



Celebrating Sixty Years of the Warren Astronomical Society



The W.A.S.P.

Vol. 53, no. 11

Winner of the Astronomical League's 2021 Mabel Sterns Award

November 2021

The Warren Astronomical Society Publication



Photo: Adrian Bradley

Orion Rising
Okie-Tex Star Party 2021



The WASP



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P.O. Box 1505
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Dale Thieme, Editor

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The Warren Astronomical Society, Inc., is a local, non-profit organization of amateur astronomers. The Society holds meetings on the first Monday and third Thursday of each month, starting at 7:30 p.m.

First Monday meeting:	Third Thursday meeting:
Cranbrook: Institute of Science	Macomb Community College
1221 North Woodward Ave	South campus, Bldg. J, Room J221
Bloomfield Hills, Michigan	14600 Twelve Mile Rd.
	Warren, Michigan

Membership and Annual Dues

Student	Individual	Senior Citizen	for families
\$17.00	\$30.00	\$22.00	add \$7.00

Astronomical League (optional)\$7.50

Send membership applications and dues to the treasurer:
c/o Warren Astronomical Society, Inc.
P.O. Box 1505
Warren, Michigan 48090-1505

Pay at the meetings

Also via PayPal (send funds to treasurer@warrenastro.org)

Among the many benefits of membership are

- Loaner telescopes (with deposit). See 2nd VP.
- Free copy of each WASP newsletter.
- Free use of Stargate Observatory.
- Special interest subgroups. See chairpersons.

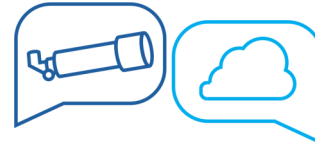
The Warren Astronomical Society Publication (WASP) is the official monthly publication of the Society. Articles for inclusion in the WASP are strongly encouraged and should be submitted to the editor on or before the end of each month. Any format of submission is accepted. Materials can either be transmitted in person, via US Mail, or by email (publications@warrenastro.org)

Disclaimer: The articles presented herein represent the opinion of their authors and are not necessarily the opinion of the Warren Astronomical Society or this editor. The WASP reserves the right to edit or deny publication of any submission.

Stargate Observatory is owned and operated by the Society. Located on the grounds of Camp Rotary on 29 Mile Road, 1.8 miles east of Romeo Plank Road, Stargate features an 8-inch refractor telescope under a steel dome. The observatory is open according to the open house schedule published by the 2nd VP.

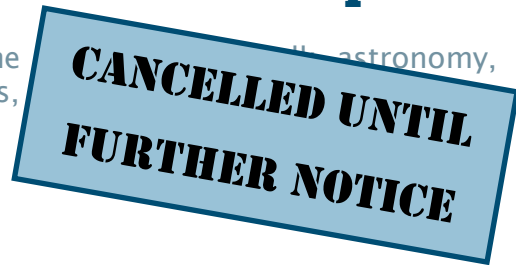
Snack Volunteer Schedule

The Snack Volunteer program is suspended for the duration. When it resumes, volunteers already on the list will be notified by email.



Discussion Group Meeting

Come discuss astronomy, space news,



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President's Field of View

Sometimes the most memorable astronomical experiences are the glorious failures. November brings such a failure to mind; my observing partner Jonathan and I were all geared up to chase a transit of the planet Mercury across the face of the sun on Veteran's Day, 2019. The weather reports for Metro Detroit weren't promising, but we were prepared to drive as far as we could— the Ohio/Pennsylvania border if necessary— to see that black speck on the H-alpha ball of the sun. Alas, a regional snowstorm blanketed the entire area in more of the white stuff than fell any other day that season, and we just had to laugh about it. Mercury eluded us and everyone else in the Great Lakes that day. Until next time, trickster planet.

Same goes for the forty-five minutes I spent teetering on a ladder, peering into the eyepiece of a 36" telescope high on an Arizona ridge in hopes of seeing actual photons from Einstein's Cross. The fifteenth-magnitude foreground galaxy was visible, the nineteenth-magnitude quasar was not. It was some of the most taxing observing I've ever done, and all for naught... well, not really. I'm glad I tried!

And then there are the near-disasters that induce a faint glow of adrenaline years later because against all odds, the prize was obtained: the glimpse of Comet Lulin at 2 AM on a snowy February comet-hunt, the blue-tinged disc of Jupiter through heavy clouds with three moon shadows upon it, the rust-red lunar eclipse on a zero-degree night.

As we enter into the season of cold rain and slush, of "winter mix" and a low sun that vanishes for days in an impenetrable blanket of cloud, keep a keen eye on the forecast. This might be the year that the Geminids don't perform behind a veil, that a winter comet proves worth the frigid chase, that the skies clear long enough for a transient event to be glimpsed. The successes will be a warming memory for years to come... and the glorious failures may be worth a laugh in time.



Tune in weekly on Tuesdays with Explore Scientific's Global Star Party with our own Adrian Bradley and Dave Levy. Every week a new theme/topic.

You can catch them at:

[ExploreScientific.com/live](https://www.explorescientific.com/live)

And YouTube: <https://www.youtube.com/c/ExploreScientificOfficial>



Space Pirate Radio

Tune in to Captains Marty Kunz and Diane Hall for live radio
Wednesday nights at 9:00 pm ET on
Astronomy.fm



Club Member Name Tags

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1 October

The Sun. Two large groups, eastern fore-shortened.
Six spots of a piece..

Transparency good, seeing fair.

5-cm. refractor, 60X

NOTE: "Spot" = 1 umbra.

5 - 6 October

Jupiter: Conjunction of Ganymede/ Callisto, "cat's eye" config., Callisto on W. Difference in mag. and colour striking. Only one magnitude, but seemed much more, so Ganymede looked far larger. (Only 440 km.) Does Gany. have different mags. @ E. and W. elongation?

ST Camelopardalis. Agreed: Observer and W. ("William the Conqueror") Beers that the famous "Peach Star" was peach hued again.

N.G.C. 7789. a/k/a "Caroline's Rose" cluster faintly visible in 5-cm. finder, filled field at 50X. 1/2 deg. dia. Perfectly circular and faintly "curdled". Birren: "300 tiny" stars, "very faint version of [M-44]"

SZ Cam. The "B" component of a very white double star. Again question whether A & B were equal mag. J. ("Handsome Joe") McBride opined equal, Observer countered 0.2-0.3 mag. difference.. Eclipsing var. with very small range, reported previously.

N.G.C. 1502. Contains SZ. From listing in Hirschfeld and Sinnott's CATALOGUE, McB. deemed it a "cluster of doubles". 1502 = effective terminus of "Kemble's Cancade".

The Great Rift. In C. Beckett's "Deep-Sky Wonders", *OBS. HANDBOOK*. "[H]uge naked-eye rift splitting the [Galaxy] from Cyg . . .". Conditions so good, stream of giant molecular clouds and dark nebulae went nearly to S. horizon. NOT a void, but dense matter along Aequator. The Author properly describes the Rift as deep-sky feature.

R Fornacis. Carbon star now in decline from Sept. obs'n in much larger telescope. No colour. Less than 20 deg. up & past transit. Handsome Joe made mistaken sighting. Difficult object. Presently in 11s.

Zodiacal Light. Filled sky in/ above ""Sickle" of Leo, but more diffuse glow than leaning cone along Ecliptic. Informed later by William the Conqueror that western fire smoke invaded N. Mich. sky after local mid-night, which explained pre-dawn landscape was well seen. R CMI observed through the Light.

Transparency excellent - good.

The Outreach Report

Monsieur Trembley made an oblique point which deserves the Society's consideration. Yes, it is difficult to instruct in new telescope deployment for beginners virtually/ on line/ remotely/ *et cetera*. I say "forget it" and read the instructions -- assuming there are any.

The value of Stargate sessions is not only showing the public things in the night sky, but in exchanging experiences, i.e. scuttle-butt. As my uncle Mike said, a wild lad if there ever was one, "If you want to learn how to play pool, you've got to hang out with the 'toughs'". Significantly, his son Little Mike got me in to astronomy.

Out in the wild, wild, west, the Grand Rapids Association has been conducting Observatory public nights since late last summer. The sky might have been smoke lousy at times, but the visitors (esp. the children) got to hang with the "toughs". Wherefore: the Warren Society should discontinue "virtual" Stargates.

G. M. ROSS,

who has never attended a "virtual" Stargate nor Astronomy at the Beach, and has no intention of starting.

4-in. refractor, various magnif. + naked eye.

17 - 18 October

Keid (Omicron-2 Eri) Faint companion obs'd despite gibbous Moon to W.

Estimated 90 deg P.A. *POCKET ATLAS* shows double, *ATLAS OF THE HEAV.* more properly triple. Per Hirschfeld & Sinnott the AB = position angle 104 deg.

(1970) @ 83.5 arc-sec. 4.4/ 9.5 mag. (A star class 05) The C companion (1975), 11.2 mag (vis.magnitude) -- impossible this obs'n.

Sigma 642 Eri. middle of asterism very near Rigel to W., brightest star Lambda. Not shown as multiple on *ATL. OF HEAV.* (Field Ed.) Hard to discern given stars' altitude, P. A. estimate 110 deg. 1879 separ. cited as 53 arc-sec. AB = 5.2/ 8.4 mags. Several stars in system per Hirschfeld and

Sinnott: faint BC at 82 arc-sec.

SY Eri. Colour remarkable even in bright sky @ 8.7. Assn Var. Star Obs. 2021

chart: "Spec" C6 carbon star. semi-regular @ mag.

(Continued on page 5)

(Continued from page 4)

range 10.4 - 11.4.

Mistaken observation? *Per contra* revised "b" chart (10/ 1998), printed by *Observer* 9/ 06 = "8.0-9.6 (v)". Past years' obsn's do not conform to contemp. mag. range.

Transparency poor (bright)

6-cm refractor f /11.

18-19 October

The Moon. On the verge of Full. Terminator making "serrations" on limb beyond lunar south, even though libration of S. hemis. not favourable per *OBS. HAND*. *Per contra* northern hemisphere tilted to Earth, so excellent view of Pythagoras. Even though foreshortened to severe oval, the rising sunlight caught the large central peak. 130 km. dia. Rukl rightly: "very prominent" feature.. Kopal's *NEW PHOTOGRAPHIC ATLAS (1971)* shows it poorly. Best view, truncated at bottom Plate 75. Near-by J. Herschel much larger, but lacks dramatic relief. Pythagoras would be more remarkable if not so close to N. polar area awaiting good libration.

Seeing fair (Moon low)

6-cm. refractor, 70X

19 - 20 October

Full Moon. Probably observed two sets of dark craters. Very near limb Petermann and Cusanus as one feature. Not on N. American Aviation photo's nor (Sky Pub.) Mappa Selenographica (1926) limited chart scale and foreshortening. Same quadrant but farther in to disc: Strabo and Thales, easier to discern. Pair seems not inherently dark mapped/ photographed, but obvious in view. Replogle Lunar Globe gives support to appearance of Strabo-Thales. Confusion with Endymion? Depicted on generalised small-scale map in "how to use Your Teles." as dark crater. (Edmund Sci. 1958). *OBS. HAND*. same, but more accurate. Moderately good libration for 1st lunar quadrant on 19th, *OBS. HAND*.

Transparency good.

7X35 binoculars, wood/ steel tripod. Some use of 25(a) filter.



26-October-2021

26 October

The Sun. Three groups: 1 spot; ~ 18 spots; 6 spots.

Most groups obs'd in years.

Transparency excellent, seeing poor.

5-cm. f /11 refractor @ 60X

26-27 October

Variable stars. 4 in pre-dawn, Eridanus-Canis Major. Difficult.

