



# OBSERVER

May 2021

*Bringing Stars to the eyes of Tulsa*

*since 1937 Editor - John Land*



Image by Robbin Jones

**Markarian's chain  
of 20+ galaxies in the  
constellation of Virgo.**

**RA 12 hr 27 min**

**Dec + 52° 30'**

**FOV 2 by 1.5 degrees**

Explore Scientific 127 mm  
Refractor with 0.7 X reducer  
/ field flattener @ F 5.25

Mallincam DS26CTEC 26 MP  
One Shot color, bin 2  
48 exposures of 17 sec each  
Total time 14 mins

See wider view on page 12



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See our [2020 Newsletter INDEX](#) to all the 2020 Astronomy Club Newsletters at

### *Astronomy Club Events*

Check our website [AstroTulsa.com](http://AstroTulsa.com) events section for updates

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

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

### **Members ONLY Events continue with Social Distancing Guidelines in Effect**

We are limiting our Observatory nights to our MEMBERS ONLY. Please observe Social Distancing and we strongly recommend wearing a mask when around other people. PLEASE WEAR a MASK when in the heated CLASSROOM. Please keep minor family members within your observing area. No guests – other than immediate family – no large family groups. Be sure to review the map directions carefully. When you arrive be aware of people on the field and telescopes set up. Check website for changes due to weather.

Friday, May 7, 7:45 PM  
Friday, June 4, 8:15 PM

Friday, May 14, 8:00 PM  
Friday, June 11, 8:15 PM

### **Weather Backup observing nights on Saturday**

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

**Tuesday May 18 - 7:00 PM** Monthly Club Zoom Meeting -

Topic to be announced Information will be posted later on the club website

The MidStates astronomy Conference scheduled for June 4-6, has been **CANCELLED**.  
The National Astronomical League leadership as cancelled ALL Regional conferences

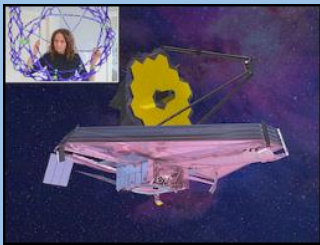


Mark your calendars <http://www.okie-tex.com/>  
Friday Oct 1<sup>st</sup> to Saturday Oct 9<sup>th</sup> Registration Now OPEN - Sign Up Early  
The Oklahoma City astronomy club has announced plans for the  
2021 Okie-Tex Star Party dark skies at the western tip of the panhandle

Planetarium shows are a good way to enjoy astronomy without the hassle of clouds and cold.  
[Tulsa Air & Space museum](#) planetarium is now open Thursday thru Saturday.

[Jenks High School Planetarium](#) - has a variety of shows from 6:30 to 7:30 PM on Tuesdays  
Preregistration is required and seating is limited for social distancing.

## 2021 Zoom Meeting Recordings online



**April 20 - James Webb Infrared Space Telescope**

<https://www.youtube.com/watch?v=q7nwFC-xYS8>

Introduction sections include an **Update on the Ash dome project**  
**Tour of** useful observing links on our **webiste OBSERVE page**  
**The main feature** is an update by Dr. Kelly Lepo giving the latest on the James Webb Space Telescope. NASA's next flagship space observatory, which will launch in October 2021.

The NASA Night Sky Network Webinar YouTube recording is separate from the club zoom.

[https://www.youtube.com/watch?v=pU224REaSEU&ab\\_channel=NASANightSkyNetwork](https://www.youtube.com/watch?v=pU224REaSEU&ab_channel=NASANightSkyNetwork)



**March 23 - Amateur Astronomer Searching for Exoplanets**

[https://youtu.be/iwplvh\\_zdsM](https://youtu.be/iwplvh_zdsM)

Amateur astronomer and retired teacher **Philip Scott** shares his successful quest to search for and discovery of an Exoplanet candidate planet orbiting a red dwarf star. Phillip discusses the history of planet discovery, what it takes to detect new planets and how he got involved with a worldwide network of amateur astronomers looking for nearby habitable planets.



Tom Field of [www.RSpec-astro.com](http://www.RSpec-astro.com) gave an entertaining and informative presentation about how astronomers and chemists have learned to read the composition stars by examining the spectrum of starlight. Also tells how amateurs can imagine and examine these spectra.



A YouTube of our [January 19 Zoom meeting](#) is now available online

Featured short talks **Stacking Digital Photos**, **Books for Novice astronomers**,  
**Meteorites samples**. Main program - [NASA's Search for Meteorites in Antarctica](#)

# PRESIDENT'S MESSAGE

BY TAMARA GREEN



Hey Y'all!

