



# The W.A.S.P.



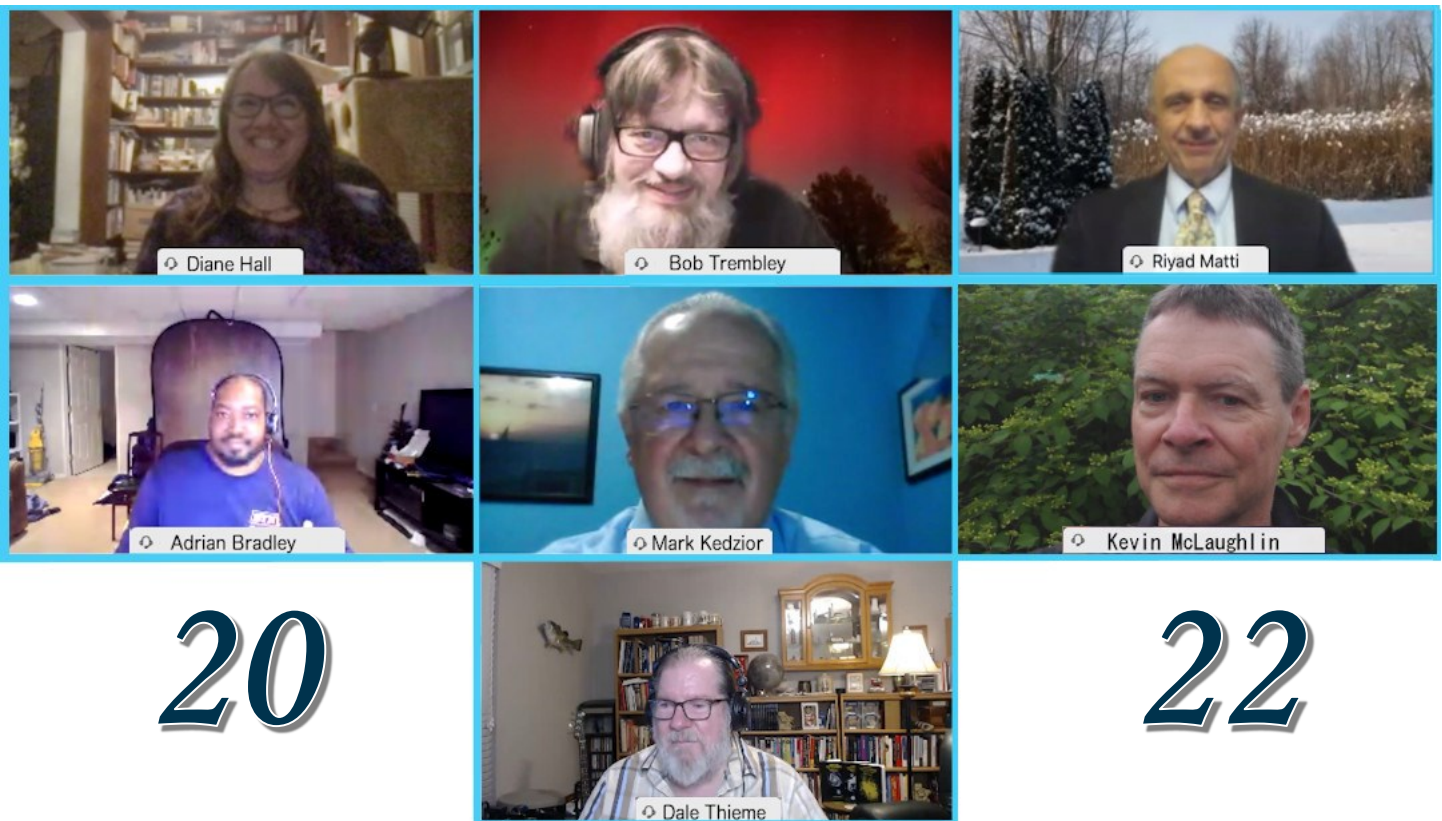
Vol. 54, no. 1

Winner of the Astronomical League's 2021 Mabel Sterns Award

January 2022

The Warren Astronomical Society Publication

# *Happy New Year!*



20

22

# *W.A.S. Board*

# The WASP



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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](mailto: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.

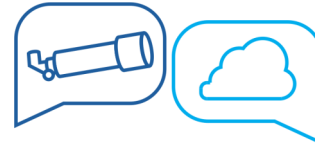
Articles for inclusion in the WASP are strongly encouraged and should be submitted to the editor on or before the end of each month. Any format of submission is accepted. Materials can either be transmitted in person, via US Mail, or by email ([publications@warrenastro.org](mailto:publications@warrenastro.org))

**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 talk astronomy, space news,



## In This Issue:

President's Field of View .....	<a href="#">3</a>
WAS Virtual Awards Banquet .....	<a href="#">4</a>
Observations .....	<a href="#">5</a>
Letters .....	<a href="#">5</a>
Astro Images .....	<a href="#">6</a>
C.W. Observatory .....	<a href="#">7</a>
Northern Cross Observatory.....	<a href="#">8</a>
Presentations .....	<a href="#">10</a>
This Year, Looking Up.....	<a href="#">12</a>
Bon Voyage, Webb! .....	<a href="#">14</a>
Skyward .....	<a href="#">15</a>
Book Review: <i>Across the Airless Worlds</i> .....	<a href="#">16</a>
Over the Moon .....	<a href="#">17</a>
History S.I.G. ....	<a href="#">18</a>
Cranbrook Monthly Sky Chart .....	<a href="#">19</a>
Calendar .....	<a href="#">20</a>
Stargate .....	<a href="#">21</a>
Stargate Officer's Report .....	<a href="#">22</a>
Treasurer's Report .....	<a href="#">22</a>
Astronomical events .....	<a href="#">22</a>
Outreach Report .....	<a href="#">23</a>
Meeting Minutes .....	<a href="#">25</a>
GLAAC .....	<a href="#">27</a>
NASA Night Sky Notes.....	<a href="#">28</a>



## President's Field of View

I had the opportunity this week to return to Cranbrook Institute of Science for the first time since our club meeting in March of 2020. It was lovely and strange; lovely to see the familiar faces of CIS staffers who've supported the W.A.S. in our mission over so many years, strange to have so many questions hanging over our heads after two years and counting. When will we be back? Don't know, can't say. It's an era of perpetual uncertainty, of plans made on foundations unstable as sand at a cliff's edge.

And yet, there's such a sense of comforting continuity at CIS. Not stasis, which is a warning sign in any educational institution, but a manifestation of the constant evolution of how science is to be presented and how people engage with it. The gift shop whose stuffed sloths watched our Board meetings for so many months has been repurposed, the robotic voice that interrupted many a meeting with "Let's talk about water!" has been shut off, and exhibits have been rearranged to fit the needs of swiftly-changing times. There's a new exhibit on space exploration down in the basement; I lingered over the laminated pages of a vintage magazine celebrating the Apollo 11 astronauts while my nieces touched a slice of Mars and climbed around on a Moon-base bunk bed.

We had a good time doing a bit of science fun in the public sphere. It's been entirely too long. Let's ring in 2022 in hope of seeing more familiar faces and making adaptable, resilient plans to do science. Our mission remains.

-Diane Hall  
President

## Order your 2022 Warren Astronomical Society calendar now!



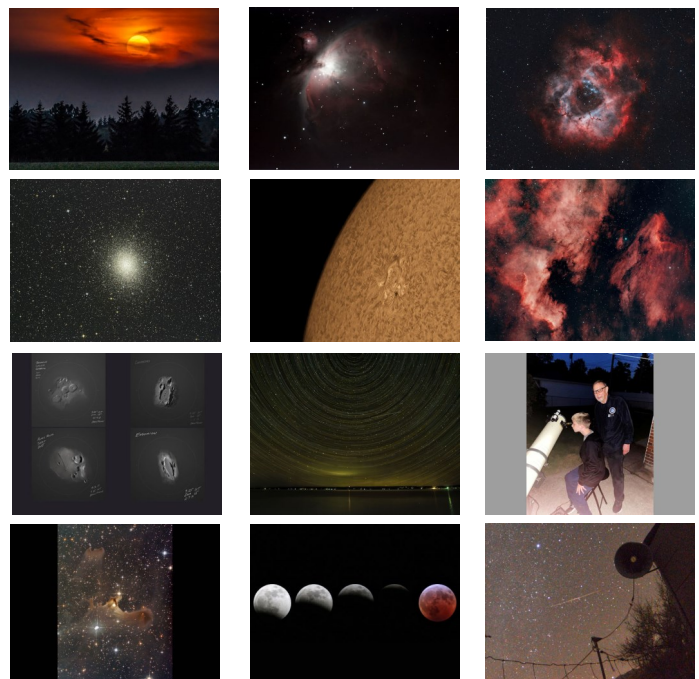
You can still buy calendars for \$15 each (\$5 flat rate shipping per order) by sending a check to Warren Astronomical Society PO Box 1505, Warren MI 48090. [You can also order them online](#) (preferred method). Be sure to include your mailing address so we can get them to you. Email [publications@warrenastro.org](mailto:publications@warrenastro.org) before sending check or paying online.

[Buy Yours Today](#)



**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](http://Astronomy.fm)



# 2021 WAS Virtual Awards Banquet

Once again, COVID forced a Virtual Banquet this year. Hopefully this will be the last and next year will see us together, again.

President Diane led off with a memorial of those we lost in the past year: Sid Keeler (friend of the club and a driving force behind the D-bar-A telescope project), former WAS president, Mike Simonsen, and members Penny Wayne and Gary Flatt.

Then we went on to award three very deserving individuals for their contributions to the club, enjoyed a slideshow of Adrian Bradley's adventures in Nightscapes and topped off the evening with distribution of the door prizes. Everyone's a winner!



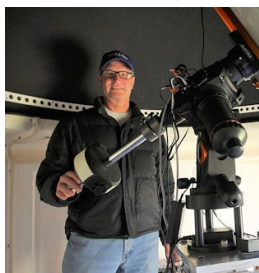
**E. John Searles Award**  
Doug Bock

*Master of the Northern Cross*



**Larry F Kalinowski Award**  
Jonathan Kade

*Interstellar Melody*



**Bob Watt Award**  
Bill Beers

*Sage of Cadillac West*

A big thank you to the contributors of the Door Prizes: Celestron, Software Bisque, Protostar, and members Dale Partin and Dale Thieme.