Transparency poor, moon-light worse than expected ~ last Q.. Seeing fair.

16" Schm.-Cass., Veen Obs.

30-31 October

Aurora from coronal mass ejection. No action in S.W. lower Michigan a 04.30 U.T. Clear view of Polaris and beyond.

Transparency fair. Humid.

Naked eye.

**NASA@ MY LIBRARY
TELESCOPE VIEWING**

Get ready to learn, be amazed, and explore!

NOVEMBER 10, 2021

6:30 PM

WARREN CIVIC CENTER LIBRARY

LIBRARY GARDEN

Children in grades K-5 can join us to view the night sky outdoors in the garden using a telescope. The Warren Astronomical Society will present information about space and provide a telescope for a safe viewing experience. Each child attending will receive a pass to Cranbrook and a STEM activity about space to complete at home.

Register by calling 586.751.0770, in-person or online.

WARREN PUBLIC LIBRARY

Facebook, Twitter, Instagram, Pinterest icons

More A.L. Recognition



Photo: Doug Bock

Our own Doug Bock just received this observing recognition from the Astronomical League. Congratulations and well done.

Join the Astronomical League!



The mission of the Astronomical League is to promote the science of Astronomy. The major benefit of belonging to this organization is receiving the quarterly newsletter, The Reflector, which keeps you in touch with amateur activities all over the country.

Also:

- Participate in the Observing Program
- Avail yourself of the League Store
- Astronomy Books at a discount
- Attend Astronomical League Conventions

Only \$7.50 annually,
(Membership starts July 1)

alcor@warrenastro.org



Right

The Moon seems to smile at Venus' visit

Date: October 9, 2021

Time: Near sunset

From: Ray Bosshard



Below

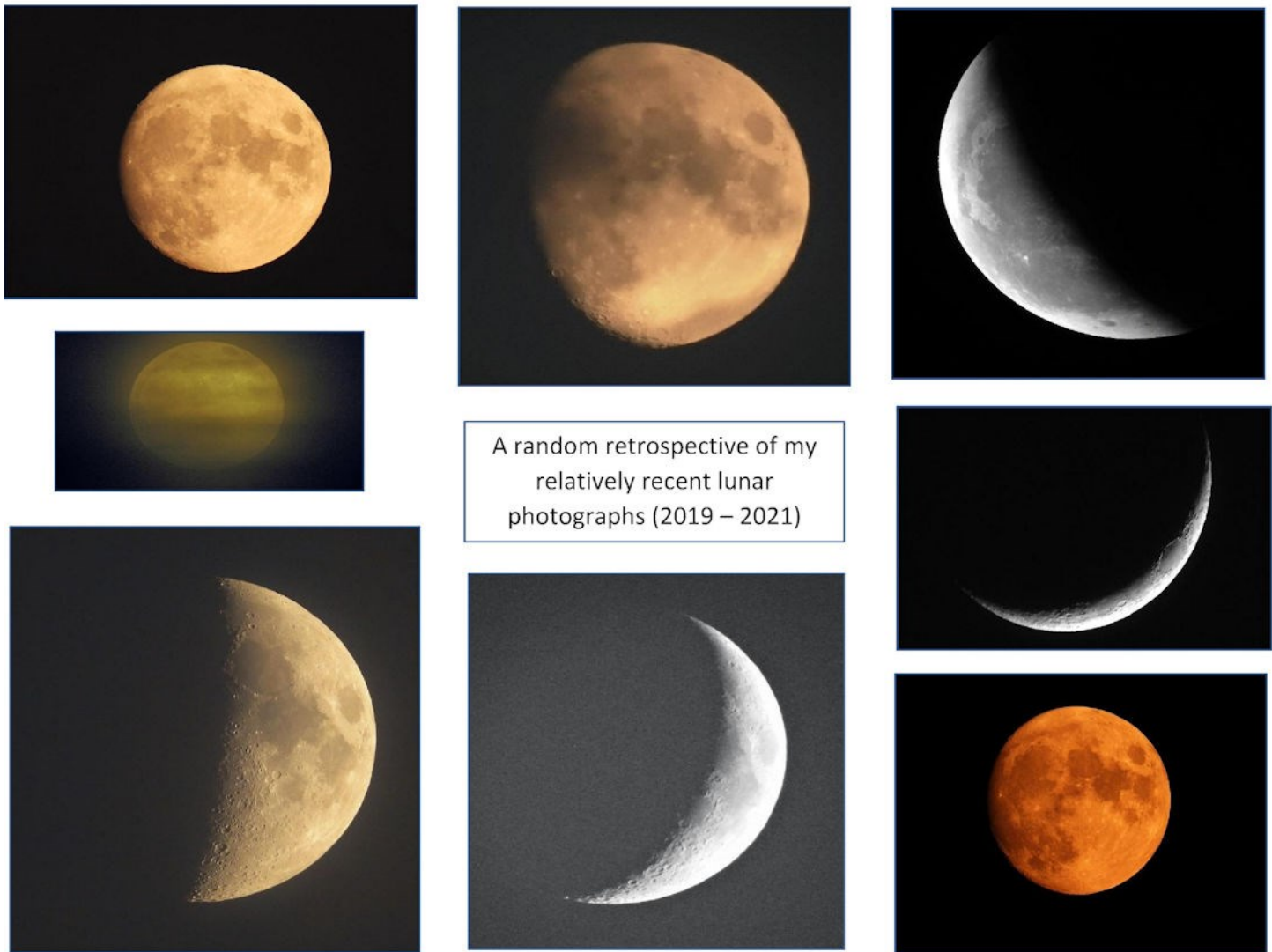
Eclipse on Jupiter

Ganymede's shadow transits near Great Red Spot. Io on the left and Ganymede on the right.

Oct 11, 2021, 8:41PM EDT

From: Dale Hollenbaugh





A random retrospective of my relatively recent lunar photographs (2019 – 2021)

A random retrospective of Ray Bosshard’s relatively recent lunar photographs (2019 - 2021)
 Dates taken: From January 2019 (lunar eclipse in the upper right) through October 2021.

Call for Images

We are getting ready to assemble our WAS 2022 Calendar. We need your astro-images, artwork, and sketches for the calendar. Please send a high resolution JPG or TIFF to publications@warrenastro.org for consideration by the calendar committee. Deadline is November 20th.



Some examples from prior years

The View From C.W. Sirius Observatory

Abell 72 - Planetary Nebula

The planetary nebula Abell 72, or PK059+18.1, which is located in the constellation Delphinus, displays a wonderful network of interlocking loop structures. This beautiful object cataloged by George Abell in the mid 1960's, is 5700 light-years from Earth. It is a very faint planetary nebula with a magnitude of 13.8, but the light is spread out over an area of about 2 arc minutes across making this object very difficult to observe even through a 20" telescope.

Abell 72 is an expanding glowing shell of ionized gas ejected from an old red giant star, located in the center. Mainly emitting radiation in the spectral line of O-III (oxygen 3), this gives this nebula its nice bluish color. The nebula is oblong in shape indicating it could be a bi-polar planetary. I really like how the numerous arcing O-III filaments wind throughout the structure. You can see just to the right of the nebula is 16th magnitude galaxy PGC65491. Another faint galaxy PGC1434890 can be seen towards the top of the image. I could not find a whole lot more information on this nebula.



I shot this image through my 11" SCT f/7 telescope, using the ZWO 071 one-shot color camera. Most astro-photographers will use an O-III filter on their cameras to help bring out the blue color of the nebula, since it does emit in the O-III spectral line. I wanted to show that the blue color could be extracted out by not using any filters on my camera. This is 23 hours of integration time taken over the course of several months, using 18 minute exposures. Abell 72 was a very tough target to image, but if you can capture it, it is well worth the effort.



About CW Sirius Observatory:

C.W. (Cadillac West) Sirius Observatory is located 15 west of Cadillac Michigan. Owned and operated by WAS member Bill Beers. The dome is an 8' Clear Skies Inc dome which houses an 11" f/10 SCT telescope, a 102mm f/7 refractor telescope, Celestron CGEM DX mount, and uses an ASI ZWO 071 color CMOS camera, as well as a QHY8L color CCD camera. The telescope can be remotely operated from inside Bills house.

Anyone interested in learning about astrophotography, or any questions regarding equipment, or how to take astrophotos using your iPhones, or any related questions, can contact Bill at: BEEZOLL@AOL.COM





The Okie-Tex Star Party

This month I traveled to the Okie-Tex Star Party, for the first time. It worked out to be a wonderful trip. There were about 12 of us from Michigan that traveled there through many different routes, and at different times. I picked up Roger Tanner from his house near Adrian on the way out of Michigan. Bob and Gabe Halsall met up with us in Missouri at the end of the first day of travel. The next day we headed for Black Mesa State Park, Oklahoma, just 10 miles from the star party itself, just the night before.

The next morning, we headed over to find a spot to setup, near the Lowbrow astronomers' camp. It was cloudy the first day, October 1, so we weren't in any big hurry to setup for that night.



The next day I setup my system and when I came to put the counterweight shaft on the EQ head, I couldn't find it. I spent a lot of time looking for it, and finally concluded I must have left it at home. I called my wife to check the observatory. She went out and reported she didn't see it anywhere. After searching for another 15 minutes, I called her back and asked that she check a black case I had in the corner, plus the 6" SCT case, which was a complete longshot since I never put the G11 stuff in there. She checked and didn't find anything again, until she picked up a foam square sitting on the table, and the shaft was under it. I had pulled the shaft off the mount, set it on the table, then later while putting other things in the truck, covered the shaft with the foam piece. Thus, I missed it entirely when I did my final walkthrough to make sure I had everything.

Well, I was pretty disappointed, since I wasn't going to be able to do any imaging for the entire week, except for my tripod and widefield camera setup for time lapse.

Fortuitously, Adrian Bradley came over to chat, and I mentioned I wasn't going to be doing any imaging this week, and he asked why. After explaining, he asked what mount, and I told him. He stated he had the same mount here and I could use his counterweight shaft if need be. Adrian saved the week for me. Thank you, Adrian.

The event was well attended with about 400 people. The meals were good and the maintenance of the outdoor facilities were excellent with cleaning crews each day. There were many large dobs and imaging systems setup all over the observing field. Many had wind breaks to keep the wind at bay, which only really happened one night. The skies were excellent each night, with our galaxy visible from horizon to horizon. Bortle 1 skies are really worth the trip.

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The NE corner of the field was populated by the University Lowbrow Astronomers, which I'm also a member of.



Roger and I had set up across the “road” a bit with our scopes and trailer. Bob and Gabe were just a bit away as well.



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Roger brought his 10" f/3.9 astrograph on an iOptron CEM70g, and I had my 4" refractor on my Losmandy G11. We were both doing imaging all week. I also did some time lapse for video, plus this star trail, using my Canon T3i and 10mm lens.

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One result I like the most is this one, with the Horsehead and Flame Nebula. This was 41 x 5-minute sub frames, with the William Optics 105mm APO refractor and the ZWO asi2600MC PRO camera at gain 100, and temp 0C.

(Continued on page 14)



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Another object I hadn't ever imaged due to its size is the Pleiades (M45). With this refractor I can get most of it.



Once it got dark enough to check polar alignment each night, I setup Sequence Generator Pro, with the object list for the night, including exposure time, number of exposures, and time to start and stop the sequence.

This automation is the same as when I have this setup in the observatory at home, so I was confident it would work. I had my laptop in the trailer just so I could check up on the progress, via remote desktop to the telescope computer. This allowed me to get more sleep than the rest of the folks.

Here are the other objects from that week. The Eastern Veil Nebula, The Iris Nebula, the Helix Nebula and the Triangulum Galaxy.