Summer is just around the corner. We will continue to have members' observing nights, but we are holding off on public events until we see how the pandemic progresses. Hopefully, with the vaccines being available to everybody now, the progress of the virus will be significantly slowed, and we will see fewer and fewer cases. We will continue to have our monthly General Meetings via Zoom for right now. If any of you have an idea of what to present for a program or would like to be a speaker, please let either me or John Land know. My email is [astrotulsa.pres@gmail.com](mailto:astrotulsa.pres@gmail.com) and his is [tulsaastrobiz@gmail.com](mailto:tulsaastrobiz@gmail.com).

Registration is now open for the Okie-Tex Star Party! The deadline for pre-registration is September 11, 2021. Meal registrations are due that same day if I remember correctly. It is hosted by the Oklahoma City Astronomy Club, and registration info can be found on their website, [www.okcastroclub.com](http://www.okcastroclub.com).

PLEASE NOTE THAT the Oklahoma City Astronomy Club is still working out its COVID protocols. They will set a go/no-go date for one month prior to the date for closing pre-registrations. This announcement will be made on or before August 12, 2021, according to the Okie-Tex website.

We as Officers and Board will continue to monitor things as they progress, and plan events accordingly. I thank you for your patience and support during this difficult year and a half or so, and for your continued patience and support while we work things out. I would really like for all of us to get back to normal soon.

*Clear Skies,*

*Tamara Green*



New additions on our [website observing page](#) Click each image to see what's new.

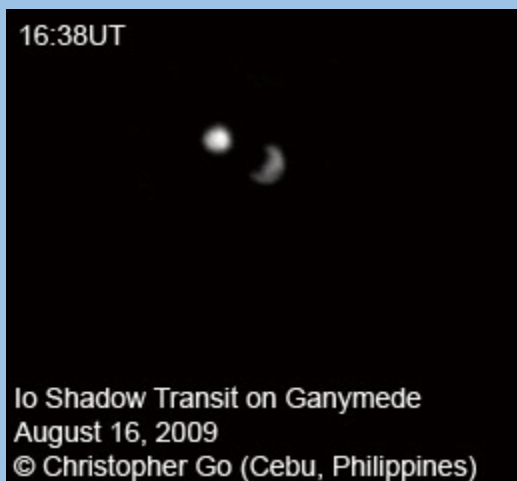
A collection of [Interactive Sky Watching Tools](#) from Sky & Telescope  
Moon phases - Sun rise & Set - Jupiter or Saturn moons and more  
[Make your own custom interactive sky chart](#)

See a demonstration tour of features on our website observe page on our

## April 20 Zoom YouTube recording.

**May Skies** - The Big Dipper is high overhead in the north as dusk falls. Leo, Virgo are prominently displayed in the southern sky. As May flowers ornament our gardens, Galaxies blossom overhead in Leo and Virgo. The Messier catalogue abounds with galaxies in the Virgo cluster. M 49, 58, 59, 60, 61, 84, 85, 87, 90, 91, 98, 100, and 104. Anyone trying the Messier Marathon in March knows they will need some extra coffee and some rest to take on this garden of galaxies in the wee hours of the night. Fortunately, they are better placed for viewing in May. The Virgo super cluster contains over 1,300 galaxies.

**May Planets - May is Mercury month.** Elusive golden Mercury is seldom seen in darker sky. Shining at magnitude +0.6 reaches its greatest evening elongation on May 17 standing a full 13 degrees up at 9:00 PM. A slim 3-day old crescent moon is 3 degrees to its left on May 13<sup>th</sup>. Venus is slowly emerging from the solar glare in the low WNW evening sky. Venus and Mercury have a close conjunction on May 28<sup>th</sup> only half a degree apart. But you'll need a clear horizon and maybe binoculars to locate them only 8 degrees high in the WNW, Venus will be our evening "star" shining brightly in the west until mid-December. Dim **Mars**, Mag 1.7, is travelling through Gemini in the western sky. It is joined by a crescent moon on May 13<sup>th</sup>.