**SOFTWARE  
BISQUE**



## Observing Reports

### 7 December

The Sun. At mid-northern latitudes, the earliest sunset of the year per investigation by Handsome Joe McBride. This Observer attempted to replicate the precise time from the house. The S.W. horizon was not good from the ground floor, but allowance was made for what was deemed the geometric horizon. After a reasonable time the Sun was declared set, i.e. one-half the disc -- all though he was long invisible. Reference to a chronometer revealed only 21.58 U.T. -- ~ 9 min. too early for Grand Rapids.

COMMENTARY: 1) A poor horizon is very difficult to allow for. 2) A common idea is the earliest setting is the same as the Winter Solstice, but wrong. The Sun's crossing 06h R.A. on the celestial sphere is very much later on the calendar, a function of his rapid eastward motion on the celestial sphere.

### 13 December

The Sun. No sun-pots.  
Transparency fair. Seeing fair.  
5-cm. refractor, f/11 @ 85X

### 26 December

The Sun. One extended group in each hemisphere.  
~ 17 spots in S. ~ 14 spots in N.  
Transparency good; seeing fair.  
5-cm refractor @ 85X



## Letters

### Letter to the editor

Since Bobbie and I were out of town and could not attend this years WAS banquet, I recently had the chance to view it on YouTube. I was very thrilled to learn that I was awarded this years "Bob Watt Award". 21 years ago when I joined the WAS, and being the new kid on the block, Bob was a huge inspiration, and then as time went on he became a very good friend. He was a very talented telescope maker and excelled at teaching others his art. I am honored to accept this award in his honor, knowing I could never fill his shoes.

Thank you all who voted this award to me, it is very much appreciated!

Bill Beers

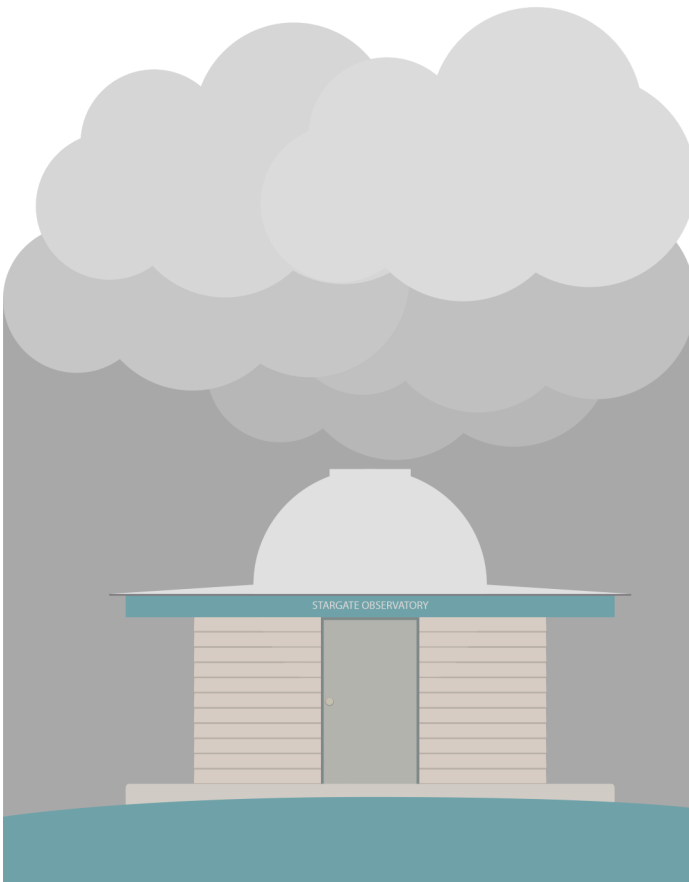
### Letter

Savant Levy wrote of his experience observing N.G.C. 7000 from Arizona in the current (award winning) W.A.S.P. He is certainly a keen, patient visual observer, probably possessing an advanced frontal cortex. There my admiration ends.

In recent years I have gotten a belly-full of irreverent names for the glories of the heavens. I can not bring myself to repeat his, for a delicate nebula attached to the mighty "North American". Shows disrespect. Could this trend over recent decades all around be a manifestation of what Charles Murray termed the "proletarianisation" of society? From a man like Levy? "Say it isn't so, Joe. Say it isn't so".

If he were a son of the True Church, ten "Hail Mary's", but going back to the old "drawing board" would be a better way to make amends to dame Astronomy.

**G. M. ROSS,**  
now the Greatest Observer in Michigan.

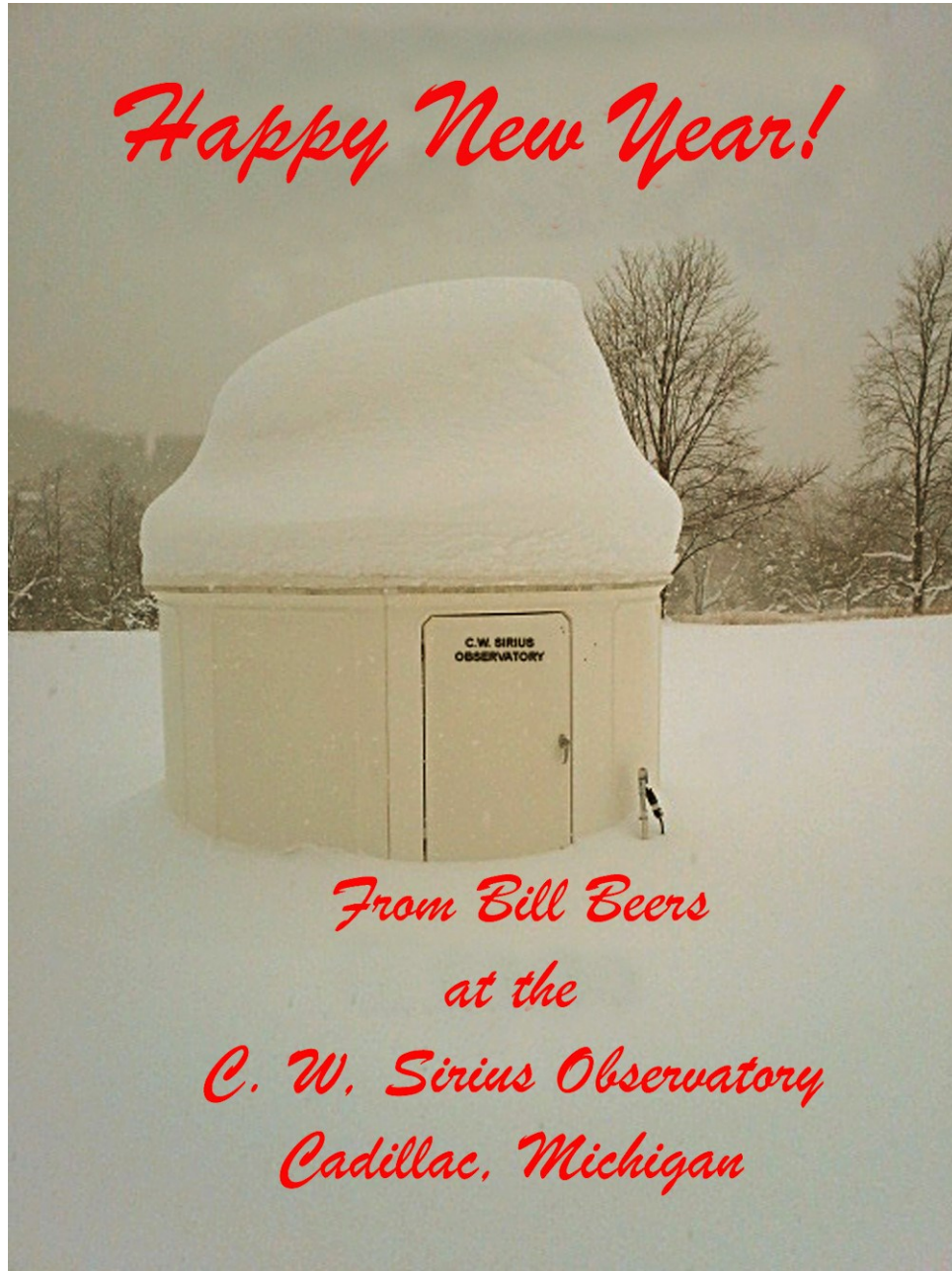




The Cold Moon is what the Native Americans called the December full moon and its happening 3 days away from the Winter Solstice. It is also a Micro Moon as opposed to the Super Moon. Image and comments by Joe McBride.



# The View From C.W. Sirius Observatory



## 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](mailto:BEEZOLL@AOL.COM)





This month I only opened up for one clear night and decided to give the Rosette Nebula complex a try with the 4" refractor. It is in a good position this time of year. The cluster and nebula lie at a distance of 5,000 [light-years](#) from [Earth](#)<sup>[3]</sup> and measure roughly 130 light years in diameter. The [radiation](#) from the young stars excites the [atoms](#) in the nebula, causing them to emit radiation themselves producing the emission nebula we see. The [mass](#) of the nebula is estimated to be around 10,000 [solar masses](#).