It was a great trip.

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On the next two pages are some other photos of the event. Unfortunately, I didn't get photos of everyone in the group



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We started for home on the 8th, a day in front of the coming storms, and arrived home on the 10th.

-Doug Bock

Presentations

Monday, November 1, 2021 Virtual Presentations



Main Talk:

By Bob Berta

In the Metro Detroit area, we complain a lot about light pollution getting in the way of our observing. How about trying a star that cares naught about light pollution: our sun? In this talk we get acquainted with the specialized equipment we'll need to observe this particular star safely and, of course, how to image it (Bob is a terrific astrophotographer.)

About the Speaker:

Bob is a member of WAS since 2004, has served as Secretary, 2nd VP, President, and Outreach Chair. He is also a member of the Oakland Astronomy Club where he served as VP for several years, a member of the 7 Ponds Astronomy Club, and San Francisco Amateur Astronomers in California.



Bob is both a Michigan Representative for the Astronomical Society of the Pacific's Night Sky Network, as well as a Solar System Ambassador for the Jet Propulsion Laboratory (JPL).

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Thursday, November 18, 2021 Virtual Presentation

Selecting Astronomical Targets for This Season

And other Musings

By John Pannuto and Tom Croskey

Last month, we looked at what you should consider for your first telescope. Now, what should we look at in the sky? John and Tom will take us through typical experiences of someone getting into the hobby, understanding your equipment and its True Field of View. They will take a look at software to help plan your observing sessions and discuss a seasonal approach to planning your observations.

About the Speakers:

John Pannuto was gifted by his family with a Meade DS-2060 telescope twenty some years ago and was totally fascinated to observe the rings of Saturn in that 60mm refractor. With the complexities of life, the telescope fell into disuse until the passion for astronomy was rekindled five years ago. Upon retirement in Rochester, John joined the Oakland Astronomy Club, and subsequently the Warren Astronomy Society and the Seven Ponds Astronomy Club, and read relent-



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WAS PRESENTATIONS

If you would like to present either a short talk (10-15 minutes) or a full-length talk (45-60 minutes) at a future meeting, please email Dale Partin at:

firstvp@warrenastro.org

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He retired in 2004 from San Francisco, California where he worked as an Electrical Engineer, Construction Supervisor in downtown San Francisco, and a Safety Engineer in the Law Department over a career spanning 36 years. He also owned a professional photography business.

He is an accomplished gigging musician on various keyboard instruments, an avid cyclist, and kayaker. Bob designed the astronomy observatory at the DbarA Scout Camp in Dryden/Metamora and is currently the manager of that observatory. As part of his Scout duties, he is a Merit Badge Counselor for Astronomy, Cycling, and Fly Fishing.

His and his wife, Nancy, have raised 5 children. His youngest son, Brian who is a Senior at UofM, is an avid member of WAS and as a Boy Scout, completed his Eagle Scout project benefiting the WAS Star Gate observatory. Also, his son Andrew is a Mechanical Engineer for British Aerospace Systems (BAE) here in Michigan, and his daughter is a Pediatric Research Brain Scientist in Long Island, NY after completing her Masters Degree at NYU.

Election of Officers

The 2022 Candidates:

- President:Diane Hall
- First VP (speaker scheduling):Bob Trembley
- Second VP (Stargate Observatory):Riyad Matti
- Treasurer: Adrian Bradley
- Secretary: Mark Kedzior
- Outreach: Kevin McLaughlin
- Publications:Dale Thieme

(Continued from page 17)

lessly in a passionate effort to make up for lost time. Within a year John became the proud owner of a Celestron SE-8 and has enjoyed the journey to increasing proficiency with his chosen telescope. He is eager to share the night sky with others and to continue learning about our universe.

Tom Croskey's interest in amateur astronomy began in 1986 when he purchased his first scope – a very transportable table top 4 inch Bausch and Lomb Maksutov Cassegrain. He joined the Oakland Astronomy Club in 1987 and obtained an 11” Celestron SCT, a scope that preceded the availability of computer assistance and the era of cell phone apps. He spent several enjoyable years learning the sky with this instrument. In the late 90’s he sold his scope due to growing family and work responsibilities.



Upon retirement in late 2017 Tom returned to the hobby, this time focusing on astrophotography. With the complicated equipment interfaces, science and math concepts, and the nuances of image processing, the next few years presented a steep learning curve like no other. For Tom it was truly “heaven(s) on earth.”

Tom rejoined the OAC in 2018 and the WAS in 2019. He is the proud owner of two imaging scopes, 51” and 102” refractors and generously shares his love of the hobby. He is married with two children and two grandchildren.

W.A.S.P. Photo and Article Submissions

We’d like to see your photos and articles in the W.A.S.P. Your contribution is ESSENTIAL! —

This is YOUR publication!

Send items to: publications@warrenastro.org

Documents can be submitted in Microsoft Word (.doc or .docx), Open Office (.ods), or Text (.txt) formats, or put into the body of an email. Photos can be embedded in the document or attached to the email and should be under 2MB in size. Please include a caption for your photos, along with dates taken, and the way you ’d like your name to appear.



Galaxies, just for the sake of argument

A few weeks ago, I received a message from Cameron Gillis, an amateur astronomer who wrote that he liked galaxies. Just for fun, I decided to take the opposite approach, a philosophical reversal. If he likes galaxies, then I hate them. As we prepared for our meeting, I began to explain the various reasons why I hate them. When, for example, I am observing with a telescope and the Andromeda galaxy enters my field of view, I quickly leave the telescope and ride my bicycle to the end of our driveway and back. The more I stretch the story the greater the laughter becomes. I especially get annoyed by the dark Hydrogen-II regions that stretch across its hideous girth. The cluster of galaxies in the Virgo cluster, particularly Messiers 84 and 86, are so bland that I sometimes have to leave the telescope altogether!

The worst galaxy is our own. When I look up at the evening sky, the Milky Way obstructs my view as it straddles the night from Cassiopeia all the way down to Sagittarius. The stars are so thick that I can hardly see black sky between them. Except of course, when I come across Baade's window. This area of sky rattles me because there, some darkness appears. Discovered by Walter Baade, this window allows us to see almost to the center of our galaxy. It is an awful sight. The majesty of the night is nowhere more apparent than when I am viewing the center of our galaxy, in Scorpius and in Sagittarius, through my telescope. It is wondrous. So wondrous that I still hate it. Because it wastes

my time when I am mesmerized by it, the emotion of viewing the galaxy from my backyard is so strong that it strengthens my heart and pierces my soul.

The worst part of seeing our own galaxy on a clear autumn night is that the dark lanes of hydrogen dust straddle its length. Dark areas are called giant molecular clouds. They are not lit by nearby stars; they just are there. In the far distant future, they will generate new systems of stars and planets like our Earth. They are called giant molecular clouds or Hydrogen (H II) regions.

In distant external galaxies, dark clouds like these can straddle their whole length. The Andromeda galaxy has several of these H II regions that one can observe through a small telescope if one looks carefully enough.

Deep in the southern sky, but still visible from most of North America, lies Caroline Herschel's galaxy. It is No. 253 in the NGC, the New General Catalogue. Under a bright sky it is hardly anything, but from a dark site it resembles a long resting caterpillar. It has a most prominent dark hydrogen lane running across its length.

Along with globular star clusters, those round conglomerations of hundreds of thousands of stars that orbit the outskirts of galaxies, including our own, galaxies are the oldest structures in the Universe. The oldest ones started to build within half a million years of the Big Bang, when the Universe was in its infancy.

So much for hating galaxies. When I say that I hate them, I write merely for the sake of argument and humor. Galaxies are almost like people, each one different, each one with its special characteristics. One way of looking at them is to compare their gigantic sizes with our puny selves. But there is another way. Small as we may be, each of us is unique. Galaxies are huge, but aside from their differing shapes, they are still much alike. But in all this Universe, among all these galaxies, there is just one, only one, of each of us. Our ideas, our personalities, are precious.



Andromeda Galaxy. Image taken in summer 2021 using Obadiah, Dave's Schmidt camera.

Reverence

By Brad Young

A time to get, and a time to lose; a time to keep, and a time to cast away; (Ecclesiastes 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

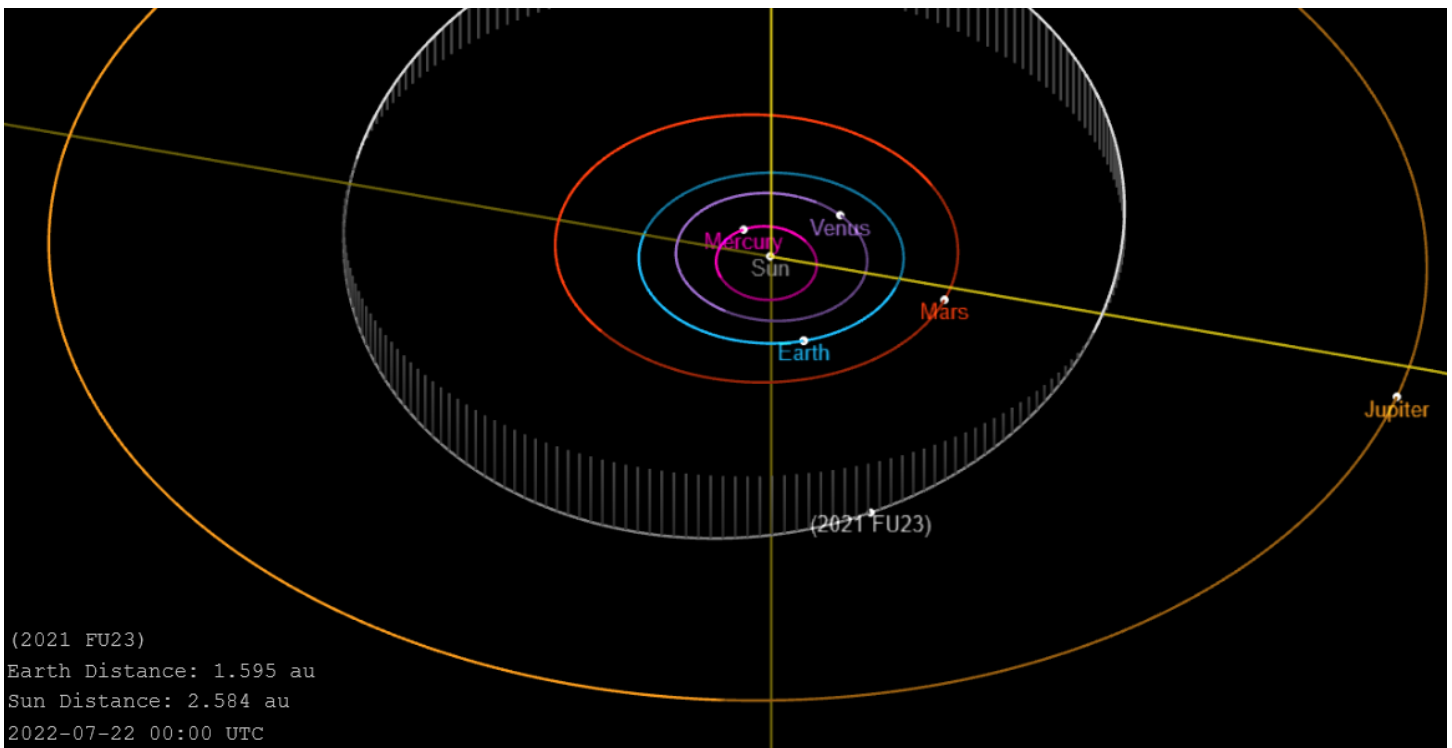
Just before leaving, I learned that the team I'm on had been given a preliminary asteroid designation for one we found during our examination of Pan-STARRS images to check for near Earth objects. Assuming anyone finds it again, we will be able to name it. At the top of my list next July when is that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

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

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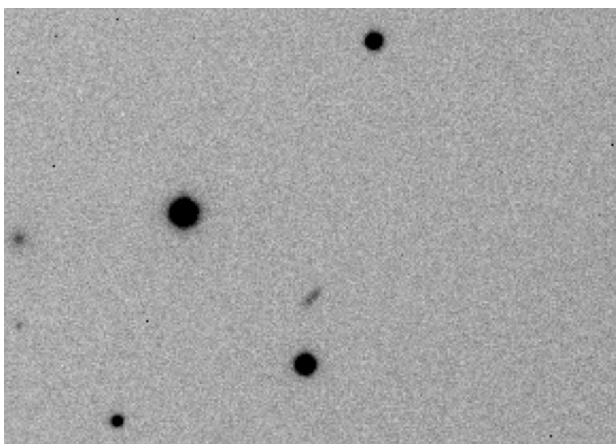


Screenshot of link output showing 2021 FU23 orbit at next opposition in July 2022

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



Lucy Spacecraft

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.