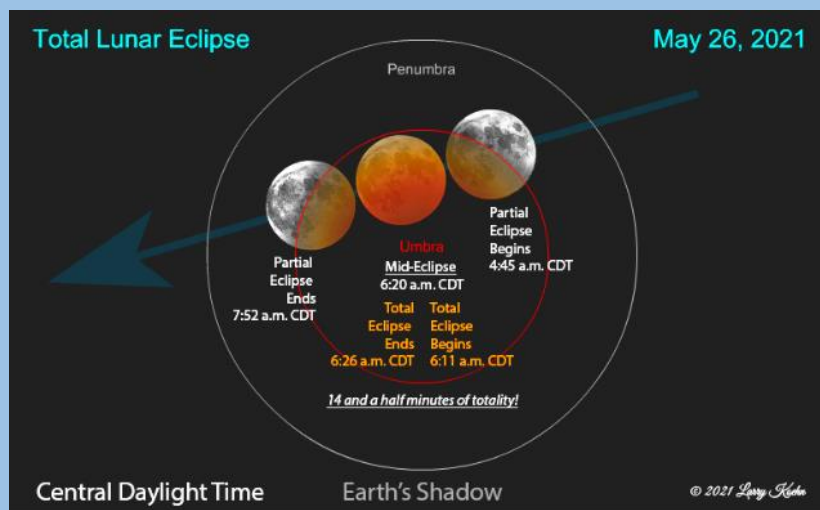


**Jupiter and Saturn** are gracing the predawn sky. With sunrise now at 6:15 AM, you must rise pretty early to find them in darker sky. Rising about 3:30 early May and before 2:00 late in the month they are getting easier to see for the determined observer. Jupiter reaches its Equinox on May 2. Meaning that the planet's equator is in line with the Sun. Also, since its moons also orbit in this same plane, they can line up with each other to produce eclipses or occultations. This alignment of three celestial bodies is called a SyZyGy. ( One of my favorite "Hangman" words ! ) These mutual events of Jupiter's moons will extend until early August and then you'll have to wait until 2026 for your next opportunity.

Amateur astronomers are encouraged to observe and time these events to contribute valuable scientific data [See TABLE](#)

For more videos and a link to tables of events go to

<https://spaceweather.com/archive.php?view=1&day=21&month=04&year=2021>



## Super Moon Total Eclipse Weds May 26, 2021

Check out a good view toward the SW Horizon and get up early to see the first Lunar Eclipse of the year. Partial Eclipse starts at 4:45 AM and progresses as the moon sinks lower near the horizon. Totality starts at 6:08 AM but the moon sets at 6:13 AM

The moon is also closest to the Earth on May 26 making this what the popular press calls a Super MOON.

You can see the eclipse without a telescope, but binoculars or a low power telescope will improve your view.

## New (to us) Observatory Dome progress By Skip Whitehurst

On Saturday, March 27, the crew of James Taggart and his daughter, Scout, Adam Koloff, Larry Smith, and Skip Whitehurst loaded the parts for the donated 55-year-old 12'6" Ash Dome from where they have been stored for the last dozen years in Owasso onto James' flatbed trailer, brought them to James' property near Mounds, and unloaded them at his workshop building.



Moving-day crew. Left to right: Skip, Adam, Larry, James, Scout.



Moving through beautiful downtown Owasso

Since then, the parts have been inspected, catalogued, and some have been test fitted to evaluate what we have and what we need to acquire to reassemble a working dome.



James with the 12' 2" OD Wall Plate inside his workshop



Don Bradford test fitting one of the panels to the base ring

The good news is that all the major customized and purpose-built parts are present and in usable condition.

The bad news is that some of the big steel parts are fairly rusty, but rust treatment of smaller parts by soaking them overnight in rust dissolver has been very effective in completely removing the rust while leaving the sound metal alone. We are working on a way to soak the larger parts – things like the 13-foot-long arcs that form the base ring – using a manageable amount of rust dissolver.



**Bracket, Before Rust Treatment**



**Bracket, After 12-hour Soak in Evapo-Rust**

Many of the screws, bolts, and nuts are either missing, broken, or corroded so badly that they cannot be used. Exposure to 30 years of Alabama sunlight (where it had previously been used) had caused foam rubber weather seals to become brittle and they have cracked and broken in storage and handling to the point that they need to be replaced. None of those are show-stoppers. The bad news isn't that bad.

