



OBSERVER

JANUARY 2020

Bringing Stars to the eyes of Tulsa since 1937

Editor - John Land



Brad Young sent in this image of the Nov. 23 Jupiter - Venus conjunction taken with his telescope in the foreground at our observatory.

In this Issue

- 1 Cover – Jupiter – Venus Conjunction
- 2 Upcoming Events - 2020 Officers & Board Members
- 3 Telescope 101 Workshop – Jan 11 – Tulsa Air & Space Museum
- 4-5 President’s Message– by Tamara Green
- 6 Daniel’s Deep Sky Dozen – Observing Planetary Nebula by Daniel Smith
- 7 Astro Photos with your iPhone – by John Land
- 8 Making a Rainbow Sundial
- 9 Treasurer’s Report – John Newton
- 10-11 NSN article – **Spot the Young Stars of the Hyades and Pleiades**
- 12 Club meeting locations and maps
- 13 Club officers and contacts.

Astronomy Club Events

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

Be sure to check the Website for Weather Cancellations before coming.

JANUARY - - 2020				
GENERAL MEETING	1st Q 1/2	FRI, JAN 3	19:00	JENKS PLANETARIUM
SIDEWALK ASTRONOMY		SAT, JAN 4	17:30	BASS PRO
TELESCOPE 101 WORKSHOP	Full 1/10	SAT, JAN 11	10:30-2:30	AIR & SPACE MUSEUM
PUBLIC NIGHT	3rd Q 1/17	SAT, JAN 18	17:00	OBSERVATORY
MEMBERS' NIGHT	New 1/24	FRI, JAN 24	17:45	OBSERVATORY
<i>Martin Luther King Day</i>		MON, JAN 20		
GENERAL MEETING	1st Q 2/1	FRI, JAN 3	19:00	JENKS PLANETARIUM
FEBRUARY - - 2020				
GENERAL MEETING		FRI, JAN 31	19:00	JENKS PLANETARIUM
SIDEWALK ASTRONOMY	1ST Q 2/2	SAT, FEB 1	18:00	BASS PRO
VALENTINES DAY	FULL 2/8	FRI, FEB 14		
PUBLIC NIGHT	LAST Q 2/15	SAT, FEB 15	17:30	OBSERVATORY
MEMBERS' NIGHT	NEW 2/23	FRI, FEB 21	18:00	OBSERVATORY
SIDEWALK ASTRONOMY	1ST Q 3/2	SAT, FEB 29	18:00	BASS PRO

ASTRONOMY CLUB OF TULSA welcomes our 2020 Officers and Board members

President – Tamara Green Vice President – Daniel Smith
Secretary – Jerry Cassity Treasurer -- John Newton

Board members – Dennis Berney, Michael Blaylock, Richard Brady
John Land, James Taggart, Skip Whitehurst



Telescope 101 Workshop



**Got a New Telescope ?
(Or an old one gathering dust)
Want some help learning to use it?**

Bring your telescope and let us help you.

**The Astronomy Club of Tulsa and
Tulsa Air and Space Museum are
hosting a Telescope Workshop.**

**Saturday Jan 11, 2020 from 10:30 AM to 2:30 PM
At the Tulsa Air & Space Museum Planetarium**

**Registration is required to reserve your time slot
Register OnLine at**

<http://www.TulsaMuseum.org/events>

Or Call 918-834-9900 to reserve your spot.

www.tulsamuseum.org

www.astrotulsa.com

***Please bring telescope user manual
and accessories if you have them**

Help Us promote the Telescope Workshop – Print of the information page from the newsletter
And ask to post it at your local library or give it to a friend who might be interested.

PRESIDENT'S MESSAGE

BY TAMARA GREEN



Hey Y'all !

I hope that all of y'all had a wonderful Holiday Season, and that you are well-fed and got all the presents you wanted, and that you are all safe.

A new year is here! And with that will come many great events!

The first one is Telescopes 101 at TASM, to be held on Saturday, January 11, from 10:30 AM to 2:30 PM. Guests who come in to ask questions about their telescopes will need to be registered, and we will take care of them in 30-minute increments. We will need volunteers who are knowledgeable about the different styles of telescopes, from simple Newtonian reflectors to fancy-dancy, computerized Cassegrains on equatorial mounts. We have had great success with these events in the past, and I hope this one will be successful too! If you are interested in volunteering, email John Land at tulsaastrobiz@gmail.com or me at astrotulsa.pres@gmail.com
I hope to see you there!

Editor Note: *We also need people to help greet guests and pass out information flyers*

I am organizing our annual Messier Marathon again for this year, along with Ron and Maura Wood. The tentative date will be Saturday, March 21, 2020. I will also be again leading the caravan to TUVA, so when I get everything finalized with Ron and Maura, I will be sending out information, including a Messier Marathon packet, out to you.