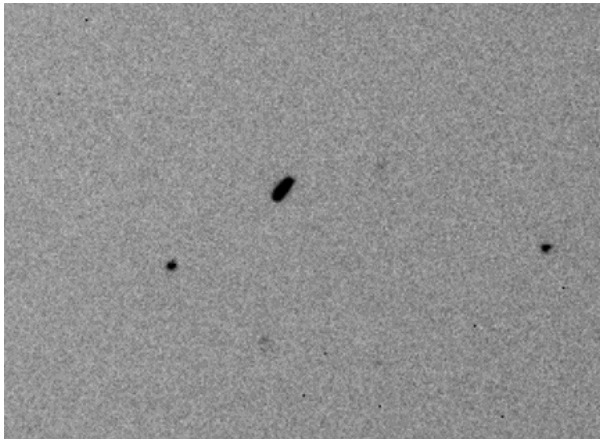
Observing the Lucy Spacecraft on Her Way Out

And then after I got home, I was able to image the [Lucy spacecraft](#) and its rocket about 18 hours after

(Continued on page 22)

(Continued from page 21)

launch, already nearly as far out as the moon. You can see a .gif of those images [on spaceweather.com](https://spaceweather.com) and its [image gallery](#).



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.

Saw a Fireball?

Report it to the American Meteor Society!



www.amsmeteors.org/members/fireball/report-a-fireball

**DETROIT
PUBLIC
LIBRARY**

Business, Science & Technology
PRESENTS

Science with the James Webb Space Telescope: Searching for the First Stars

**Tuesday, December 7, 2021
6:00 - 7:30 p.m. EST
Online Only**

James Webb Space Telescope (JWST), the successor to NASA's famous Hubble Space Telescope, is scheduled to launch on December 18, 2021.

The 6-m diameter mirror and sensitive infrared detectors will allow astronomers to get an unprecedented view of the universe. In this talk Dr. Cackett will discuss the main science goals of JWST, from searching back into the very early universe for light from the first stars, to learning about the atmospheres around extrasolar planets and the search for the building blocks of life elsewhere in the universe.

Dr. Edward Cackett is associate professor of physics and astronomy at Wayne State University. He specializes in the astrophysics of compact objects (neutron stars and black holes).

Detroit Public Library is partnering with the Wayne State University Planetarium on a series of presentations around the JWST launch, with support from NASA's Goddard Space Flight Center.

A Zoom link will be sent to registrants before program

Register

Main Library
5201 Woodward Avenue
Detroit, MI 48202
313/481-1391

www.detroitpubliclibrary.org



Book Review

by Ed Bas

Mercury Rising, a cool title! This new book described John Glenn, John Kennedy, and the New Battleground of the Cold War.

Jeff Shesol wrote about it, a former speechwriter to the Clinton administration and his books were picked Notable Books of the Year by NY Times.

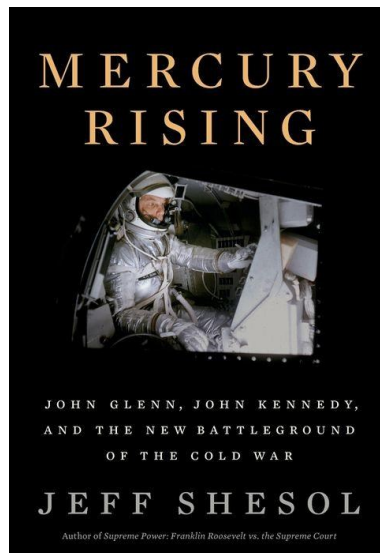
If you don't like politics, it's fine. Don't read this book. But you can't understand the youthful space age without international politics.

Do you remember the Soviet Union? East Germany? Khrushchev? Sputnik? Cuba, the Bay of Pigs and the Missile Crisis? A distant memory but an important stage for the space age.

In 1954, a pilot flew a Bell X-1A, a rocket-powered jet aircraft from the ancient NACA. Before NASA was christened after four years. (1954 I was born. That's why I called it ancient.)

Space Task Group tackled the prime objective: Mercury. Glenn was not the first astronaut. But he was the third astronaut and the first American in orbit, Glenn was a poster boy for rocketry. A headline bannered in the early '60s: Is it worth it? Most people are still asking the question in 2021. What's the point? Scientific? Military? Thank god we have James Webb countered the inevitable unanswered questions. And Lyndon Johnson, too. The eventual President (NOT a poster boy!), but a spark plug for space. Johnson tackled the national budget and he was known as a superman in politics.

You can see a picture of Glenn as a 1959 Marine combat pilot, courageous and smiling in Korea, landing his plane with a basketball-sized hole in its tail, and 300 shots of anti-aircraft guns. He was a straight-laced, nice guy, most people agreed. He was not ever in a scandal. He was an honorable Senator from Ohio and he and his wife, Annie, celebrated their 73 years wedding anniversary. Yes, 73 years! He died 95 years old. He was a straight-laced guy, a famous line he said, "Zip up your pants," referring to his astronaut buddies and their young lady fans or sweethearts. He loves his religion but he was not preaching. He was spotted in the church school classrooms, teaching kids about religion issues. But he drank beer in the Kon-Tiki bar in Cocoa Beach. He preferred to barbecue in his backyard and water skiing, mostly, with his family and friends. And, he was a cool cucumber, "a three-foot-wide package of retrorockets, igniters, straps, electrical wires, and explosive bolts, sitting directly on the center of the otherwise smooth heat shield, would not throw the capsule off its very precise course... in clinical fashion, called a 'fatal attitude.'"



Glenn was comfortable on the podium, conversing with the President, talking about tough issues, and during the Congress with the tv cameras on. The other six Mercury astronauts, courageous enough, but they were more or less quiet and less comfortable speaking out in public.

Glenn bought a cheap camera in a neighborhood store to photograph his orbiting Earth. NASA didn't reimburse him. And they said, you are too busy taking pictures!

A personal note, I visited KSC several times during the years. I have a picture of me, wearing running shorts (topless!), standing my back in a palm tree, looking over Cocoa Beach, the same sand astronauts ran for exercise and fun times. Sigh.

Glenn has a hobby, looking at star atlases and maps of the Earth. He was not just smart, but he had a curious mind too.

JFK once said, a famous line, "I believe that this nation should commit itself to achieving the goal," but the last words of his address, "No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space."

Stirring words. Courageous and bold. I can almost imagine Kennedy's (another poster boy) speeches and his pointed words (pointed to space?) Politics can be dirty, I agree. But politics can be a virtue. How many people remembered the national budget in, say 1964? "Oh, I miss that \$10 in my wallet that NASA got for that moon mission." Did you really miss

your ten bucks, to supposedly bolster a budget for the national education, health services, welfare, etc.?

Kennedy and Glenn were friends. Both were young. Glenn was 40, older than the Mercury astronauts though. He had a youthful face, although he has a receding hairline. Kennedy was young for a United States President, and Khrushchev called him "immature." The Russian Premier was 67 years old.

This book was not a thriller or a nail-biter for me. No spies, no battlegrounds, no car crashes. Good. It's more like nostalgia. I remembered I read the book The 50s by David Halmerstam a couple years ago. The author wrote about the rising McDonald's, Holiday Inn, the invention of tv dinners (yummy?) I love The Right Stuff, the book and the movie too. But I enjoyed reading this book, the history and the infancy of the space age and its connected international politics.

Godspeed, John Glenn.



Over the Moon with Rik Hill

Heraclitis

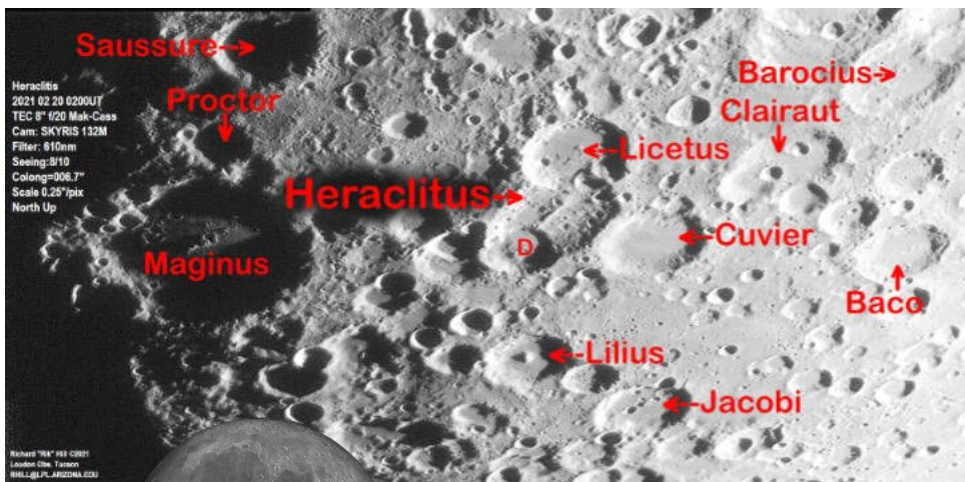
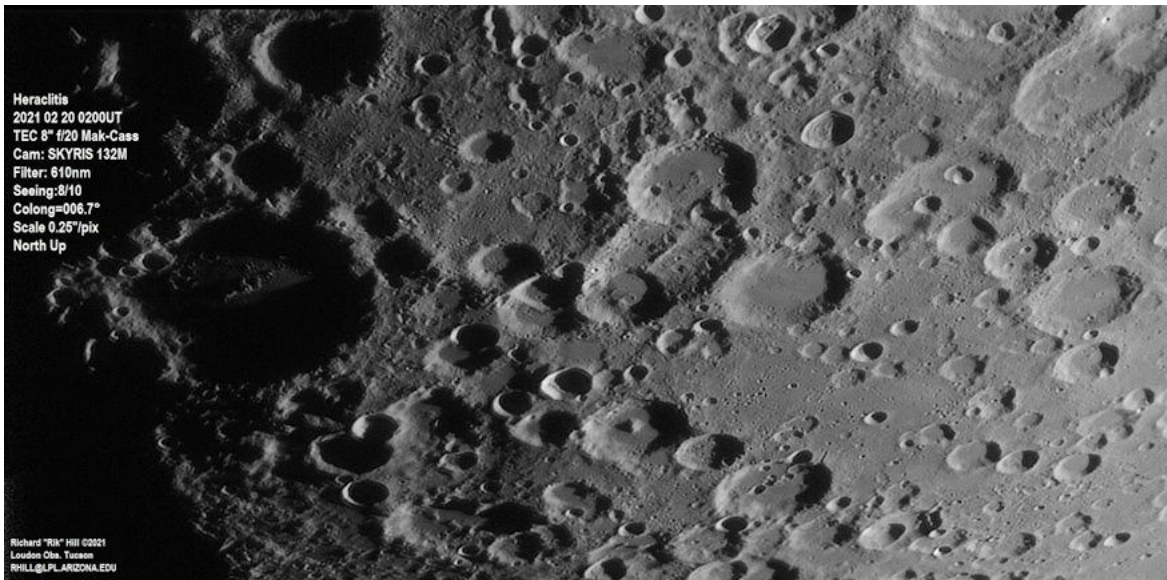
Heraclitis is the sideways Mickey Mouse in the middle of this image.