The complex has the following [New General Catalogue](#) (NGC) designations:

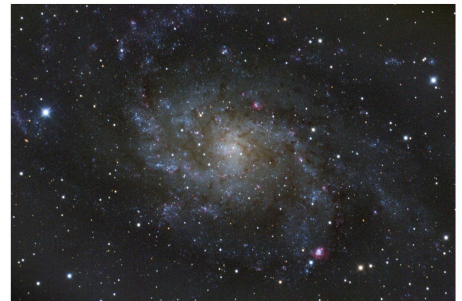
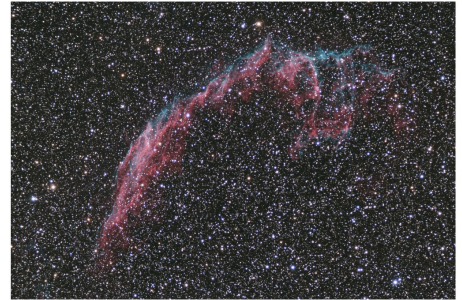
- NGC 2237 – Part of the nebulous region (Also used to denote whole nebula)
- NGC 2238 – Part of the nebulous region
- NGC 2239 – Part of the nebulous region
- [NGC 2244](#) – The open cluster within the nebula
- NGC 2246 – Part of the nebulous region



William Optics 105mm f/7 APO refractor, ZWO asi2600MC PRO camera, gain 100, temp 0C, 85 x 180 second light frames, Losmandy G11 mount

**Doug Bock**





## Images from 2021 (\* from the Okie Tex Star Party)

IC 434 - Horse Head Nebula\*

Rosette Nebula

North American nebula

Pleiades\*

NGC 7023- Iris Nebula\*

NGC 6992- Eastern Veil\*

NGC 4631

NGC 4565

M 33\*

M31- Andromeda Galaxy

IC 5146- Cocoon Nebula

M 20 and M 8

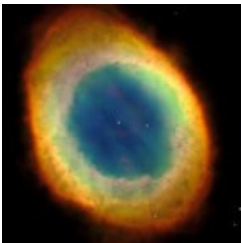
# Presentations

## Monday, January 3, 2022 Virtual Presentations

### The Birth, Life and Death of Stars

By Ken Bertin

Hydrogen and Helium were here near the beginning of Universe, so from where did the rest of the elements come?



M57: The Ring Nebula

What about all the planets and moons? How did those get here?

The answer to all of these questions makes sense once we learn more about what goes on inside a star, from the moment they are born, to the time of their death.

This story varies widely based on the make up of the stars themselves.

#### About the Presenter:

Ken Bertin is a hobbyist astronomer for over 65 years, Past President (2 terms) and VEEP of WAS (2 terms), traveled to/observed 10 Total Solar Eclipses, 4 Annular eclipses, 6 Transits of Mercury, 2 transits of Venus. 15 Lunar eclipses. He does our presentations of historical figures in astronomy and currently presenting online to schools and other organizations.



*(Continued on page 11)*

## Thursday, January 20, 2022 Virtual Presentation

### What Got You Interested in Astronomy?

With Bob Trembley

Tune in as Bob Trembley engages the club with a roundtable discussion of what got us interested in astronomy. He'll lead off with a select panel of David Levy, Ken Bertin, Adrian Bradley, Doug Bock, Dale Partin, and Jon Blum. Then the audience can get to join in with accounts of their introduction to astronomy.

**Bob Trembley**, Outreach Director for a total of 5 terms, is fantastically interested in asteroids, Near Earth objects (NEOs), and meteorites.

**David H. Levy** is a Canadian astronomer, science writer, and comet hunter.

**Ken Bertin** is a hobbyist astronomer for over 65 years (more at left.)

**Adrian Bradley**, currently treasurer of the W.A.S., has gone to the Thumb area frequently, Hudson Lake, Mackinac, and the Upper Peninsula -as day trips, in search of nightscapes and auroras.

**Jon Blum**, past president and 1st VP, joined the W.A.S. in order come to our observing events at Stargate, to learn how to use a telescope that his children bought him for a retirement present.

**Doug Bock** is the owner/operator of the Northern Cross Observatory, past president of WAS.

**Dale Partin** is a past First Vice-President of the W.A.S., currently teaching astronomy at Macomb Community College.

## 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 Bob Trembley at:

[firstvp@warrenastro.org](mailto:firstvp@warrenastro.org).

(Continued from page 10)

### Short Talk:

## Self-Made Bright Star Descriptive

By Valeriy Sterligov

The best telescope image quality can be attained only if the instrument is properly aligned. A common method of doing such an alignment during the day involves using the telescope to view an image of an artificial star. To clearly show any imperfection of the telescope, the optical beam of the artificial star can't contain any of its own aberrations. Also, it must be bright enough to provide a clear image of telescope aberrations.

A laser beam usually provides sufficient light, but very often it contains a lot of aberrations, so it needs additional processing. Such processing is performed by filtering out undesirable spatial frequencies. This kind of filter is commercially available, but expensive.

Valeriy will show how to produce self-made key components of such a filter from very low-priced components and how to assemble them. As result, the size of the artificial star is on the order of 10 micrometers and the brightness is enough to have a good telescope image even on a sunny day.

### ABOUT THE SPEAKER

Valeriy is a professional optician with a PhD in the physics of semiconductors and dielectrics and another PhD in optics and laser physics. Due to specialization, he is interested in astronomical optics, astronomical observations, and the treatment of astronomical images. He was excited by seeing the total solar eclipse of June 30, 1954, in the Soviet Union and on August 11, 1999, in France.



## 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 Reflecter, 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](mailto:alcor@warrenastro.org)



# This Year, Looking Up

## Guest article

By Brad Young, Astronomy Club of Tulsa

### Volume 21, issue 20

I hope you each had a safe and enjoyable year. Things are still tough – but the sky is always there to ponder and keep our minds off trouble for a little while. My personal observing this year is summarized below, and the “numbers” are located [here](#). Most of that is boring but the point of this article is that looking back at a year can be more than nostalgic.

Whether you keep records or not, you can review in your mind how events like conjunctions, eclipses, comets, etc. looked to you. Perhaps you thought they were fascinating and appreciated good weather. Or how disappointing it was when the clouds rolled in. Maybe there a special night or two, with no big event going on. Instead, you had a great night at the scope, or attended a star gaze with a bunch of friends (or strangers). Or did you just lay in a chair and soak in the beauty of the night?

Thinking about the year going out may inspire you to catch every photon and peaceful moment you can in the years to come. Just for grins, here’s my take on 2021. I wrote an [article](#) last year about 2020 being unique. Of course, every year is, and 2021 was no slouch. But beyond the obvious “real world” issues, astronomically, the seeing was good.

*A few notes – I didn’t include any remote observing, the scope here (pun intended) is observing with my eyes or with them up to an eyepiece. My local written records are usually about satellites, conjunctions, eclipses, and such. Telescopic observing is mainly focused (wow) on faint New General Catalog objects in pursuit of the Federation of Astronomical Insanity / Nuts at Telescopes (FAINT) prize.*

My first record in January (the 3rd) lists the conditions as COLD. Not a surprise, even in Oklahoma. Jupiter, Saturn, and Mercury had a nice dance in the second week of the month very low in the sunset. I recorded 23 new NGC objects with my telescope.

The first record I have for February (2) also lists the condition as COLD. Perhaps February is best explained by the fact that was the only day I have any written records. That was for a few bright satellites at home; I have no deep sky records for the whole month.

But then the first weeks of March were fantastic. I saw several flaring geosynchronous satellites; early March is one of the two seasons you can see them brighten up. A few are even at naked eye visibility for 5-10 minutes. And I added 80 NGCs with my

scope.

Had three fantastic nights in April adding 210 telescopic NGCs. Added 164 more in May. This is very rare; spring is usually the rainiest part of our year. I was so busy scooping up galaxies I had no extra time and there were no local satellite or other observations from the 8th of March until the 13th of May. Unfortunately, the total lunar eclipse on May 26th was clouded out before it reached totality.

Early June provided several local satellite observations. There had been a few new Starlinks to see in the winter, but June really gave me an opportunity to track them down. Unsurprisingly, one of the records noted that the conditions were SO HOT. And it was a lean month for the deep sky.

Early July was great for deep sky observing. I did see 163 new objects. But about mid-month, the wildfire smoke descended on us. Very few records after that, none in August - deep sky or even a quick look at the moon or planets. It was uncomfortable to even be outside; I can’t imagine how bad it was at the source.

September began smoky but cleared up eventually, in time for the OkieTex Star Party. We were all worried it might be Smokie-Tex this year. I was able to observe lots of satellites visually, and 36 NGCs.

October began with the star party, and it was fantastic, as described in detail in an earlier article. I added 270 NGCs to my list. After the party, the good weather continued until Halloween. I attended two outreach events, including one that drew about 75 folks.

November was lean, but that is one of our bad weather months. Only 30 NGCs, a few stray satellites here and there. We did have a fantastic view of the almost total eclipse of the moon on the 19<sup>th</sup> with clear (but cold) skies. And, after many years of observing Jupiter’s moons, I was able to complete the Astronomical League’s [Galileo’s TOES](#) observing program.

So far to mid-December, things have been fine. There have been a few good days to sneak in some observing. Added 53 new small faint galaxies. Comet Leonard has been dimmer than hoped so far, but in a couple of hours it may surprise me. I hope so - it’s already 37°F with a stiff north wind and getting colder. Or, as I like to say it, SO COLD.

*(Continued on page 13)*

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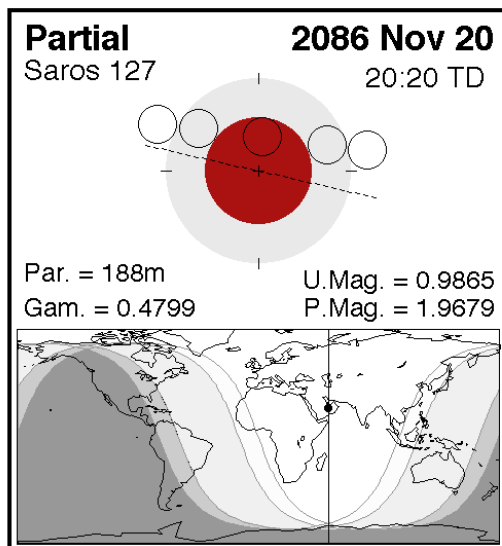
## Odds and Sods

The Okie-Tex Star Party is in Kenton, OK, the last town before the New Mexico line. Oklahoma University has a football team (you may have heard of it). Their former coach, Lincoln Riley, quit unexpectedly right after a loss to their rival, Oklahoma State. I went to University of Tulsa, so I don't care, but a few (read: all) of OU's fans were upset. The State Legislature is naming the last three *inches* of State Highway OK-325 west of Kenton as [Lincoln Riley Highway](#). Can't wait to see the road again, with the new signage next September.