Ash Manufacturing Co. has provided exemplary support! They sent more than enough of some difficult to get parts: ultra-low-profile screws that they special order in lots of thousands, lugs for locking the long-discontinued type of dome skin sections together – we might or might not need more than we have, so they sent some anyway – and also replacement foam for that damaged weatherstripping. No charge for this material! They also mocked up part of our older shutter track design in their workshop to help determine how a few of the parts fit together, and they are scouring their archives for drawings and assembly instructions for domes this age. There was a major change in the sheet-metal skin design between when this dome was built and the current ones, and, fortunately, they did find a set of instructions from a 1967 installation and provided us with a scanned copy. Much of today's assembly process is similar to or identical with the older design, but there are a few key steps in the assembly procedure that differ considerably between then and now; these old instructions fill in a lot of the steps that would have to have been determined by trial and error without them.

Once we work out some last details on the large number of fasteners we still need to get, we will assemble the dome inside the workshop and produce pictures and notes as we go. Several members have volunteered for this; if you want to help, let us know.

We are at the point that it appears very likely that the dome can be restored. We now need to put effort into planning the building we want to put it on. Several people have already volunteered to help with this, but we can always use more architects, engineers, construction professionals and interested non-professionals who are willing to pitch in.



# The Star-splitter

BY ROBERT FROST

"You know Orion always comes up sideways.  
Throwing a leg up over our fence of mountains,  
And rising on his hands, he looks in on me  
Busy outdoors by lantern-light with something  
I should have done by daylight, and indeed,  
After the ground is frozen, I should have done  
Before it froze, and a gust flings a handful  
Of waste leaves at my smoky lantern chimney  
To make fun of my way of doing things,  
Or else fun of Orion's having caught me.  
Has a man, I should like to ask, no rights  
These forces are obliged to pay respect to?"  
So Brad McLaughlin mingled reckless talk  
Of heavenly stars with hugger-mugger farming,  
Till having failed at hugger-mugger farming,  
He burned his house down for the fire insurance  
And spent the proceeds on a telescope  
To satisfy a lifelong curiosity  
About our place among the infinities.

"What do you want with one of those blame  
things?"  
I asked him well beforehand. "Don't you get one!"

"Don't call it blamed; there isn't anything  
More blameless in the sense of being less  
A weapon in our human fight," he said.  
"I'll have one if I sell my farm to buy it."  
There where he moved the rocks to plow the  
ground

And plowed between the rocks he couldn't move,  
Few farms changed hands; so rather than spend  
years

Trying to sell his farm and then not selling,  
He burned his house down for the fire insurance  
And bought the telescope with what it came to.

He had been heard to say by several:  
"The best thing that we're put here for's to see;  
The strongest thing that's given us to see with's  
A telescope. Someone in every town  
Seems to me owes it to the town to keep one.  
In Littleton it may as well be me."

After such loose talk it was no surprise  
When he did what he did and burned his house  
down.

Mean laughter went about the town that day  
To let him know we weren't the least imposed on,  
And he could wait—we'd see to him tomorrow.  
But the first thing next morning we reflected  
If one by one we counted people out  
For the least sin, it wouldn't take us long  
To get so we had no one left to live with.  
For to be social is to be forgiving.  
Our thief, the one who does our stealing from us,  
We don't cut off from coming to church suppers,  
But what we miss we go to him and ask for.  
He promptly gives it back, that is if still  
Uneaten, unworn out, or undisposed of.  
It wouldn't do to be too hard on Brad  
About his telescope. Beyond the age  
Of being given one for Christmas gift,

He had to take the best way he knew how  
To find himself in one. Well, all we said was  
He took a strange thing to be roguish over.  
Some sympathy was wasted on the house,  
A good old-timer dating back along;  
But a house isn't sentient; the house  
Didn't feel anything. And if it did,  
Why not regard it as a sacrifice,  
And an old-fashioned sacrifice by fire,  
Instead of a new-fashioned one at auction?

Out of a house and so out of a farm  
At one stroke (of a match), Brad had to turn  
To earn a living on the Concord railroad,  
As under-ticket-agent at a station  
Where his job, when he wasn't selling tickets,  
Was setting out up track and down, not plants  
As on a farm, but planets, evening stars  
That varied in their hue from red to green.

He got a good glass for six hundred dollars.  
His new job gave him leisure for stargazing.  
Often he bid me come and have a look  
Up the brass barrel, velvet black inside,  
At a star quaking in the other end.  
I recollect a night of broken clouds  
And underfoot snow melted down to ice,  
And melting further in the wind to mud.  
Bradford and I had out the telescope.  
We spread our two legs as it spread its three,  
Pointed our thoughts the way we pointed it,  
And standing at our leisure till the day broke,

Said some of the best things we ever said.  
That telescope was christened the Star-Splitter,  
Because it didn't do a thing but split  
A star in two or three the way you split  
A globule of quicksilver in your hand  
With one stroke of your finger in the middle.  
It's a star-splitter if there ever was one,  
And ought to do some good if splitting stars  
'Sa thing to be compared with splitting wood.