The flat floored crater just right of center is Cuvier (77km dia). It forms one of the ears of Mickey. Above and to the left is another similar sized crater Licetus (77km) forming the other ear, and between is an odd elongated feature with a crater at the left end. This forms Mickey's nose and is Heraclitus and Heraclitus D the 50km diameter crater at the end. Heraclitus itself is listed as 94km around but clearly is not round. Measuring on LROC QuickMap I get 40x60km.

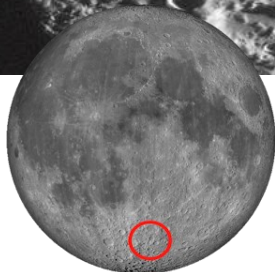
On the far left side of the image is the large crater Maginus (168km) still deep in shadow except for a little shaft of sunlight that is shining through a low spot in the eastern wall. Above, fully in shadow is Proctor (54km) and further north even deeper in shadow is Sausure (56km). East of Cuvier (right) and a little north is the crater Clairaut (77km) and in the upper right corner is Barocius (85km) and south of it is the smaller crater Baco (71km). Due south of Cuvier is Jacobi (70km) and above and west of it is Lilius (63km) with a little central peak.

So what makes a feature like Heraclitis? Two schools of thought here. First of all, it is a Pre-Imbrium crater between 3.85-4.55 billion years old.



So whatever the origin, there has been a lot of modification in the intervening 4 billion years. One speculation is that it is the merger of two or more craters. We have other examples of this on the Moon. A second idea attributes this elongated formation to very low angle impact similar to that thought to have formed Messier A&B. Pick your favorite cause!

This was formed from parts of two 1800 frame AVIs stacked with AVIStack2 (IDL), merged with Microsoft ICE and then final processing was done with GIMP and IrfanView.



Location maps by Ralph DeCew

with Microsoft ICE and then final processing was done with GIMP and IrfanView.

History S.I.G.

November 1973

This issue is one of the new additions we acquired from Dave Harrington's collection. This, along with the December 1973 issue he provided, brings the 1970s missing issues down to six. Quite remarkable.



Unless it's an impression of what to expect with Kohoutek, I don't know what to make of the cover. Maybe it's a STEVE? The issue opens with "The Approach of Mars Identification Map" and Frank McCullough provides us with the "Constellation of the Month - Lacerta: The Lizard". A philosophical entry, "FOR WHAT IT'S WORTH", a collection of poems and essays, is submitted by Diane McCullough. As a clue to the cover, here is a "Tracking Map for Comet Kohoutek". We finish with a paper given at the Astronomical League's 1973 Great Lakes Regional convention by Kenneth Wilson. Below is an image of Kohoutek by Larry Kalinowski

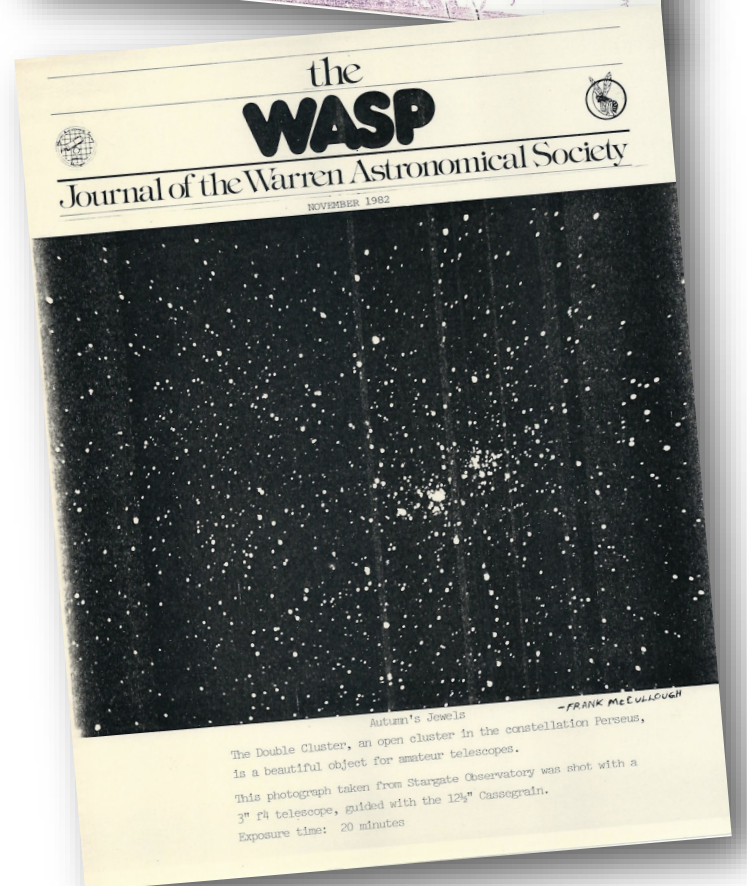


COMET KOHOUTEK....(The comet of the century?)...disappointed many people because it was expected to rival, if not better, the famous Halley's comet. The comet was just barely visible to the naked eye when this picture was taken January 12, 1974. Exposure data: F3.5, 3 minutes, Tri-X film, 200 mm focal length, K2 filter. Photo by: Larry F. Kalinowski.

November 1982

The cover of this issue features a photo taken by Frank McCullough of the Double Cluster in Perseus.

Inside, we find a recounting of a starry road trip, "In Search of Dark Skies" by Doug Bock and the "Flat Earthers" come under scrutiny: "The Flat Truth?" by Judy Butcher



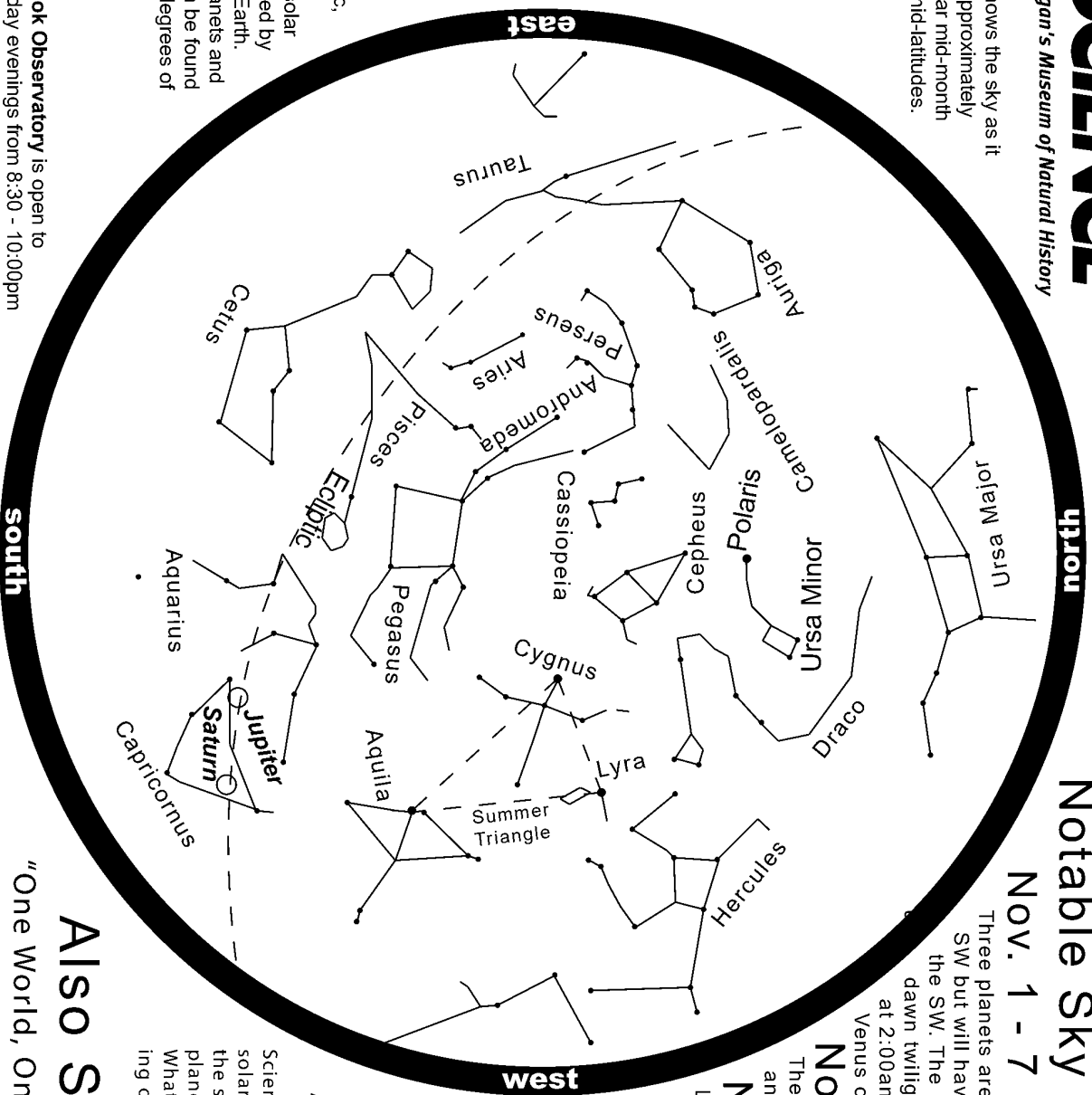
Dale Thieme,
Chief scanner

NOVEMBER 2021

Notable Sky Happenings

Nov. 1 - 7

This chart shows the sky as it appears at approximately 8pm EST near mid-month at northern mid-latitudes.



What is that dashed line? It's the ecliptic, the reference plane of the solar system, defined by the Sun and Earth. The major planets and the Moon can be found within a few degrees of this plane.

The Cranbrook Observatory is open to the public Friday evenings from 8:30 - 10:00pm EDT, and the first Sunday of the month from 1:00 - 4:00pm for solar viewing. Come have a look through our 6" telescope! For observatory information visit <http://science.cranbrook.edu/explore/observatory>

Three planets are visible in the evening sky: Venus is low in the SW but will have set by chart time; Jupiter and Saturn are in the SW. The Moon is above Mercury on the 3rd (ESE pre-dawn twilight; use binoculars). Daylight Saving Time ends at 2:00am on the 7th. The Moon is at the lower right of Venus on the 7th (SSW evening twilight).

Nov. 8 - 14

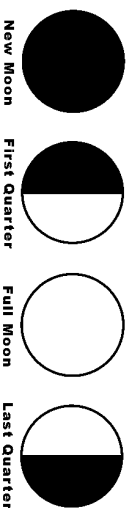
The Moon is at the lower left of Saturn on the 10th and lower left of Jupiter on the 11th (SW evening).

Nov. 15 - 21

Leonid meteor shower peaks Nov. 17-18. Expect an average of 15 per hour. Nearly total lunar eclipse on the 19th begins at 2:18am EST, max. is 4:02am, ends at 5:47am (for SE Michigan).

Nov. 22 - 30

Moon is at the upper right of Regulus, the "heart" of Leo, on the 26th (S predawn).