This year's [oh so close to being total] partial lunar eclipse was very long and won't be exceeded until February 8, 2669. It was also quite deep at an umbral magnitude of 0.9742 (97.42% of diameter of the moon in deep shadow). I wondered, when the next deeper (but not total) eclipse be? This turned out to be past my lifetime, but perhaps not past some of you reading this article. A 98.65% partial eclipse occurs on [November 2, 2086](#). This time, the very tip top of the moon will stay just out the darkness. You may have to travel a bit though, as the max eclipse is only visible in Eurasia and Africa:

<http://eclipse.gsfc.nasa.gov/eclipse.html>



Five Millennium Canon of Lunar Eclipses (Espenak & Meeus)  
NASA TP-2009-214172

What I'd really like to see, is the day we have our first annular eclipse of the moon. The moon is, after all, receding at about 4 cm (1.5 inches) a year due to the tides. However, we see our last total solar eclipse from earth in about 600 million years. Selenites see a much larger earth than we see moon passing across the sun, so I would say we have billions of years to wait.

Not to keep complaining about the summer weather, but as mentioned above I had no deep sky observations from July 4 to September 9, 2021. A stretch of two months, in prime observing season, with so little seen, may be an infamous record for me. It is certainly a record for the last quarter century, as I still have my astronomy observing journals from Volume 6 (starting 12/27/1996) to present and checked. *Note: the demise of Vol 1-5 (1980-1996) is a melancholy tale for another time.*

Certainly, 2021 marked a return to space missions, a few of which I observed or imaged [going out or flying by](#). Lucy, IXPE, NEO-1, CUTE, CHASE, DART and soon, the James Webb Space Telescope all launched, and the Solar Orbiter swung low enough to be seen in binoculars on its gravity assist flyby. And hundreds more Starlinks were launched; think of them what you will, in the days right after launch they can be quite stunning to observe.

Several crewed missions launched, including the first to the core of the Tiangong Space Station, and private space tourism became real. Odyssey (US Space Force) was sent up to track space debris, followed swiftly by another anti-satellite test by Russia and thousands of new pieces of debris. The first payload, albeit a postcard, from the British Antarctic Territory was sent to space in 2021. Other, more substantial systems were sent up from Paraguay, Myanmar, Moldova, Tunisia, and Kuwait, representing their first objects in orbit.



Finally, I hate to bring THAT up, but just remember we were all still without a vaccine at the beginning

(Continued on page 14)

(Continued from page 13)

the year, and most of us could not attend meetings or conferences, star parties or even have a beer with our friends. We've come a long way - clubs are meeting again, having outreach and viewing get together, and it may even improve next year. I look forward to 2022, observing the sky and enjoying the best outdoor nature hobby that involves polished glass surfaces at night.

<https://hafsnt.com/index.php/annual-reports/>

<http://www.warrenastro.org/was/newsletter/WASP-2020-10.pdf>

<https://www.astroleague.org/content/galileos-toes>

<https://www.oklahoman.com/story/news/2021/12/07/oklahoma-lawmaker-wants-name-highway-section-after-lincoln-riley/6425113001/>

<https://eclipse.gsfc.nasa.gov/LEcat5/LE2001-2100.html>

<https://hafsnt.com/index.php/satellite-observing/>

## Bon Voyage, Webb!



Image capture of launch: JW Guillon

December 25, 2021

NASA's James Webb Space Telescope launched at 7:20 a.m. EST Saturday on an Ariane 5 rocket from Europe's Spaceport in French Guiana, South America.

A joint effort with ESA (European Space Agency) and the Canadian Space Agency, the Webb observatory is NASA's revolutionary flagship mission to seek the light from the first galaxies in the early universe and to explore our own solar system, as well as planets orbiting other stars, called exoplanets.

(from NASA's news release)

As many banners at the launch site said, Bon Voyage, Webb! The observatory is well on its way to the L2 point where it will conduct its observations.

You can read more about it at NASA's site:

[Webb's Launch GSFC/NASA](#)

And follow it here:

[Where Is Webb? NASA/Webb](#)



Image: NASA/ESA Livestream

## 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](mailto: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



## Imagination and the Astronomical League.

“A Dragon Lives forever, but not so girls and boys.”

Three quarters of a century ago, during the Second World War, the famous Harvard astronomer Harlow Shapley, along with Charles Federer, founding editor of Sky and Telescope Magazine, launched an association of astronomy clubs across the United States. It is called the Astronomical League, and it thrives to this day with more than 100 astronomy clubs. Unlike the national Royal Astronomical Society of Canada, the League is designed to be a more loosely structured organization. According to Carroll Iorg, its current president, one of its most critical and central goals is to inspire the next generation to enjoy the night sky. If that goal should fail. The possibility exists that there may be no Astronomy for future generations.

As part of this vital goal, the Junior Astronomical League, a new subset of the Astronomical League, is now meeting every second Sunday over zoom. But there is something more. My next book will be devoted to those young stargazers. It actually began as a typewritten saga I wrote in 1958 when I was ten years old, and of all the 40 plus books I have written, this is Wendee’s favorite. I am now completing a second edition of this book, in which a small group of children go on a stargazing adventure with Clipper, a magic beagle, and with Eureka, an enchanted reflector telescope. They go past the Moon and planets, the stars, the distant superclusters of galaxies, and even the great voids in distant empty space.



In its final chapter, this book explores the theme articulated in the last verse of Peter, Paul, and Mary’s eminent song “Puff.” “A dragon lives forever, but not so girls and boys.” The children, now grown, go to university. When they complete their college education, the young woman, adept at math and physics, becomes an astronomer, but the young man goes on to become a lawyer. He marries, has children who are now grown themselves, and unhappily gets a divorce. To recover he decides to take a vacation trip to Arizona. Driving his rented

car one evening, he pulls off the road, gets out of his car, and looks at the stars. As childhood memories flood back, a second car pulls off. The young woman astronomer gets out of her car. The two cannot believe they are reuniting, and they catch up for hours. Then there is a break in their conversation. As the couple looks up silently at the stars, the magic beagle, and the telescope, appear and take shape. In that one ultimate celestial adventure, the magic of the night has returned.

DETROIT  
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Business, Science & Technology  
PRESENTS

### Doomed, Insignificant, and Ignorant: The Lessons of Modern Cosmology

Tuesday, January 25, 2020

6:00-7:30 p.m.

Online Only

An overview of modern scientific views of the universe, its origins, its habits, and the place of humanity within it.

#### About this event

Dr. David Cinabro is Professor of Physics & Astronomy at Wayne State University, and IPA at the US Department of Energy, High-Energy Division.

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](http://www.detroitpubliclibrary.org)



## Across the Airless Worlds

WASP doesn't accept car reviews. But "the lunar rover and the triumph of the final moon landings" trumps it.

This recent book by Earl Swift is historical and scientific. Totally!

Are we going to the moon?

Only 8 percent in a national survey sending astronauts to the moon should be a top priority, and only 7 percent for a mission. Do you remember, Gil Scott-Heron's 1970 lyrics in "Whitey on the Moon," "Can't pay no doctor bill / But Whitey's on the moon / 10 years from now I'll be payin' still / While Whitey's on the moon."

Mr. Swift mentioned it in his book.

That reminds me of WAS December meeting, a panel discussion of Anti-Science in the U.S. Carl Sagan once said, "We live in a science exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology" and "Science is more than a body of knowledge; it is a way of thinking. I have a foreboding of America in my children's or grandchildren's time—." Another astronomer agreed. Neil deGrasse Tyson sharply insisted, "Ignorance is a virus. Once it starts spreading, it can only be cured by reason." Indeed.

Off of the soapbox...

The moon landing is not in the cards yet, not today but tomorrow if you agree to NASA's schedule. Artemis was initially planned for 2024, man and woman landing on the moon. Another timing was planned for 2025. It doesn't matter which year. It needs a lunar rover, like a traveler wanting a rental car after their airline flight.

That reminds me of Chesley Bonestell's 1944 artist's rendition of a lunar rover. It has tank-treads and no wheels, but it was close!

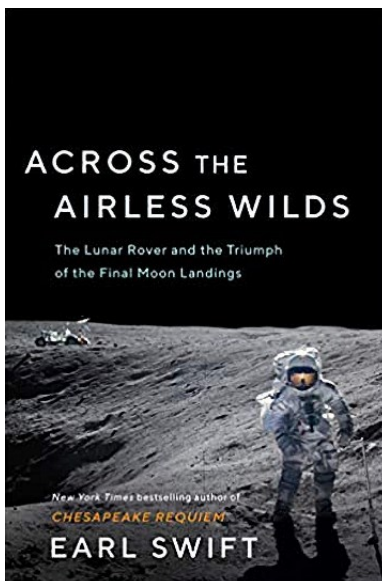
Wernher von Braun predicted during the rookie moon astronauts dinner, "We (NASA) will provide a car." How nutty that sounded!

Do you remember famous brands in the history of NASA: Chrysler, Bendix, Grumman, General Motors, Boeing? They had a veritable (car!) race of the 1970s. They didn't know about an oncoming Tesla Roadster in their rear mirror, launched by Elon Musk's SpaceX.

The author is not an astronomer, scientist or an engineer. He wrote a couple of car books, and he admits he is a car nut and a techno geek.

NASA looked at several wish lists: including affordable and lightweight. The budget was tight. The target is 400 pounds and less than \$40 million. And it needed a new car, not used. Eventually... "The job was finished. The rover was ready." Cheers and applause!

They had rover problems in Apollo 16. (They changed the numbers from Roman to English.) Not major for a recall. The astronauts (Young and Duke) didn't have more than six miles per hour per the specs. "We're hardly moving." A switch was on the wrong setting! No tow truck nearby, they had to troubleshoot it. (My first rover was a Ford Galaxie. It had more miles and a little bit more than the 6 mph speed limit.) They had a speed record afterwards: 10.54. "Well, let's not set any more," the capcom scolded." Duke was thrilled: "What a ride!" The moon's land record was eclipsed in Apollo 17: 11.2.



In the 17th, astronauts had to cobble a unique do-it-yourself fender. They had a minor accident before; missing fender. It was urgent because the abrasive, light powder (similar to grinding mirrors!) falling down to the rover. Especially their visors and electrical connectors. Bad news, luckily duct tape helped.

This book had luscious details of the moon's composition. "This was no ordinary moon rock... a chunk of bright-white, nearly pristine anorthosite— a time capsule more than four billion years old." And, another space bite, fragments of volcanics (found) but pyroclastics in meteorite impacts "had melted together and fused up." Rigid, rugged, regolith, right on!

The rover was invaluable in its geology. (Geology means Earth science. Maybe another word for the "geology" for other non-Earth objects?).