We've looked and looked, but after all where are  
we?

Do we know any better where we are.  
And how it stands between the night tonight  
And a man with a smoky lantern chimney?  
How different from the way it ever stood?

From

<https://www.poetryfoundation.org/poems/44273/he-star-splitter>

This bit of celestial poetry was passed on to us  
from Jennifer Land - longtime member  
- now in California.

Perhaps you can see a bit of yourself in the  
astronomers love of the sky as I did also.

John Land



**This article is distributed by NASA Night Sky Network      May 2021**

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

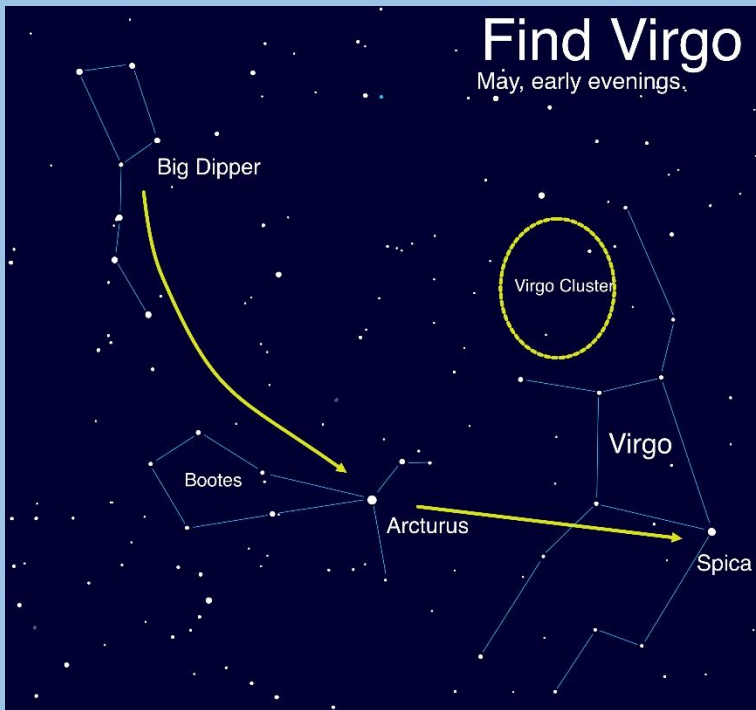
### **Virgo's Galactic Harvest    by David Prosper**

May is a good month for fans of galaxies, since the constellation Virgo is up after sunset and for most of the night, following Leo across the night sky. Featured in some ancient societies as a goddess of agriculture and fertility, Virgo offers a bounty of galaxies as its celestial harvest for curious stargazers and professional astronomers alike.

Virgo is the second-largest constellation and largest in the Zodiac, and easily spotted once you know how to spot Spica, its brightest star. How can you find it? Look to the North and start with the Big Dipper! Follow the general curve of the Dipper's handle away from its "ladle" and towards the bright orange-red star Arcturus, in Boötes – and from there continue straight until you meet the next bright star, Spica! This particular star-hopping trick is summed up by the famous phrase, "arc to Arcturus, and spike to Spica."

This large constellation is home to the Virgo Cluster, a massive group of galaxies. While the individual stars in Virgo are a part of our own galaxy, known as the Milky Way, the Virgo Cluster's members exist far beyond our own galaxy's borders. Teeming with around 2,000 known members, this massive group of galaxies are all gravitationally bound to each other and are themselves members of the even larger Virgo Supercluster of galaxies, a sort of "super-group" made up of groups of galaxies. Our own Milky Way is a member of the "Local Group" of galaxies, which in turn is *also* a member of the Virgo Supercluster! In a sense, when we gaze upon the galaxies of the Virgo Cluster, we are looking at some of our most distant cosmic neighbors. At an average distance of over 65 million light years away, the light from these galaxies first started towards our planet when the dinosaurs were enjoying their last moments as Earth's dominant land animals! Dark clear skies and a telescope with a mirror of six inches or more will reveal many of the cluster's brightest and largest members, and it lends itself well to stunning astrophotos.