Now Showing

"Birth of Planet Earth"

Scientists now believe that our galaxy is filled with solar systems, including up to a billion planets roughly the size of our own. How did Earth become a living planet in the wake of our solar system's violent birth? What does its history tell us about our chances of finding other worlds that are truly Earth-like?

Also Showing

"One World, One Sky: Big Bird's Adventure"

When Elmo's friend, Hu Hu Zhu, visits from China. Big Bird, Elmo and Hu Hu Zhu take viewers on an exciting discovery of the Sun, Moon, and stars. They learn about the Big Dipper and the North Star and take an imaginary trip to the Moon where they learn that the Moon is a very different place.

For astronomy information visit <http://science.cranbrook.edu>





Thomas Mitchell - Blue Moon on Halloween Night

November 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Cranbrook Virtual Meeting	2 Election Day	3	4 Combined Taurids peak Divali New Moon	5 Uranus at Opposition	6
7 Daylight Saving Ends	8	9	10	11 Remembrance Day (Can.) Veteran's Day (USA)	12 Northern Taurids	13
14	15	16	17 Leonids	18 Macomb Virtual Meeting	19 Partial Lunar Eclipse Full Moon	20
21	22	23	24	25 Thanksgiving	26	27 Virtual Stargate
28	29 Hanukkah begins	30				



Stargate Observatory

Monthly Free Astronomy Open House and Star Party

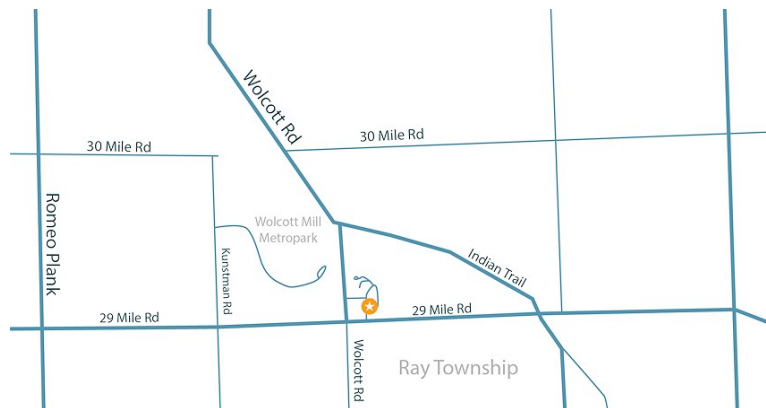
4th Saturday of the month!
Wolcott Mill Metropark - Camp Rotary entrance

Advisory: Concerns are circulating in the amateur astronomy community about a possibility of COVID-19 being passed from one person to another via contact of different persons' eyes with a telescope eyepiece. Sharing telescopes may be considered by some to be high-risk due to the possibility of eyes touching eyepieces.

- Sky tours.
- Look through several different telescopes.
- Get help with your telescope.
- We can schedule special presentations and outings for scouts, student or community groups

Contact: outreach@warrenastro.org

Find us on [MeetUp.com](https://www.meetup.com)



20505 29 Mile Rd (1.8 miles east of Romeo Plank Rd) Ray, MI 48096
82° 55'04" West Longitude, 42° 45'29" North Latitude

Observatory Rules:

- Closing time depends on weather, etc.
- May be closed one hour after opening time if no members arrive within the first hour.
- Contact the 2nd VP for other arrangements, such as late arrival time. Call 586-909-2052.
- An alternate person may be appointed to open.
- Members may arrive before or stay after the scheduled open house time.
- Dates are subject to change or cancellation depending on weather or staff availability.
- Postings to the Yahoo Group and/or email no later than 2 hours before starting time in case of date change or cancellation.
- It is best to call or email the 2nd VP at least 2 hours before the posted opening with any questions. Later emails may not be receivable (secondvp@warrenastro.org).
- Generally, only strong rain or snow will prevent the open house... the plan is to be there even if it is clouded over. Often, the weather is cloudy, but it clears up as the evening progresses.

Stargate Report

Stargate Observatory Report for October 2021

The in person open house was held on October 23. The observatory was opened at 5:32 pm with cloudy skies later becoming partly clear.

Roughly 25 people attended the open house, including a few scouts and their leaders. We were able to observe Jupiter through openings in the clouds. Later, Saturn was in the clear for a few minutes of observing. Both Jupiter and Saturn looked very good when the weather allowed.

In addition to observing, Bob Berta, Dale Partin, and I answered questions about our telescopes and about observing. The observatory was closed at 10:31 pm.

Thanks to all attendees for following the COVID rules to keep everyone safe and with that being the new norm until further notice, all future Stargate Observatory open house session will be in person, barring worsening COVID conditions.

Hope to see you all at the next open house on November 27, 2021

Riyad I. Matti
WAS 2021 2nd VP,

Treasurer's Report

Treasurer's Report for October 22-31, 2021

Finances

- Main account, Bank of America \$21,296.04
- GLAAC account, Bank of America \$3,263.95
- PayPal Account \$938.10

Total Memberships

186

New Members

- Gabrielle Feeny
- Rob Laudicina
- Valeriy Sterligov

If there is any interest in RASC or Astronomical League Materials/membership, please let me know with an email to treasurer@warrenastro.org.

Adrian Bradley,
Treasurer

Astronomical Events for November 2021

Add one hour for Daylight Savings Time

Source:

<http://astropixels.com/almanac/almanac21/almanac2021est.html>

Day	EST (h:m)	Event
01	20:18	Mercury 3.7°N of Spica
03	13:40	Mercury 1.2°S of Moon: Occn.
04	16:15	NEW MOON
04	19:00	Uranus at Opposition
05	07:00	S Taurid Meteor Shower
05	17:23	Moon at Perigee: 358845 km
05	22:38	Moon at Descending Node
06	10:29	Antares 3.9°S of Moon
08	00:21	Venus 1.1°S of Moon: Occn.
10	09:27	Saturn 4.1°N of Moon
11	07:46	FIRST QUARTER MOON
11	12:13	Jupiter 4.4°N of Moon
12	06:00	N Taurid Meteor Shower
17	13:00	Leonid Meteor Shower
19	03:58	FULL MOON
19	04:03	Partial Lunar Eclipse; mag=0.974
19	07:21	Pleiades 4.5°N of Moon
19	12:59	Moon at Ascending Node
20	21:14	Moon at Apogee: 406276 km
23	22:22	Pollux 2.5°N of Moon
27	07:28	LAST QUARTER MOON
29	00:00	Mercury at Superior Conjunction

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If you're shopping on Amazon, make sure to use Amazon Smile. It costs you nothing, and if you select us as your charity, Amazon will donate 0.5% of every purchase you make to the Warren Astronomical Society.

Outreach Report

Member Spotlight

Oct. 5 & 12 - Bob & Connie Trembley ran sessions of their after-school astronomy and space science club. Bob wrote in a [post](#) for the Vatican Observatory “No Agenda Survives Contact with the Students” For both sessions, Bob *had* a list of topics, but the students' questions were *all over the place*.

Oct. 18 - Dale Partin set up his telescope for a group of homeschool families in Oakland County. There were about 14 in attendance, and they mostly viewed planets and the Moon. Dale says it went well, and the father of one of the kids now wants to get into astronomy. (Go Dale!)

Oct. 27: Dale Partin gave his “Search for Extraterrestrial Intelligence” presentation for the Roseville Public Library.

Ken Bertin - Ken talks about astronomy *every* Wednesday on his Facebook feed!

Nov. 10 - Mark Kedzior will be starting the **NASA@MyLibrary Grant** at the Warren Civic Center Library! Kids ages 5-12 will be doing hands-on activities, followed by observing through telescopes at the Moon, Jupiter and Saturn (if skies are clear). ***It would be great if we could get some W.A.S. members to attend this event!*** Note: Mark will be using foam eyepiece protectors as suggested by Dr. Dale Partin.

Nov. 11th - Mark Kedzior will launch a Library Telescope Program at the Ferndale Library at 6:30PM! There will be Indoor orientation of the program, followed by sidewalk observing with telescopes weather permitting.

(Continued on page 31)

WARREN WEEKLY, October 27, 2021 — 9A

Warren to host NASA@ My Library telescope viewing

WARREN — The Warren Public Library has been selected as one of just 60 library systems across the country to be part of the NASA@ My Library initiative.

Achieved through a competitive grant process, the initiative in Warren is set to kick off at 6:30 p.m. Nov. 10 with a telescope viewing program.

The event will be held at the Civic Center Library, on the ground floor of City Hall, east of Van Dyke Avenue and north of 12 Mile Road. The library will host the program, supported by members of the Warren Astronomical Society, who will provide viewing guidance outside of the library in the adjacent garden, weather permitting. In the event of inclement weather, proper telescope viewing techniques will be demonstrated inside of the City Hall atrium.

“The Warren Public Library is one of just 60 libraries nationwide to be part of this initiative, and we’re thrilled to have been selected,” said Lisa Martin, branch librarian at the Warren Civic Center Library. “We look forward to introducing STEAM concepts to our younger patrons and exploring the universe together with people



Photo provided by the Warren Public Library

of all ages during our public programs in 2021 and 2022.”

The telescope viewing program on Nov. 10 is for patrons 5 and older and their families. Each child in attendance will receive a pass to the Cranbrook Institute of Science and a STEM activity about space to complete at home.

According to a release from the library, 150 libraries applied to be part of the program created to increase and enhance science, technology, engineering, arts and math learning opportunities for patrons all over the U.S., including areas

currently underrepresented in STEAM education.

As part of the initiative, the Warren Public Library will now receive resources and training needed to implement NASA events and programming. The library will also receive \$1,600 for programming expenses and access to university-level subject matter experts to support engagement among patrons.

Martin said additional viewing opportunities would be held next year.

To register for the program on Nov. 10, call (586) 751-0770.



Great Lakes Association of Astronomy Clubs Board Meeting Minutes

October 14, 2021 - ONLINE, 7pm

<https://umich.zoom.us/j/584733345>

Call to Order: 7:03pm, JK

Attendance:

- Jeff Kopmanis - Secretary, Lowbrows
- John Wallbank - VP, Lowbrows
- Mike Ryan - GM, Telescope Field Manager
- Tim Campbell - Ford
- Brian Ottum - Marketing/Communications, Lowbrows
- Shannon Murphy, Lowbrows

Stats from AATB 2021

Presenter	Friday	Saturday
Awni H-alpha	114	103
Maxi S.Hemi	56	
Brian Ottum	313	164 (rain)
Ford	153	176
Doug Bock (NCO)	37	35

Debrief

Financial stuff has been done for 2021 (Fed and State) - JW

Late decision and marketing affected turnout

No reflection on quality of presentations

Covid Report (largely from Krishna Rao, Lowbrows)

“Stably bad”, but not getting worse

Delta variant in schools

Public schools: mitigations are working (masking, distancing, ventilation)

UM classrooms: mitigations are working

Okie-Tex Lowbrows didn't pick up anything and stayed safe

2:1 AP to visual - an increase from past years where it was primarily visual observers

Ordinary photographers were “scurrying all over the place” and sometimes in dangerous places.

iPhones with adapters were replacing eyepiece viewing for Covid reasons

Indoor dining is single most-risky

Outdoor spread is just not happening, even with close-quarters

Breathing is best way to catch it; touching is negligibly risky

Date for 2022: September 16-17, 2022

Check with DNR for availability

No astronomy purchases in August!!!!

