it should be titled

Dating Extreme Astronomer Style



Tired of Jokes ReRUNS Create a Cartoon or Funny line with an Astronomy theme and Send in your Best Ones !

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