Lastly, I need more information about Mars' rovers. That reminds me of Mars' Perseverance rover. I saw a rover exhibit in the Kennedy Space Center in 2020. Awesome! The last chapter, the author did mention other Martian (I just like that name; NASA doesn't) rovers: the Sojourner, Spirit, Curiosity, Opportunity. Alas, another book to read.

I wanted to read this book a few months ago. I was bogged half-way, I didn't finish it the first time. It was a little bit dry, interesting enough but not fascinating. Engineers will like it, not for me. Luckily, I finished the last couple of chapters, including the history of Apollo 15, 16 and 17. It was worth it. "...a celebration of human genius, perseverance and daring." I agree.

The author mentioned a later moon rover, VIPER, to be launched 2023. Bon voyage!





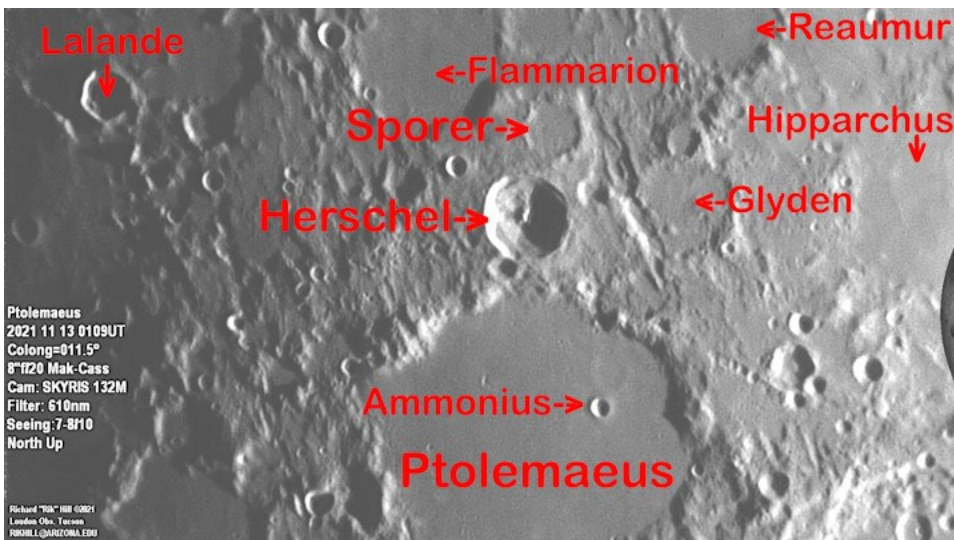
## The Best "Walled Plain"

The big crater in the lower center is Ptolemaeus (dia. 158km) with the shallow saucer-like interior craters well shown and the small Ammonius (9km) on the east side floor, which was called Lyot when I was a beginning amateur astronomer. That name has since been given to a crater near Mare Australe on the east limb. This is the greatest of the near side walled plains and a young, sharp-eyed observer might just make out Ptolemaeus when it's on the terminator. Alas, my old eyes cannot any longer. Above Ptolemaeus is the slightly younger Herschel (43km) and above Herschel is Sporer (29km). Further north is the smaller walled plain, Flammariion (77km) To the right of Sporer is a great gash in the lunar surface some 80-90km long and 15km wide at it's widest. This is Vallis Gylden (unofficial) and it cuts off the western edge of the shallow Gylden crater (49km) to the right of it. If you look carefully you will see many

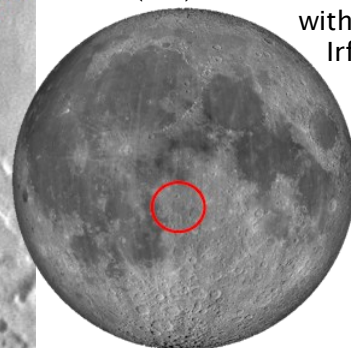
less obvious parallel valleys all over the upper half of this image especially to the left. These were all carved out in seconds by the ejecta thrown out during the Imbrium impact. How much fun would it have been to observe that through a telescope at our relatively safe distance of 380,000km! Of course the Earth was undoubtedly well splattered by the debris from this event. Wish I had a piece of that!



To the right of Gylden is the large flat floored crater Hipparchus (155km) and above is most of Reaumur (54km). Lastly, in the upper left corner is the crater LaLande (26km). A very interesting region I have enjoyed since my early days with a 2.4" Tasco refractor!



This image is a stack from one 1800 frame AVI stacked with AVIS-tack2 (IDL) and finish processed with GIMP and IrfanView.



Location maps by Ralph DeCew



## (Dec 84)/Jan 85

The month of January often was second fiddle on the issue calendar (getting lumped in with December) resulting in a paucity of available issues to review. I decided, with the increasing activity on the sun, to revisit this issue (see also Bob Berta's talk on Solar Astronomy - <https://youtu.be/h5ykcVPzvQ4?t=5321>.) The cover looks like the handiwork of Frank McCullough, although it is not signed. Anyone knowing different, feel free to let me know.

Inside, besides the standard calendar of events, resides a single article:

**Points of Prominence** By Richard Hill - Assn. of Lunar & Planetary Observers, Solar Section

Apparently a "reprint" of his submission to the Assn. of Lunar & Planetary Observers newsletter, it is a delightful read on how to construct a device for sunspot counting.

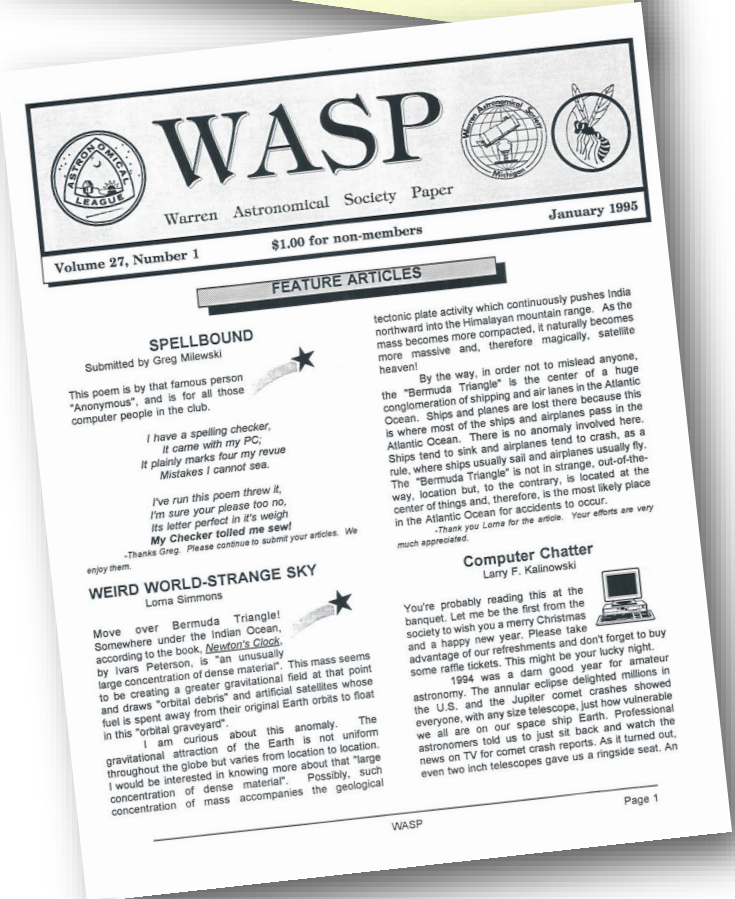
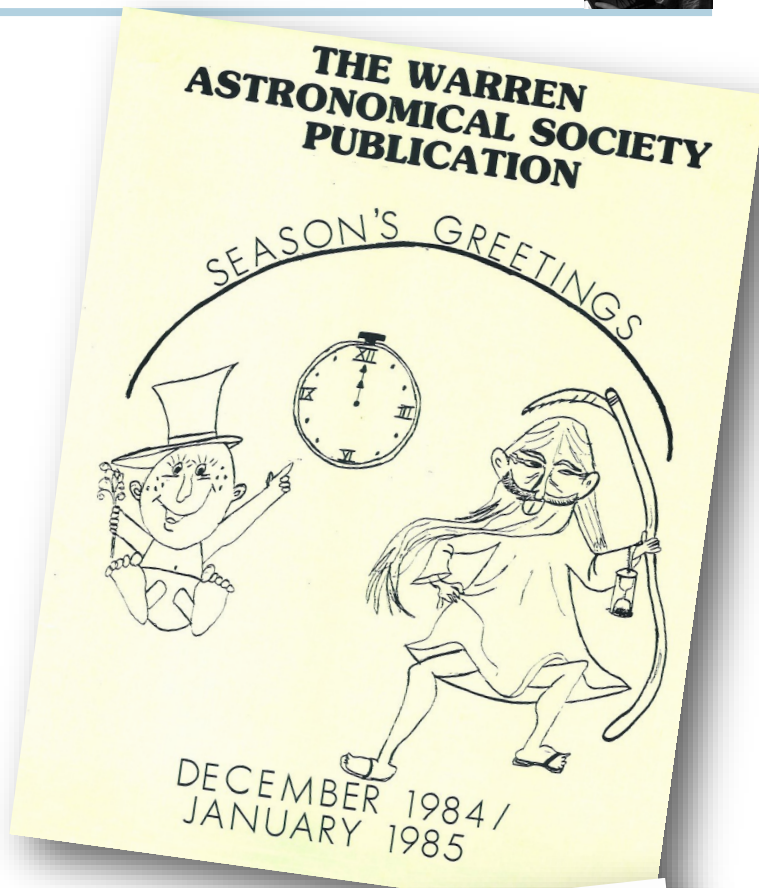
The issue finishes up with a couple charts and a word search game from Ray Bullock (who is still supplying us with the Cranbrook sky charts.)

## January 1995

Firmly planted in the computerized desktop publishing age. Note the template styling of the layout, the familiar banner heading style still in use and with the inclusion of the W.A.S.P. logo. The editor used my favorite font, too: Tiffany.

In this issue, we find: **Spellbound** - A poem by that prolific author, Anonymous, submitted by Greg Milewski (*spell checkers have improved over the years, but can still drive us to distraction—Ed*). Then we have a book review about **Weird World-Strange Sky** by Lorna Simmons, that is weirder than the book, I suspect. Things get on a more level footing with **Computer Chatter** by Larry F. Kalinowski.