MSRAL is from Friday, June 12 through Sunday, June 14. Please note that because of MSRAL, both the Public Night and Public Night Backup will be cancelled for June. We will need volunteers who can man various areas at the event. If you are interested in helping, please contact me at astrotulsa.pres@gmail.com.

Editor Note: MSRAL is the MidStates Astronomy convention for our Five State Region.

Speaking of MSRAL, WE NEED TO GET THE OBSERVATORY READY !!!!! MSRAL is in June, but the sooner we can get the observatory all clean and spiffed up, the better. We need to make a good impression! So, with that in mind, I am going to get with James Taggart, our Facilities Manager, to organize a couple of workdays to get the observatory MSRAL-ready. I am planning for Springtime, maybe late March or early April, as it will most likely be too cold to do it before then. When I am able to get everything hammered out with him, I will be sending info to you on that as well. We will need as many people to help with this project as possible, and it will obviously take more than one workday. And, of course, if there are any keyholders who would like to go up there on their own or as a group to get a good head-start on the work, or to do a little more on the work, I would not object! Just please be careful! If you are a keyholder, and you know another club member who you can trust, you are certainly welcome to go up there with him or her and do some work on your own. **PLEASE LET JAMES KNOW BEFORE YOU GO UP THERE and Clear your plans with James and please be careful!**

The **Okie-Tex Star Party is doing something different for 2020**. This is being done this year as an experiment, due to many requests from OKCAC volunteers who would like to have a day to rest up in between OTSP and having to go back to work. Instead of beginning on a Saturday and ending on a Sunday, **it will begin on a Friday and end on a Saturday**. The dates are **September 11 through 19, 2020**. They are also supposed to be getting a beautiful, brand-new building to replace the old tent that has been used year after year for eating and presentations. They are going to see how a Friday start and a Saturday end will work for the most of the attendees and volunteers. Donations are welcome towards the cost of the new building, and, if you wish to donate towards it, you may do so by either mailing a check or money order to:

Oklahoma City Astronomy Club
P.O. Box 22804
Oklahoma City, OK 73123-1804

Please make your check or money order out to OKCAC or Oklahoma City Astronomy Club, and put "CBJ Building" in the memo line;

Or you may make your donation via PayPal on their website, www.okcastroclub.com. They have a "donate" button. Please note that if you choose this option, the club will not receive the full value of the donation, as PayPal takes a cut of it. OKCAC will happily acknowledge all donations for tax purposes.

Also, I will be getting in touch with Bryan Kyle to see about scheduling some star parties at TASM. They have been wanting to do more with us, and I think it would be fun! Of course, if Bass Pro is willing to have us again this year, we will still have our Sidewalk Astronomy events there, but they might not be there every month if we do a few here and there with TASM. When we can get the details worked out, I will let you all know!

I hope that you will join us for these upcoming events and that 2020 will be a really fantastic year for us! I look forward to it!

See you all soon!

Clear Skies,

Tamara Green

Daniel's Deep Sky Dozen by Daniel Smith

This month's Deep Sky Dozen is going to be a tough challenge but rewarding if you can complete it. All of the subjects will be planetary nebulae! There are two reasons this list will be hard. First, some of these are faint and will require a 12-inch reflector or larger. Secondly, you will have to catch some only an hour after sunset before they get too low in the sky, and some will be late night observations. For those of you who do not have a large telescope, there are many on this list than can be observed with smaller scopes. Can you observe all twelve? Next month will be all about the Orion constellation as it will be in prime viewing.



Good Luck and Clear Skies! Daniel

Editor Note: Planetary nebula are typically small so use moderate magnification to locate them then increase to higher power to observe details.