Nominations for Officers are now open, until the January 13 meeting

November 11 meeting: TBA (JW & AB will figure it out and advise the rest of us)

Next Meeting: December 9, 2021

Adjourned: 7:43pm (JW, JK 2nd)

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Michigan Dark Sky Update

(Edited from emails from Sally Oey)



Does your county or municipality depend on DTE and does it have a lighting ordinance? The [Michigan Municipal Association for Utility Issues](#) (MI-MAUI) wants to know. This organization is working to represent local governments in utility rate cases, and they are interested in leveraging dark-sky lighting as an issue. Please contact Rick Bunch (rick@mi-maui.org) if you know of existing lighting ordinances in SE Michigan.

Washtenaw County Roundabouts: On Oct 4, the Washtenaw County Road Commission (WCRC) hosted a meeting with DTE including Scio Supervisor Will Hathaway, Scio Planning Commission Chair Jan Culbertson, former Scio Supervisor Charlie Nielsen, and A2 Council Member Kathy Griswold, to discuss the Liberty/Zeeb roundabout lighting plan. WCRC does not manage any lighting and contracts it out to DTE, including design and construction. The good news is that the Liberty/Zeeb photometric plan is much improved over Miller/Wagner: 1.05 footcandles instead of 2-3 fc -- **many thanks to all who emailed WCRC!** The bad news is that it's still 50% brighter than the 0.7 fc standard of the Illuminating Engineering Society (IES) and has "blue-white" instead of "warm-white" color. Moreover, there was no interest from WCRC in considering any further modifications. WCRC deflected requests from the Scio Supervisor to open future talks about following IES standards. An issue is that DTE only stocks a few models of non-compliant streetlights, even though the manufacturer makes compliant ones. Jan is working with DTE to host an educational webinar for WCRC, DTE, and hopefully County Commissioners, to be given by an IES engineer. If we can make progress with DTE, that would have impact far beyond Washtenaw County. But this may be an uphill battle.

University of Michigan: Many thanks to Nicholas Poggioli, Karie Slavik, Jen Maigret, John Mirsky, and Gillen Brown for providing suggested edits to make the UM Design Guidelines compliant with dark-sky practice. This code governs all future UM building projects. We forwarded them to Assoc VP Hank Baier and University Planner Sue Gott, and hope to engage them. Additionally, John introduced the group to Drew Horning, Special Advisor to the President on Carbon Neutrality. We met with him and Project Manager Lydia Whitbeck on Oct 13. Apparently UM is reviewing the entire Planning process, which offers an opportunity to leverage revised values around carbon neutrality. They suggested that we meet with Sue Gott directly, and also the head of campus safety. Central Student Government officers are also in the loop.

Detroit, Belle Isle: Jerry Hasspacher reached out to Mike Reed, an education specialist with the Detroit Zoological Society, to gain advice and support on the initiative to name BI Park an Urban Night-Sky Place. Jerry, Mike, Amy Greene, and Sally Oey met on Oct 15, and Mike made the excellent suggestion to reach out to Detroit school districts. He, Amy, and Jerry all have connections that can be leveraged. Sally and Jerry are preparing a hand-out.

Cass County: Thanks to Sarah Zearfoss and Oday Salim for helping Robert Parrish with leads on attorneys for a light pollution case in Cass County.

Join the [Dark Skies Matter](#) Facebook group to discuss our favorite topic! It's hosted by Robert Parrish, a Delegate of the International Dark-Sky Association and founder of the Dr. T. K. Lawless International Dark-Sky Park in West Michigan.

Mark Moldwin, Kay Fuller, and several others shared the wonderful news that [Pittsburgh has passed a lighting ordinance](#), first reported on NPR. Contrary to the widely shared Daily Kos article, Pittsburgh is not the first major city to do so. Tucson passed their ordinance decades ago and it also has a larger population. Which makes Pittsburgh's news even better :)

Available: [The End of Night](#) by Paul Bogard, the classic exposition on dark skies. MIDS has a couple copies, just ask!

Meeting Minutes

WARREN ASTRONOMICAL SOCIETY MINUTES OF OCTOBER (VIRTUAL) BOARD MEETING SEPTEMBER 27, 2021 @ 7:30PM

Meeting called to order at 7:30 PM by President Diane Hall.

Officers in attendance: Diane Hall, Dale Partin, Riyadh Matti, Mark Kedzior, Dale Thieme – quorum present.

OFFICERS REPORTS

1st VP Dale Partin looking for speakers for 2022 to fill as many dates for incoming Program Chair.

2nd VP Riyadh Matti reports inspection of observatory and Dob Shed found everything in good order. Discussion held on a trial in person Open House on October 23rd WITH restrictions (per Riyadh Matti): “Attendees are asked to wear breathing masks when near other members outside the observatory and masks are mandatory inside the observatory. All children under the age of 12 and anyone not vaccinated must wear breathing masks. There will be a limit of one person or one family inside the observatory at any one time. Sharing eyepieces is discouraged. There will be foam eye protectors available to use. In case of bad weather virtual observing discussion may be possible from Northern Cross Observatory if Doug Bock is available to host it.”

Secretary Mark Kedzior reported on the Ferndale Library Telescope Program and the Warren Public Library NASA@My Library grant, with November 10th being the first program being held.

Treasurer Adrian Bradley provided a report of accounts and memberships before heading out to the Okie-Tex Star Party: 184 paid memberships – WAS account: \$21,251.94 – GLAAC account: \$3263.95 – PayPal account: \$850 – payment to Jeff Kopmanis of \$15.89 for Zoom license for AATB event.

Outreach – no report.

Publications Chair Dale Thieme reports on final prep for October WASP – reported on the registration for the Cranbrook October 4th presentation of “Luminous” – Calendar Committee assembled with images being submitted.

OLD BUSINESS

Diane Hall reports that all meetings in person at our venues are still on hold. Nominations for elections discussed -Motion by Riyadh Matti, seconded by Dale Thieme to nominate Dale Partin as Chair-

man of Nominating Committee. Motion passed 5 -0.

NEW BUSINESS

Discussion held on setting dates for 2022 meetings to be submitted to Cranbrook and Macomb. Motion by Dale Partin, seconded by Riyadh Matti to approve dates of regularly scheduled meetings to Cranbrook and Macomb, with amendment adding Stargate Open House on 3rd Saturday in December(17th). Motion passed 5-0. (Dates provided by Dale Thieme below):

Month	Cranbrook	Macomb	Star-gate
January	3	20	22
February	7	17	26
March	7	17	26
April	4	21	23
May	2	19	28
June	6	16	25
July	11	21	23
August	1	18	27
September	12	15	24
October	3	20	22
November	7	17	26
December	5	8	17

Motion to adjourn by Dale Partin, seconded by Dale Thieme – meeting adjourned at 8:30 PM.

Respectfully submitted,
Mark Kedzior
Secretary

WARREN ASTRONOMICAL SOCIETY CRANBROOK (VIRTUAL) MEETING OCTOBER 4, 2021 7:30PM

Meeting called to order at 7:32 by President Diane Hall. Officers present: Diane Hall, Dale Partin, Riyadh Matti, Mark Kedzior, Bob Trembley, Dale Thieme. WebEx attendance – 34@8PM.

OFFICER REPORTS

President Diane Hall explained there would be no short talk this meeting due to main presentation. The WAS Board is taking nominations for 2021 Service Awards. Calendar Committee has been formed with Dale Thieme (Chair), Bob Berta and Bill Beers. WAS meeting dates for 2022 have been firmed up and submitted to host venues for approval. Officer elections will be held at Cranbrook November 1st meeting – Outreach Chair

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position is term limited – nominations are being taken for all board positions.

1st VP Dale Partin reported on upcoming presentations: October 21st (Macomb) – Jonathan Kade with “Buying Your First Telescope” – November 1st (Cranbrook) – Bob Berta with “Solar Astronomy” (no short presentation due to elections). Need presenters for 2022 meetings.

2nd VP Riyad Matti reports inspection at Stargate and Dob Shed found everything in good order – also reports that the WASP Board will be having a trial IN PERSON observing at the October 23rd Open House at Stargate with restrictions – details of the restrictions and requirements are posted in the October WASP.

Secretary Mark Kedzior reports the minutes of the September meeting are in the WASP and gave a brief update on both the Ferndale Library Telescope Program and the Warren Public Library presentation on November 10th.

Treasurer Adrian Bradley (at Okie-Tex Star Party) provided treasury report and is posted in the October WASP.

Term limited Outreach Chair Bob Trembley reported on the Astronomy at the Beach virtual event held on September 24-25. He also reported that Ken Bertin continues his Facebook Astronomy sessions on Wednesdays and will be presenting to the Oakland Astronomy Club on October 10th “The Sun” and “Life and Death of Stars”. World Space Week is October 4-10. Dale Hollenbaugh did an informal outreach with neighbors’ 9-year-old looking through a telescope.

Publications Chair Dale Thieme reports the October WASP is online – the Calendar Committee is up and running and working on the year end mailer.

SPECIAL INTEREST GROUPS:

Solar – No report. Double Star Group – Riyad Matti will have list of double stars to be observed at October 23rd Open House. History – no report. Astrophotography – no report.

OBSERVING REPORTS:

David Levy reports sun was very active and has been comet searching – did reading from Isabel Williamson from “Starlight Nights” by Leslie Peltier. Ken Bertin observed with friends in Georgia and helped with their refractor setup.

IN THE NEWS (presented by Diane Hall):

Discovery of large incoming comet C/2014 UN heading towards our solar system – 62 miles across – arriving in 2031 near Saturn – will only be a telescopic sight. Mars mission rovers powering down during conjunction October 2-16. Found GW Orionis has planetary system around three stars.

IN THE SKY:

October 9th – Moon & Venus in close proximity in evening sky, with shadow transit of Jupiter’s moons. Mercury in morning sky October 28th at -0.7 magnitude. The Orionid meteor shower takes place on October 16th.

MAIN PRESENTATION:

1st VP Dale Partin introduced Sam Smartt, Assistant Professor of Film/Media (Communications) at Calvin University, and producer/director of the documentary “Luminous”. Tonight’s preview will show 60 minutes of a 90-minute documentary which will debut in 2022. This documentary follows the work of Professor Larry Molnar of Calvin University and his study of contact binary stars, and especially of a known 12th magnitude variable star in Cygnus, KIC 9832227, and the collected data showing this could be the next predicted supernova in our galaxy – but when?

Following this presentation, NUMEROUS questions followed this excellent documentary. The meeting ended at 9:53 PM.

Mark Kedzior,
Secretary, WAS

WARREN ASTRONOMICAL SOCIETY MACOMB (VIRTUAL) MEETING OCTOBER 21, 2021 7:30PM

Meeting called to order at 7:30 PM by President Diane Hall. Officers present: Diane Hall, Dale Partin, Riyad Matti, Mark Kedzior, Adrian Bradley, Bob Trembley, Dale Thieme. (WebEx 27 & YouTube 11 @ 8:30 PM)

IN THE NEWS/SKY (presented by Adrian Bradley):

1) Professor Brian Schmidt, 2011 Nobel Laureate, expounds on “How We Can Participate in Educating the Masses” in Space Education. 2) Images from the European Southern Observatory Very Large Telescope of the “Dog Bone” asteroid Cleopatra 124 million miles from earth. 3) For observers, Moon and Uranus within 3 degrees of each other (discussion followed on the proper pronunciation of the planet).

OFFICERS REPORTS

President Diane Hall reports only two Cranbrook and one Macomb meeting(s) along with the banquet remain in 2021. Officer elections will be held at the November Cranbrook meeting on November 1st. Candidates for elected office must be current in their membership dues - check with Adrian Bradley on your membership status if you desire to be elected to Board Position for the 2022 year. We are seeking nominations for our annual Service Awards – please submit your

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nominations to any Board officer. Looking at the (phase in) return of in person meetings at Cranbrook in the 1st quarter of 2022 with restrictions based on Cranbrook guidelines.