Dale Thieme,  
Chief scanner



This chart shows the sky as it appears at approximately 7pm EST near mid-month at northern mid-latitudes.

# JANUARY 2022

## Notable Sky Happenings

Jan. 1 - 7

Quadrantid Meteor Shower peaks on the night of the 3rd-4th (up to 40/hour). Earth is closest to the Sun on the 4th. Moon is at the lower left of Jupiter on the 5th (SW evening).

Jan. 8 - 14

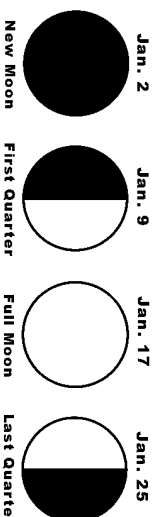
The Moon is below the Pleiades on the 12th and above Aldebaran on the 13th (SE evening).

Jan. 15 - 21

Moon is at the upper right of Pollux with Castor above Pollux on the 16th (E evening).

Jan. 22 - 31

Moon is at the upper right of Spica on the 24th (S predawn), at the upper right of Antares on the 27th (SSE predawn) and at the lower right of Mars with Venus at the left on the 29th (SE predawn).



## Now Showing

### "Birth of Planet Earth"

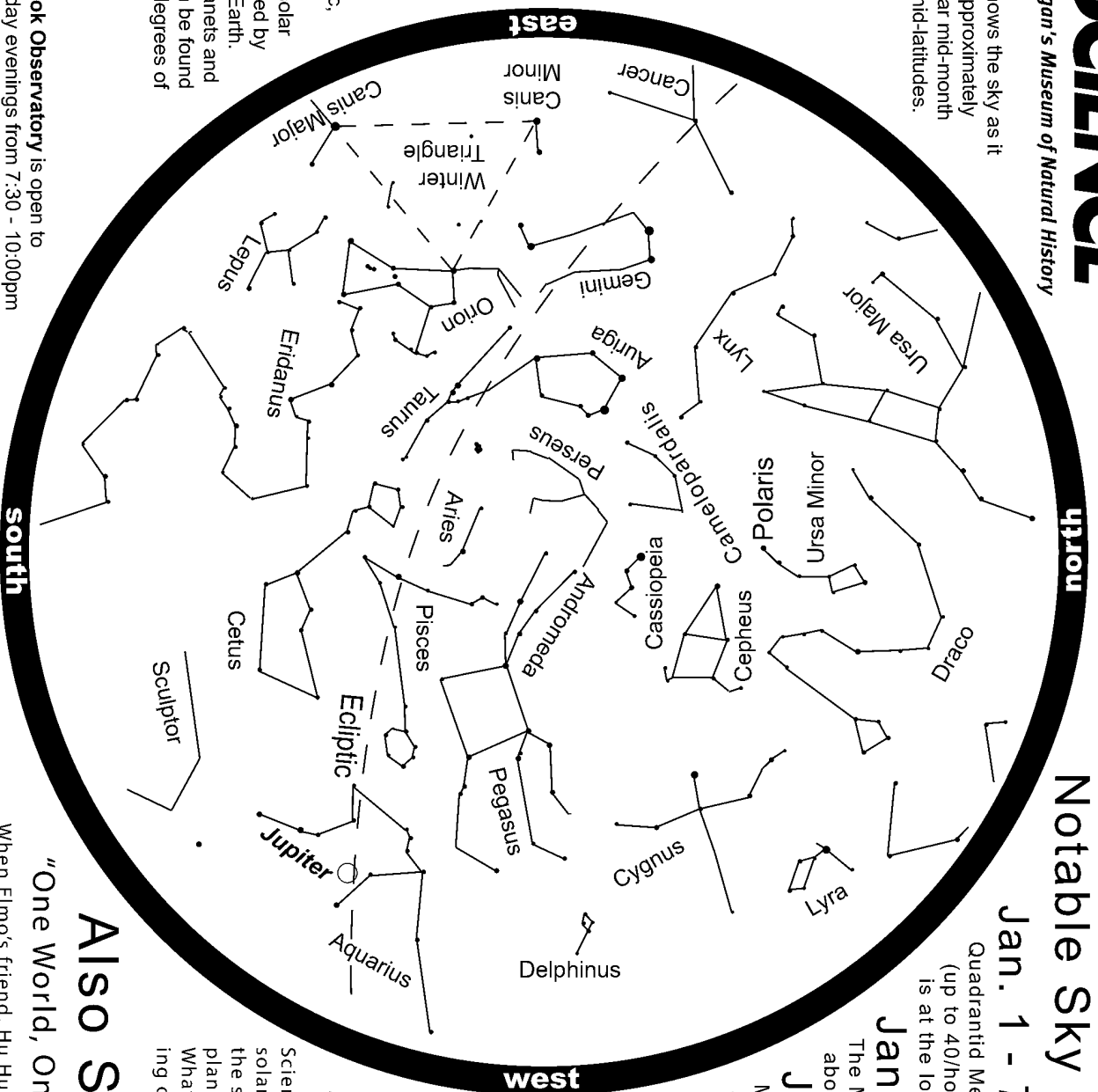
Scientists now believe that our galaxy is filled with solar systems, including up to a billion planets roughly the size of our own. How did Earth become a living planet in the wake of our solar system's violent birth? What does its history tell us about our chances of finding other worlds that are truly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



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 7:30 - 10:00pm EST, and the first Sunday of the month from 1:00 - 4:00pm for solar viewing. Come have a look through our telescopes! For observatory information visit <http://science.cranbrook.edu/explore/observatory>



Adrian Bradley - Sun in the Clouds

# January 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1  Moon at Perigee: 358037km New Years Day
2  NEW MOON	3  Quadrantid Meteor Shower Cranbrook	4	5	6	7  Mercury at Greatest Elong: 19.2°E	8
9	10	11	12  Pleiades 4.3°N of Moon	13	14  Moon at Apogee: 405806km	15
16	17  Martin Luther King Day FULL MOON	18	19	20  Macomb	21	22  Stargate Open House
23	24	25	26	27	28	29
30  Moon at Perigee: 362250km	31					



# Stargate Observatory

## Monthly Free Astronomy Open House and Star Party

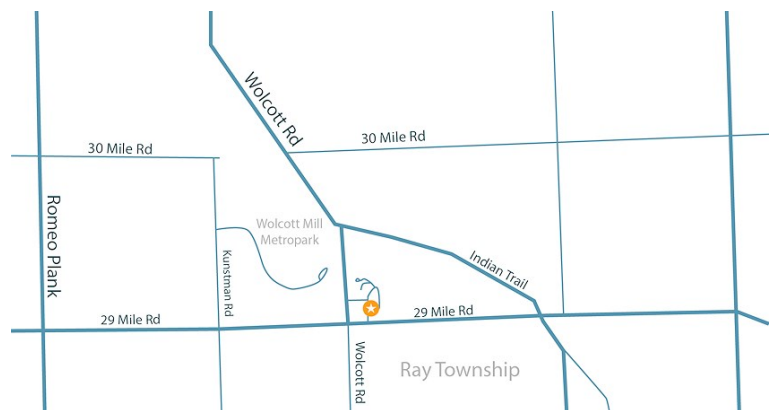
4th Saturday of the month!  
Wolcott Mill Metropark - Camp Rotary entrance

**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. Masks are encouraged, mandatory for children.

- Sky tours.
- See different telescope types in operation.
- Get help with your telescope.
- We can schedule special presentations and outings for scouts, student or community groups.

Contact: [outreach@warrenastro.org](mailto: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

### 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](mailto: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

## Report for December 18, 2021

The Observatory was opened at 6:01 pm. The sky was cloudy and snow was falling at times.

Both buildings and all equipment are in good condition. One visitor attended the open house.

The observatory was closed at 7:32 pm.

Next open house is scheduled for January 22, 2022.

Riyad I. Matti  
2022 2nd VP,  
Observatory Chairperson

## Treasurer's Report

### December 29, 2021

**Main account, Bank of America**..... \$21,675.62  
 Deposits:.....\$404.00  
 Withdrawals: .....\$0.00  
 Pending Deposits (Memberships, Calendars): .....\$203.50  
 Pending Withdrawals:.....\$15.90 (WebEx)  
 For all of 2021 - Deposits:..... \$2,214.48  
 For all of 2021 - Withdrawals:..... \$2,052.75  
 2021 Surplus Actual as of Dec 29, 2021: .....\$161.73  
 2021 Surplus after Pending Transactions:.....\$349.33  
**GLAAC account, Bank of America:** ..... \$3,263.95  
 Deposits:.....\$0.00  
 Withdrawals: .....\$0.00  
 NO CHANGE IN STATUS for 2021.  
**PayPal Account** as of Dec 29, 2021: ..... \$1,043.98  
 Money in (memberships, calendars, donations) :. \$960.86  
 Money out (reimbursement for calendar and banquet expenses) ..... \$1,052.86

### Total Memberships

192

### New Members

Eric Grishkevich, Caro MI. is a tech writer and heard about us through GLAAC.

Lisa Kulawczyk-Pringle, Detroit, MI. She would really like to use someone's telescope!

Adrian Bradley,  
Treasurer

## Astronomical Events for January 2022

Add one hour for Daylight Savings Time  
Source:

<http://astropixels.com/almanac/almanac21/almanac2022est.html>

Day	EST (h:m)	Event
01	18:00	Moon at Perigee: 358037 km
02	13:33	NEW MOON
03	16:00	Quadrantid Meteor Shower
03	20:23	Mercury 3.1°N of Moon
04	02:00	Earth at Perihelion: 0.98333 AU
04	11:50	Saturn 4.2°N of Moon
05	19:09	Jupiter 4.5°N of Moon
07	06:00	Mercury at Greatest Elong: 19.2°E
08	20:00	Venus at Inferior Conjunction
09	13:11	FIRST QUARTER MOON
12	19:58	Pleiades 4.3°N of Moon
12	23:19	Moon at Ascending Node
12	23:00	Mercury 3.4°N of Saturn
14	04:27	Moon at Apogee: 405806 km
15	18:00	Mercury at Perihelion
17	10:37	Pollux 2.6°N of Moon
17	18:49	FULL MOON
23	01:00	Venus at Perihelion
23	05:00	Mercury at Inferior Conjunction
25	08:41	LAST QUARTER MOON
27	01:14	Moon at Descending Node
27	17:57	Antares 3.7°S of Moon
29	10:05	Mars 2.4°N of Moon
30	02:09	Moon at Perigee: 362250 km



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

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## January 2022

As I write this final outreach report for 2021, the [James Webb Space Telescope](#) is on its way to the Earth-Sun L2 point, and I could not be happier about it. Unfortunately, COVID is on the rise *again*, and I'm much less happy about that in general, and the effect it has had on public astronomy outreach in particular.