Easy - 4 to 8-inch telescopes

M 76 Little Dumbbell in Perseus

NGC 2392 Eskimo Nebula in Gemini

M 27 Dumbbell Nebula in Vulpecula

NGC 6543 Cat's Eye in Draco

M 97 Owl Nebula in Ursa Major > > > > > >

NGC 3242 Ghost of Jupiter in Hydra



Moderate - 8 to 12-inch telescopes

NGC 7662 Blue Snowball in Andromeda

NGC 246 Skull Nebula in Cetus

NGC 7009 Saturn Nebula in Aquarius > > > > > >

NGC 6905 Blue Flash Nebula in Delphinus



Very Difficult - 12 to 18-inch telescopes

Abell 21 Medusa Nebula in Gemini

NGC 40 Bowtie Nebula in Cepheus

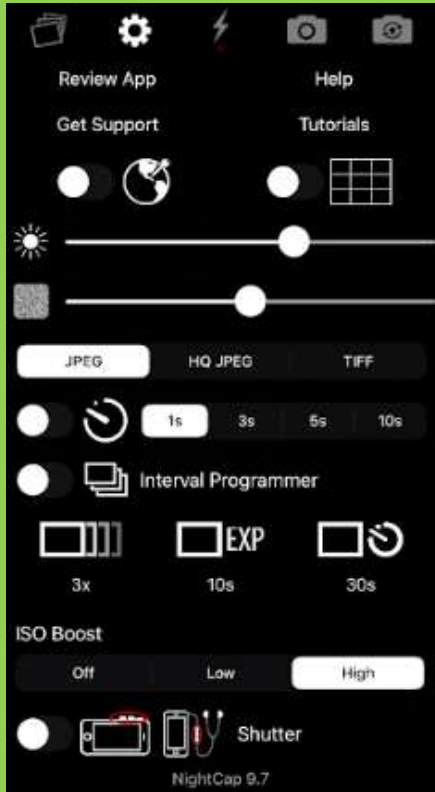
American Association of Amateur Astronomers <http://www.astromax.org/aa02801.htm>

This one has explanations of terms like transparency and seeing and other tips for recording your observations. It also has links to many of the Astronomical League Observing Certificates.

The Belt of Venus by sketching artist, Jeremy Perez – has numerous observing form templates <http://www.perezmedia.net/beltofvenus/templates.html>

Astro Photos with your iPhone.

By John Land



The August 2019 Sky & Telescope magazine featured an article on taking astronomy photos with your Smart Phone. While the articles focus was on other types of phones it did mention an app that would work with iPhones called **NightCap**. The App uses AI programming to capture dozens to 100's of short exposures and combine them into a single image. It has a number of preprogramed options for night sky images. It also has a built-in interval programmer to allow you to take a time lapse series of photos. The app also comes with several other adjustment options. It does require an iPhone running iOS 11 or higher. It says it works on iPhone – iPad or iWatch. You'll also need to mount your phone on a tripod using the clamp portion of a simple Selfie Stick.

<https://www.nightcapcamera.com/nightcap-camera/>

I've tried it a few times with my iPhone X and have been pleased with the results so far. Below are a few images from my suburban area in east Broken Arrow. These are 15 sec to 30 sec exposures. I'm eager to try longer exposures by attaching the phone to my tracking telescope in darker rural skies.



First attempts

Cassiopeia & Perseus



15 sec exposures

Orion & Taurus



Left - Unedited photo



Right - Light & Contrast adjusted with in Camera Edit Options

30 sec exposure of Orion and Taurus region

Making a Rainbow Sundial



Each winter I enjoy setting up a triangular glass prism in a south facing window point side down. As sunlight passes through the prism it projects a spectrum through a doorway onto the wallpaper border in the kitchen about 30 feet away. For about an hour near Solar Noon the spectrum travels along the border. It only works well from about mid-November to Mid-February when the sun travels a low path along the southern sky.



January Astronomy Events

Jan 3-4 Quadrantid meteor shower – [Info Link here](#)

Jan 5 – Earth at Perihelion 147.1 million miles

Planets in January – **Venus** dominates the evening sky in the SW this spring

Morning Planets – **Mars** rises in the SE 3 hrs before Dawn

Jupiter and **Saturn** are in superior conjunction early in January.

Becoming visible before dawn later in the month.

Mercury is a Superior conjunction Jan 10 but moves rapidly toward its greatest morning elongation on Feb 10

TREASURER'S and MEMBERSHIP Report

BY JOHN NEWTON



As Dec 19, 2019, the Astronomy Club has **154 members. Including 45 new members.**
Welcome to new members – **William Stevens, Annastaia Root, Edward Galotta,
and Bobby Kirkwood.**

We look forward to seeing you at our meetings and at club event gatherings. Also, a special 'Thank You!' goes out to our long term members for their continued membership, commitment to the club and support.

**Accounts as of Dec 19, 2019 - Happy holidays to all of you,
Checking: \$ 6,648.23 and may your New Year nights be star filled.
Savings: \$ 5,782.60
Investments: \$ 25,460.56 (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 **2018** 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 www.skyandtelescope.com

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.**



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.org to find local clubs, events, and more!

Spot the Young Stars of the Hyades and Pleiades **By David Prosper**

Orion is the last of a trio of striking star patterns to rise during the late fall and early winter months, preceded by the diminutive Pleiades and larger Hyades in Taurus. All three are easily spotted rising in the east in early January evenings, and are textbook examples of stars in different stages of development.