Virgo is naturally host to numerous studies of galaxies and cosmological research, which have revealed much about the structure of our universe and the evolution of stars and galaxies. The "Universe of Galaxies" activity can help you visualize the scale of the universe, starting with our home in the Milky Way Galaxy before heading out to the Local Group, Virgo Cluster and well beyond! You can find it at [bit.ly/universeofgalaxies](https://bit.ly/universeofgalaxies). You can further explore the science of galaxies across the Universe, along with the latest discoveries and mission news, at [nasa.gov](https://nasa.gov).



*Find Virgo by “arc-ing to Arcturus, then spiking on to Spica.” Please note that in this illustration, the location of the Virgo Cluster is approximate - the borders are not exact.*

Robbin Jones sent this wider view showing 40 or more galaxies in Markarian's Chain



# TREASURER'S and MEMBERSHIP Report

BY JOHN NEWTON



As of April 23, we had **216 members**. We welcome this month our newest members **Bill Ross, David Gibson, David Leech, Ian Henry, Adam Blomfield, and Steve VanGunda** Hello and welcome to ACT!

In addition, we want to recognize our long-term prominent and well-respected members who continue to renew their memberships with the club, even during these restricted times. We look forward to seeing you all at meetings, even if virtual by Zoom, and at club events throughout the year when possible.

## Accounts as of February 25, 2021

Checking: \$ 4,768.23

Savings: \$ 13,785.96

Investments: \$ 30,083.50 (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](http://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**

## ASTRONOMY CLUB OFFICERS:

PRESIDENT – TAMARA GREEN  
[astrotulsa.pres@gmail.com](mailto:astrotulsa.pres@gmail.com)

VICE PRESIDENT – DANIEL SMITH  
[astrotulsa.vp@gmail.com](mailto:astrotulsa.vp@gmail.com)

SECRETARY – RICHARD BRADY  
[astrotulsa.secy@gmail.com](mailto:astrotulsa.secy@gmail.com)

TREASURER – JOHN NEWTON  
[astrotulsa.tres@gmail.com](mailto:astrotulsa.tres@gmail.com)

## BOARD MEMBERS-AT-LARGE:

MIKE BLAYLOCK  
DON BRADFORD  
JERRY CASSITY  
JIM DANFORTH  
ADAM KOLOFF  
BRYAN KYLE  
JOHN LAND  
JAMES TAGGART  
SKIP WHITEHURST

## STAFF:

FACILITIES MANAGER –  
JAMES TAGGART  
[astrotulsa.obs@gmail.com](mailto:astrotulsa.obs@gmail.com)

EDITOR - JOHN LAND  
[tulsaastrobiz@gmail.com](mailto:tulsaastrobiz@gmail.com)

PROGRAM CHAIR - JOHN LAND  
[tulsaastrobiz@gmail.com](mailto:tulsaastrobiz@gmail.com)

Public FaceBook Page Coordinator  
Adam Koloff  
[akoloffuso@gmail.com](mailto:akoloffuso@gmail.com)

OBSERVING CHAIRS  
OWEN AND TAMARA GREEN  
[darthnewo@yahoo.com](mailto:darthnewo@yahoo.com)  
[astrotulsa.pres@gmail.com](mailto:astrotulsa.pres@gmail.com)

SIDEWALK ASTRONOMY –  
OWEN GREEN [darthnewo@yahoo.com](mailto:darthnewo@yahoo.com)  
PR AND OUTREACH –

GROUP DIRECTOR – **Open Position**  
[Astrotulsa.outreach@gmail.com](mailto:Astrotulsa.outreach@gmail.com)

NIGHT SKY NETWORK –  
**Open Position**

WEBMASTER JENNIFER JONES



*John Blaesí -  
BAS -Bartlesville Club*

**I spy with my little eye,**

**May I Spy - or Maybe Not**

**Three bright objects aligned  
bye the bye,  
The word I think contains three vowels,  
why, why, why?**

**What word am I thinking of ?**

**And for extra credit,  
which celestial objects?**

**If you read the newsletter, you'll find the  
answer to this month's riddle.**

### **Answer to April " I Spy "**

Stars above Declination **-54°** rise for Tulsa  
Canopus Dec -52° 42' deg  
Stars below **-54°** Never Rise from Tulsa  
Rigel Kentaurus Dec -60° 55' deg  
Achernar Dec -57° 08' deg  
Hadar Dec -60° 28' deg

### **Do you have ideas for our club 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**  
[Tulsaastrobiz@gmail.com](mailto:Tulsaastrobiz@gmail.com)

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