I was recently contacted by the director of the [Mt. Clemens Discovery Center](#) - Diane Hall and I met with her shortly before the pandemic started. They're going to re-open in 2022, and are wondering if we'd be interested in doing some events with them. I'm going to say tentatively yes, but we'll see what the ongoing pandemic has to say about it.

I've said for years that I've wanted to restart the Messier observing program at Stargate - which could tie-in with the [Astronomical League's Messier observing program](#), so we can get our members AL awards. I'm thinking a committee might actually be needed... Anyone interested in helping?

I have a granddaughter now - I REALLY want to immerse her in astronomy. This should not be hard because astronomical imagery is *everywhere* in my home; she wears pajamas with constellations all over them, and I try to take her out to look at the stars whenever there are no clouds. Historically, the W.A.S. does a lot of public outreach with children, but children and young adults are few and far between at W.A.S. meetings. I'm not sure what to do about this... I'm just identifying a problem I'd like to work on.

## Member Spotlight

**Adrian Bradley:** Makes regular appearances on [Explore Scientific's Global Star Party](#).

**Ken Bertin:** Hosts a weekly "Astronomy of the Week" on [Facebook](#) every Wednesday. Ken also posted photos of the [Lunar Eclipse](#) and answered maybe a dozen questions.

**Timothy Campbell:**

Jan (date TBD) for Livonia Library — James Webb Space Telescope  
Jan (date TBD) for Dearborn Library — Astronomy 101

**Diane Hall and Marty Kunz** - host the weekly Space Pirates radio show on Wednesday evening (see ad)

*Thanks to everyone for all the outreach efforts!*

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## Michigan Dark Sky Update

(Edited from emails from Sally Oey)

**Detroit, Wayne State:** Michelle Serreyn, Andy Guinn, and Diane Cheklich are on the team developing Wayne



State's sustainability plan. Andy and Diane are on the **Built Environment Task Force, which has included recommendations for dark-sky compliant lighting** -- kudos on this major step! Michelle is on the Urban Biodiversity Task force, and also raised this issue, catalyzing a dark-skies interest network at Wayne State.

*(Continued on page 24)*

*(Continued from page 23)*

Tam Perry (School of Social Work) has circulated materials about dark skies to participants in her Aging and Environment project. There are also other MIDS members at Wayne State, especially in Physics and Astronomy, including Ed Cackett, who has been active in other MIDS initiatives.

**Detroit, Belle Isle:** Jerry Hasspacher has been networking and developing further possible strategies for moving forward with the initiative to have Belle Isle named an IDA Urban Dark-Sky Place.

**Cass County, MI / Elkhart, IN:** Plagued by lights from a new gas station, Vickie Hall managed to get a basic lighting ordinance passed in Porter Twp last year with help from Robert Parrish -- congratulations on that important accomplishment! As of right now, however, they're still having issues with enforcement, and Vickie has explored the possibility of a lawsuit. She also has interests in nearby Elkhart, IN, which is installing new, likely non-compliant, streetlights. Someone on Facebook wrote, "The four new ones on our corner ... light up our whole area like day. I could read a book ... inside a front room with the lights out." **Does anyone have experience with Indiana Michigan Power doing streetlight shielding, or have dark-sky resources in northern IN?**

**Ann Arbor:** A2 is looking better at night! Driving downtown, Huron Ave looks great -- the main cobra streetlights have modest brightness, and are fully shielded. Ironically, other streets with much less traffic have brighter streetlights. The new pedestrian globes on Ashley, Liberty, 5th, and elsewhere look good -- warm color, with blocking plates on the equator. They're brighter than ideal, but so much better than the older ones on Main. Similarly, driving around before 6am, it's clear that many, if not most, businesses and residences are aware of the curfew, with only some having their holiday lights on. A house on my block replaced their horrible blue-white porch light with a compliant warm-white bulb. Thank you to everyone for accomplishing these significant changes!

Also, many thanks to those who responded quickly to our call to support the new lighting ordinance on NextDoor. We now have a ND fire brigade thanks to Kate Barald, Rick Bunch, Sue Cares, Rita Mitchell, Shannon Murphy, Jeff Rechten, Shari Thompson, Heidi Trudell, and others. Thanks also to Tiffany Ng, John Mirsky, and Tomi Tonomura for alerting us to relevant ND activity. It's heartening to see that many citizens are already aware and supportive.

**State of Michigan:** Robert Parrish is interested in launching an initiative for a state-wide lighting code. He contacted his State Senator, Kim LaSata (R, Cass County), who co-sponsored the Senate proclamation for Dark-Sky Awareness Month (July 2021), but unfortunately she declined to take the lead. Potentially if we find a different Senator to do so, she could be persuaded to support, so we could be in a decent position, relatively speaking. **Please contact Robert if interested in exploring ([rbtparrish@comcast.net](mailto:rbtparrish@comcast.net)).**

**Jim Sheerin** shares this free iPad/iPhone app that [displays the locations of satellite constellations](#) from StarLink, OneWeb, etc. A new study by [Lawler+ \(2021, AJ 163, 21\)](#), shows the worst impacts to be near earth latitudes 40 and 50 deg N/S around the summer solstice.

**Pat Seitzer** shares this article from the Michigan Daily discussing student and faculty efforts to [promote more lights-out practices on the UM campus](#). CSG Vice President and MIDS member Carla Vogt is a leading advocate.

**Heidi Trudell** shares that [towns in Puerto Rico are changing outdoor lights to amber](#) colors to enable sea turtle hatchlings to find the sea.

**Reminder:** Please review our [Wish List of Action Items](#). If you can help move forward any items, please add your name and let us know, including adding new items. There's tons to do!

**New people: Welcome!** Please enter your name and info on the private Google page [Dark Sky Group Members](#) so we can see who we are and how best to leverage what we bring to the effort. Please browse and feel free to use the info in our Google docs, and to add to them.

**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 (VIRTUAL) BOARD MEETING DECEMBER 6, 2021 @ 6:30PM

Meeting called to order at 6:33PM by President Diane Hall.

Officers present: Diane Hall, Dale Partin, Riyad Matti, Mark Kedzior, Bob Trembley, Dale Thieme (quorum present). Also, in attendance – Outreach Chair-Elect Kevin McLaughlin.

### OFFICER REPORTS:

President Diane Hall reported that with the recent surge in COVID cases here in Michigan, WAS meetings will still be held virtually until further notice, but our Open Houses will still be held in-person unless circumstances arise that would change this monthly event. Diane also ran through the checklist of the Banquet details for December 9<sup>th</sup>: Order of program: Service Awards, featured speaker, slideshow, and raffle drawing.

Outgoing 1<sup>st</sup> VP Dale Partin reported that 2022 meeting presentations were booked through February 2022 with one each in March and April. He also commented and expressed his appreciation working with the 2021 WAS Board.

2<sup>nd</sup> VP Riyad Matti reported on his monthly inspection of Stargate and Dob Shed and found everything in good order. He also reported that the November Open House was cancelled due to inclement weather.

Secretary Mark Kedzior reported on the Grosse Pointe Library Telescope Program and the facilities upgrades that are taking place.

Outgoing Outreach Chair Bob Trembley gave his outreach activities report and the contributors who did events in November.

Publications Chair Dale Thieme reports the December WASP is available and posted on the WAS website.

### OLD BUSINESS:

2022 WAS Calendars have arrived – Mark Kedzior volunteered to prepare and mail calendars to those who purchased them, with assistance from Dale Thieme. Calendar cost is \$15.00 each plus \$5.00 shipping/handling. Discussion on MailChimp took place.

### NEW BUSINESS:

Discussion on the banquet door prize selection process. Mark Kedzior will host the drawing.

Motion by Dr. Dale Partin – second by Dale Thieme to adjourn meeting.

Motion passed.

Meeting adjourned at 7:07 PM by President Diane Hall.

Respectfully submitted,  
Mark Kedzior  
Secretary

## WARREN ASTRONOMICAL SOCIETY CRANBROOK (VIRTUAL) MEETING DECEMBER 6, 2021 7:30PM

Meeting called to order at 7:32 PM by President Diane Hall. All officers were present and in attendance (Attendance via WebEx – 30, YouTube – 10 at 8:30PM).

### OFFICER REPORTS:

President Diane Hall reported that due to the recent surge in the COVID pandemic in Michigan, the WAS will still meet virtually until further notice. She also reported on the upcoming Annual Awards Banquet on December 9<sup>th</sup>, and that the 2022 WAS Calendars have arrived and will be shipping shortly to those who purchased one.

Outgoing 1<sup>st</sup> VP Dr. Dale Partin reports that our main presenter for the December 9<sup>th</sup> Banquet will be Adrian Bradley, with “Pictures of the Sky”. At the January 3, 2022 Cranbrook meeting, Dr. Valeriy Sterligov will be presenting the short “Self-Made Bright Artificial Star”, followed by the main presentation with Ken Bertin on “The Birth, Life and Death of Stars”. At the Macomb January 20<sup>th</sup> meeting, Bob Trembley and others will be doing a panel-type discussion on “What First Got You Interested in Astronomy”.

2<sup>nd</sup> VP Riyad Matti reported the November Open House was cancelled due to inclement weather. The next Open House will be held in-person on December 18<sup>th</sup>, while continuing to maintain safety measures put in place so as to continue in-person observing at Stargate. He also thanked Doug Bock for hosting his virtual observing on the open house dates, and thanked Jonathan Kade and Dale Thieme for posting the notifications to the membership regarding the open house events.

Secretary Mark Kedzior reported the November meeting minutes are posted in the December WASP and read the list of door prizes that have been donated for our virtual banquet.