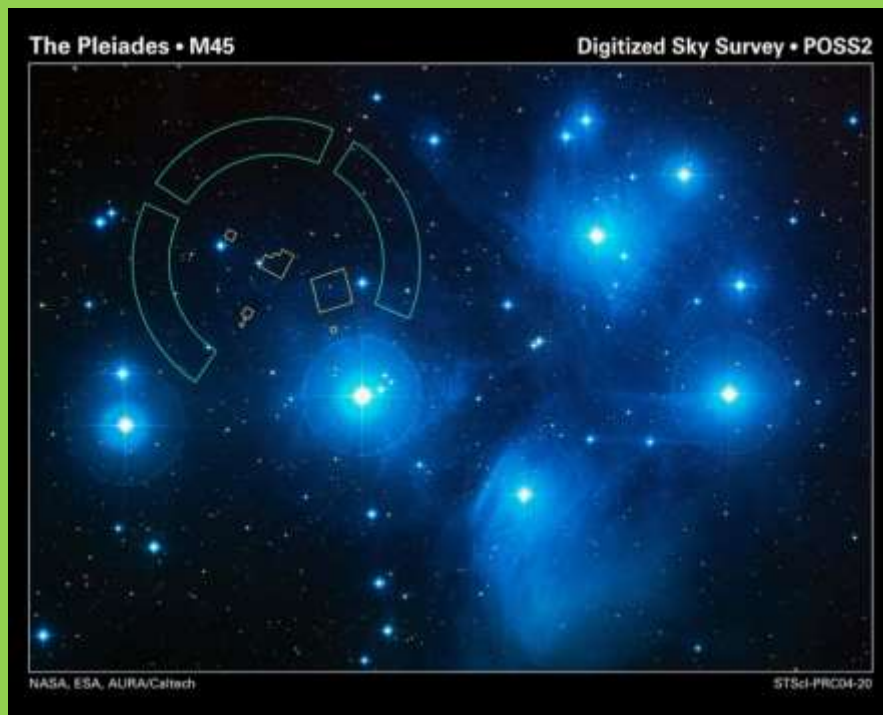
As discussed in last month's Notes, the famous Orion Nebula (M42), found in Orion's "Sword," is a celestial nursery full of newly-born "baby stars" and still-incubating "protostars," surrounded by the gas from which they were born. Next to Orion we find the Hyades, in Taurus, with their distinctive "V" shape. The Hyades are young but mature stars, hundreds of millions of years old and widely dispersed. Imagine them as "young adult" stars venturing out from their hometown into their new galactic apartments. Bright orange Aldebaran stands out in this group, but is not actually a member; it just happens to be in between us and the Hyades. Traveling from Orion to the Hyades we then find the small, almost dipper-shaped Pleiades star cluster (M45). These are "teenage stars," younger than the Hyades, but older than the newborn stars of the Orion Nebula. These bright young stars are still relatively close together, but have dispersed their birth cocoon of stellar gas, like teenagers venturing around the neighborhood with friends and wearing their own clothes, but still remaining close to home - for now. Astronomers have studied this trio in great detail in order to learn more about stellar evolution.

Figuring the exact distance of the Pleiades from Earth is an interesting problem in astrometry, the study of the exact positions of stars in space. Knowing their exact distance away is a necessary step in determining many other facts about the Pleiades. The European Space Agency's Hipparcos satellite determined their distance to about 392 light years away, around 43 light years closer than previous estimates. However, subsequent measurements by NASA's Hubble Space Telescope indicated a distance of 440 light years, much closer to pre-Hipparcos estimates. Then, using a powerful technique called Very Long Baseline Interferometry (VLBI), which combines the power of radio telescopes from around the world, the distance of the Pleiades was calculated to 443 light years. The ESA's Gaia satellite, a successor to Hipparcos, recently released its first two sets of data, which among other findings show the distance close to the values found by Hubble and VLBI, possibly settling the long-running "Pleiades Controversy" and helping firm up the foundation for follow-up studies about the nature of the stars of the Pleiades.

You can learn more about the Pleiades in the Universe Discovery Guide at bit.ly/UDGMarch , and find out about missions helping to measure our universe at nasa.gov.



Caption: Locate Orion rising in the east after sunset to find the Orion Nebula in the “Sword,” below the famous “Belt” of three bright stars. Then, look above Orion to find both the Hyades and the Pleiades. Binoculars will bring out lots of extra stars and details in all three objects, but you can even spot them with your unaided eye!



Caption: Close-up of the Pleiades, with the field of view of Hubble’s Fine Guidance Sensors overlaid in the top left, which helped refine the distance to the cluster. The circumference of the field of view of these sensors is roughly the size of the full Moon. (Credit: [NASA](#), [ESA](#) and AURA/Caltech)

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**
205 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](#)

2019 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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WEBMASTER JENNIFER JONES



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