1st VP Dale Partin reports on upcoming meeting presentations: November 1st Cranbrook – Bob Berta with “Solar Astronomy” – no short presentation due to officer elections. The November 18th Macomb meeting with Tom Pannuto and Tom Croskey on “Musings About Selecting Targets for This Season’s Viewing or Imaging”.

2nd VP Riyad Matti reports that the monthly Open House at Wolcott Mill will resume on October 23rd WITH restrictions (masks and distancing safely outdoors – foam eye guards will be available – one person or family at a time in observatory). Please refer to the October WASP for the details of the Open House guidelines to make this a safe event.

Secretary Mark Kedzior briefly reported on Ferndale Library Telescope program on November 11th and the Warren Public Library event on November 10th.

Treasurer Adrian Bradley gave all account balances (listed in the October WASP).

Term limited Outreach Chair Bob Trembley reports that Dale Partin will be presenting at the Roseville Library on October 22nd with “Search for Extraterrestrial Life”. He also did observing with some Oakland County home schoolers. Ken Bertin spoke with local radio station about the recent bolide event (which turned out to be a Russian satellite, and continues his Wednesday Facebook astronomy presentations on “Bellatrix-Saiph-Capella”. Adrian Bradley continues to participate with the Explore Scientific Star Parties every Tuesday night.

Publications Chair Dale Thieme reports the October WASP is online and asks for image submissions for 2022 calendar.

SPECIAL INTEREST GROUPS:

Solar – no report. Double Star Group – Riyad Matti will have list of selected double stars to observe at October 23rd Open House. History – On hiatus. Astrophotography – brief reports from Doug Bock, Adrian Bradley and Steve Stuart.

OBSERVING REPORTS:

David Levy reports observing large sunspot with another appearing – viewed the Orionid meteor shower in full moon from Arizona – talked of passing of friend Carolyn Shoemaker and read excerpt from Shakespeare’s “Romeo and Juliet” in honor of Gene Shoemaker.

Doug Bock reported on the Okie-Tex Star Party held October 1-9 – shared images of his gear and images of the Pleiades. Adrian Bradley also attend-

ed Okie-Tex Star Party and shared his images also. During break, Doug shared dusk to dawn time lapse images of 20 second frames at ISO 1600 of the Okie-Tex Star Party.

MAIN PRESENTATION:

Dr. Dale Partin introduced Jonathan Kade (with bio) and his presentation “Buying Your First Telescope”. In this excellent presentation, Jonathan recalled how he got interested in astronomy, meeting Diane Hall who taught the night skies to him, buying their first telescope (Orion SkyQuest XT8, and the cache of telescopes they have acquired through the years), the points/rules for enjoying astronomy: Be comfortable (steady observing chair), relax (with both eyes open or wear eyepatch), keep steady, let your eyes adjust (how the eye works when seeing/observing), types of observing equipment and types of systems & equipment (refractors, reflectors, catadioptric, eyepieces, mounts), budget (cost) of telescope, weight, space for transportation and storage of observing equipment, and places where one can price and buy equipment at the best price for your budget.

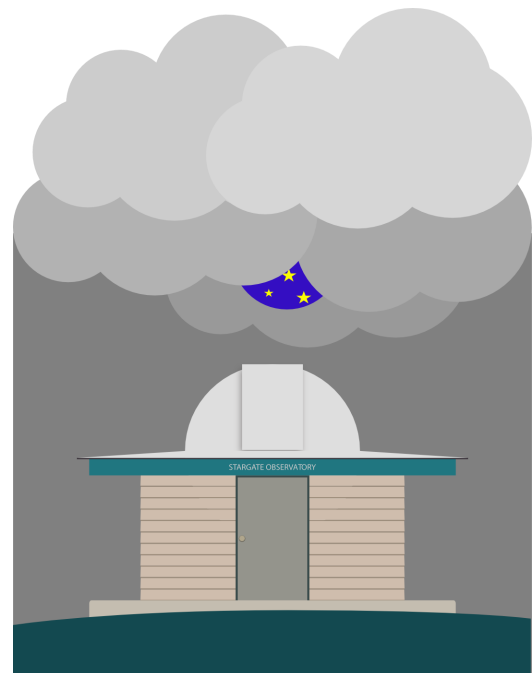
He then presented a list of twelve telescopes and prices/descriptions ranging from \$59.95 (Celestron First Scope 76mm tabletop reflector) to \$999.99 (Orion XT10 Dobsonian Reflector).

Questions (not many) and discussion followed this informative presentation on a question many of us are asked by those interested getting into astronomy.

To see Jonathan’s presentation in its entirety, go to: <https://www.youtube.com/warrenastro>

Meeting ended at 10:00 PM.

Mark Kedzior
Secretary, WAS



The Warren Astronomical Society is a Proud Member of the Great Lakes Association of Astronomy Clubs (GLAAC)

GLAAC is an association of amateur astronomy clubs in Southeastern Michigan who have banded together to provide enjoyable, family-oriented activities that focus on astronomy and space sciences.

GLAAC Club and Society Meeting Times

Club Name & Website	City	Meeting Times
Astronomy Club at Eastern Michigan University	Ypsilanti/EMU	Every Thursday at 7:30PM in 402 Sherzer
Capital Area Astronomy Club	MSU/Abrams Planetarium	First Wednesday of each month 7:30 PM
Farmington Community Stargazers	Farmington Hills	Members: Last Tuesday of the month Public observing: 2nd Tuesday of the month
Ford Amateur Astronomy Club	Dearborn	Fourth Thursday of every month (except November and December) at 7:00 PM
McMath-Hulbert Astronomy Society	Lake Angelus	Board and paid members-First Sunday of the month Public open house—first Saturday at 11 am
Oakland Astronomy Club	Rochester	Second Sunday of every month (except May)
Seven Ponds Astronomy Club	Dryden	Monthly: generally the Saturday closest to new Moon
Sunset Astronomical Society	Bay City/Delta College Planetarium	Second Friday of every month
University Lowbrow Astronomers	Ann Arbor	Third Friday of every month
Warren Astronomical Society	Bloomfield Hills/ Cranbrook & Warren/ MCC	First Monday & third Thursday of every month 7:30 PM

GLAAC Club and Society Newsletters

Warren Astronomical Society:	http://www.warrenastro.org/was/newsletter/
Oakland Astronomy Club:	http://oaklandastronomy.net/
McMath-Hulbert Astronomy Club	http://www.mcmathhulbert.org/solar/newsletter/
Ford Amateur Astronomy Club:	http://www.fordastronomyclub.com/starstuff/index.html
University Lowbrow Astronomers:	http://www.umich.edu/~lowbrows/reflections/

WAS Member Websites

Jon Blum: [Astronomy at JonRosie](#)
 Bill Beers: [Sirius Astro Products](#)
 Jeff MacLeod: [A Life Of Entropy](#)

Bob Trembley: [Balrog's Lair](#)
 Bob Trembley: [Vatican Observatory Foundation Blog](#)

Doug Bock: <https://boonhill.org>
 Facebook: Northern Cross Observatory <https://www.facebook.com/NorthernCrossObservatory>
 Boon Hill and NCO Discussion <https://www.facebook.com/groups/369811479741758>
 YouTube channel: <https://www.youtube.com/channel/UC-gG8v41t39oc-bL0TgPS6w>



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!

Measure the Night Sky

David Prosper

Fall and winter months bring longer nights, and with these earlier evenings, even the youngest astronomers can get stargazing. One of the handiest things you can teach a new astronomer is how to measure the sky – and if you haven’t yet learned yourself, it’s easier than you think!

Astronomers measure the sky using degrees, minutes, and seconds as units. These may sound more like terms for measuring time - and that’s a good catch! – but today we are focused on measuring **angular distance**. **Degrees** are largest, and are each made up of 60 **minutes**, and each minute is made up of 60 **seconds**. To start, go outside and imagine yourself in the center of a massive sphere, with yourself at the center, extending out to the stars: appropriately enough, this is called the **celestial sphere**. A circle contains 360 degrees, so if you have a good view of the horizon all around you, you can slowly spin around exactly once to see what 360 degrees looks like, since you are in effect drawing a circle from inside out, with yourself at the center! Now break up that circle into quarters, starting from due North; each quarter measures 90 degrees, equal to the distance between each cardinal direction! It measures 90 degrees between due North and due East, and a full 180 degrees along the horizon between due North and due South. Now, switch from a horizontal circle to a vertical one, extending above and below your head. Look straight above your head: this point is called the **zenith**, the highest point in the sky. Now look down toward the horizon; it measures 90 degrees from the zenith to the horizon. You now have some basic measurements for your sky.

Use a combination of your fingers held at arm’s length, along with notable objects in the night sky, to make smaller measurements. A full Moon measures about half a degree in width - or 1/2 of your pinky finger, since each pinky measures 1 degree. The three stars of Orion’s Belt create a line about 3 degrees long. The famed “Dig Dipper” asterism is a great reference for Northern Hemisphere observers, since it’s circumpolar and visible all night for many. The Dipper’s “Pointer Stars,” Dubhe and Merak, have 5.5 degrees between them - roughly three middle fingers wide. The entire asterism stretches 25 degrees from Dubhe to Alkaid - roughly the space between your outstretched thumb and pinky. On the other end of the scale, can you split Mizar and Alcor? They are separated by 12 *arc minutes* - about 1/5 the width of your pinky.

Keep practicing to build advanced star-hopping skills. How far away is Polaris from the pointer stars of the Big Dipper? Between Spica and Arcturus? Missions like Gaia and Hipparcos measure tiny differences in the angular distance between stars, at an extremely fine level. Precise measurement of the heavens is known as **astrometry**. Discover more about how we measure the universe, and the missions that do so, at nasa.gov.

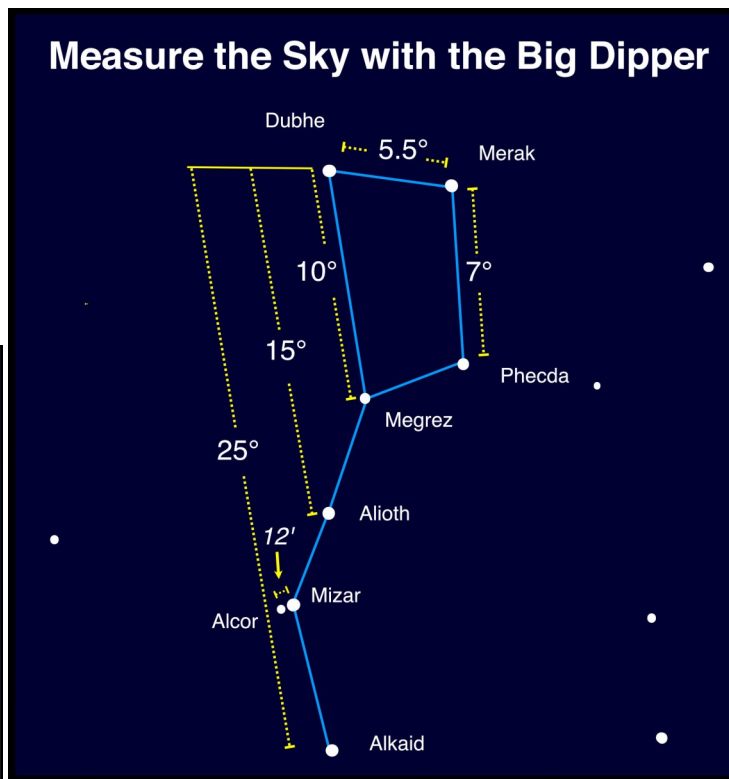


Image created with assistance from Stellarium