Treasurer Adrian Bradley read the current balances of the WAS, GLAAC and PayPal accounts. He encouraged renewing memberships and purchasing calendars and Astronomical League memberships through PayPal. He also announced new members who have joined the WAS, and reports he received an award certificate from the Royal Astronomical Society of Canada as a qualified wide field imager.

*(Continued on page 26)*

(Continued from page 25)

Outgoing Outreach Chair Bob Trembley reported on members who were active in outreach presentations/activities (mainly online.)

Publications Chair Dale Thieme reports the December WASP is online, and that 2022 WAS Calendars are being prepped for mailing.

### SPECIAL INTEREST GROUPS:

Solar - some sunspots and active regions observed. Double Star Group - List of targeted stars will be available at the December 18<sup>th</sup> Open House - will also observe visible planets plus Uranus and Neptune. History - on hiatus until January. Astronomical League - Explore Scientific Virtual Star Parties on Tuesdays - contact Adrian Bradley for details. Astrophotography - no report.

### OBSERVING REPORTS:

David Levy reports on viewing the recent lunar eclipse, with this being his 96<sup>th</sup> observed eclipse - read a quotation from Dylan Thomas - also reports on the formation of the Junior Astronomical League sub group, to encourage our youth in finding an interest in astronomical pursuits. Ken Bertin reported on the total solar eclipse in Antarctica. Riyadh Matti showed his image of the lunar eclipse taken at 2:42AM. Dale Hollenbaugh shared images from Bortle 1 skies in West Texas of the Milky Way - also images of Venus and a lunar eclipse montage. Jon Blum reported on a lunar eclipse party held at the Fox Run Sr. Community Center. Diane Hall reports on uncooperative skies at a dark sky site up north - also reports this is becoming the time of the year to observe the "Winter Hexagon" - an asterism of Capella, Aldebaran, Rigel, Sirius, Procyon, Castor, Pollux and Betelgeuse in the center.

### SHORT PRESENTATION:

Dr. Dale Partin introduced Dale Thieme (with bio) and his presentation "Triumph and Tragedy in Three Acts" - the story of Robert Burnham Jr., author of the popular and renown three volume book "Burnham's Celestial Handbook". In Act I, he describes his early years, from making his own loose-leaf version of his celestial manual, being employed at Lowell Observatory, and getting his celestial handbook published by Dover in 1976. Act II explains beginning of setbacks, then his disappearance from Flagstaff, then found in Newport Beach, CA in 1985. Act III finds him disappearing for good but finally found in San Diego's Balboa Park selling paintings of cats, with nobody knowing he was the author of the acclaimed handbooks. He passed away in 1993, with his family finding out his passing in 1995. Asteroid 3467 Bernheim (his German ancestral spelling of his last name) - (1981 SF2) was named for him - he also discovered six comets - a plaque commemorating Robert is placed at Lowell Observatory. Questions and discussion followed this informative presentation (*Secretary's note: How many of you own his three volume Celestial Handbook by Robert Burnham Jr.? - I do!*).

### MAIN PRESENTATION:

Dr. Dale Partin introduced Bob Trembley (with bio), who, along with panelists David Levy, Diane Hall, Ken Bertin, and Constance Martin-Trembley, discussing the topic "Anti-Science Sentiment in the US". Bob provided the background on this subject, then the panelists began their round table discussion, sharing their experiences in both public and institutional settings on this topic. Also contributing in the discussion were Therese Oldani and Adrian Bradley.

To see tonight's presentations in their entirety, go to:

<https://www.youtube.com/warrenastro>

Meeting ended at 10:00 PM.

Mark Kedzior  
Secretary

## WARREN ASTRONOMICAL SOCIETY 2021 ANNUAL AWARDS BANQUET

DECEMBER 9, 2021 @ 7:30PM

The Annual Awards Banquet of the Warren Astronomical Society began with a welcome to all by President Diane Hall (Attendance via WebEx - 21, YouTube - 9).

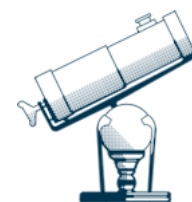
Diane began tonight's program with her remarks on the 2021 Year in Review: the WAS celebrating its 60<sup>th</sup> Anniversary - Dale Thieme being awarded the Astronomical League's Mabel Sterns Award for the WASP Newsletter - the passing of Penny Wayne, Sid Keeler, Gary Flatt, and former WAS President and prolific observer Mike Simonsen - Sincere Thanks to all of the 2021 WAS meeting presenters, and contributors in outreach and articles to the WASP - Thank You to the 2021 WAS Board and welcome to the incoming 2022 WAS Board.

The 2021 WAS Service Awards were presented: the Bob Watt Award to Bill Beers - the Larry Kalinowski Award to Jonathan Kade - the E. John Searles Award to Doug Bock. Our Keynote presentation was by WAS Treasurer Adrian Bradley, with "Pictures of the Night Sky", featuring his seven-minute slideshow travelogue with selected music and splendid astro-images.

The final event of the evening was the drawing of donated door prizes from Celestron, Software Bisque, Protostar Telescope Making & Upgrading, Dr. Dale Partin, Dale Thieme, and a Galileo 5" EQ Reflector telescope.

The banquet ended at 9:00 PM.

Mark Kedzior  
Secretary



## 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
<a href="#">Astronomy Club at Eastern Michigan University</a>	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
<a href="#">Farmington Community Stargazers</a>	Farmington Hills	Members: Last Tuesday of the month Public observing: 2nd Tuesday of the month
<a href="#">Ford Amateur Astronomy Club</a>	Dearborn	Fourth Thursday of every month (except November and December) at 7:00 PM
<a href="#">McMath-Hulbert Astronomy Society</a>	Lake Angelus	Board and paid members-First Sunday of the month Public open house—first Saturday at 11 am
<a href="#">Oakland Astronomy Club</a>	Rochester	Second Sunday of every month (except May)
<a href="#">Seven Ponds Astronomy Club</a>	Dryden	Monthly: generally the Saturday closest to new Moon
<a href="#">Sunset Astronomical Society</a>	Bay City/Delta College Planetarium	Second Friday of every month
<a href="#">University Lowbrow Astronomers</a>	Ann Arbor	Third Friday of every month
<a href="#">Warren Astronomical Society</a>	Bloomfield Hills/ Cranbrook & Warren/ MCC	First Monday & third Thursday of every month 7:30 PM

### GLAAC Club and Society Newsletters

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

### 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](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

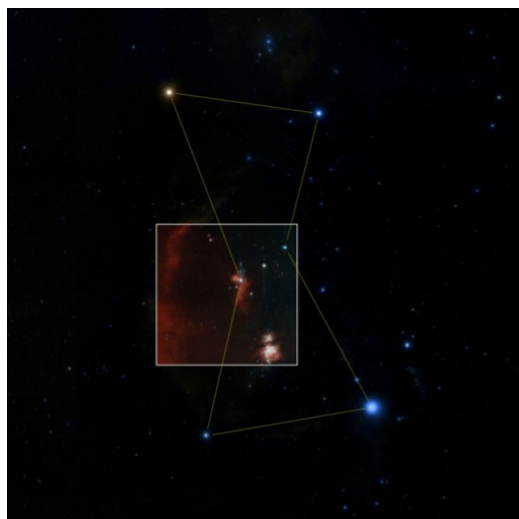
## Hunting the Hunter: Observing Orion

**David Prosper**

If you are outside on a clear January night, it's hard not to notice one distinctive star pattern above all: **Orion!** While we've covered Orion in earlier articles, we've never discussed observing the constellation as a whole. Perhaps you've received a new telescope, camera, or binoculars, and are eager to test it out. Orion, being large, prominent, and full of interesting, bright objects, is a perfect constellation to test out your new equipment and practice your observing skills - for beginners and seasoned stargazers alike.

In Greek mythology, Orion is a strong hunter, with numerous legends about his adventures. Being such a striking group of stars, cultures from all around the world have many myths about this star pattern. There are so many that we can't list them all here, but you can find a wonderful interactive chart detailing many cultures' legends on the Figures in the Sky website at [figure-sinthesky.visualcinnamon.com](https://figure-sinthesky.visualcinnamon.com).

What sights can you see in Orion? Look above the variable orange-red supergiant "shoulder star" Betelgeuse to find the stars making up Orion's "club," then move across from Betelgeuse towards the bright star Bellatrix (Orion's other "shoulder") and the stars of his bow and arrow - both essential tools for the Hunter. Many interesting sights lie near Orion's "belt" and "sword." Orion's belt is made up of three bright giant stars forming an evenly spaced line: Alnitak, Alnilam, and Mintaka. Move from the belt stars towards the stars Rigel and Saiph (Orion's "feet" or "knees") to arrive at Orion's distinctive Sword, parts of which may appear fuzzy to your unaided eyes. Binoculars reveal that fuzz to be the famed Orion Nebula (M42), perched right next to the star Hatysa! Diving in deeper



The inset image is the "first light" photo from the Zwicky Transient Facility, a large survey telescope designed to detect changes in the entire night sky by detecting "transient objects" like comets, supernovae, gamma ray bursts, and asteroids. For many astronomers, amateur and pro alike, Orion is often the "first light" constellation of choice for new equipment!

Image Credit: Caltech Optical Observatories

with a telescope will show star clusters and more cloud detail around the Nebula, and additional magnification brings out further detail inside the nebula itself, including the "baby stars" of the Trapezium and the next-door neighbor nebula M43. Want to dive deeper? Dark skies and a telescope will help to bring out the reflection nebula M78, the Flame Nebula (NGC 2024), along with many star clusters and traces of dark nebula throughout the constellation. Very careful observers under dark clear skies may be able to spot the dark nebula known as the Horsehead, tracing an equine outline below both the Belt and the Flame Nebula. Warning: the Horsehead can be a difficult challenge for many stargazers, but very rewarding.

This is just a taste of the riches found within Orion's star fields and dust clouds; you can study Orion for a lifetime and never feel done with your observations. To be fair, that applies for the sky as a whole, but Orion has a special place for many. New telescopes often focus on one of Orion's treasures for their first test images. You can discover more of NASA's research into Orion's stars - as well as the rest of the cosmos - online at [nasa.gov](https://nasa.gov).



Northern Hemisphere observers can find Orion during January evenings in the east/southeast skies. Can you spot the Orion nebula with your naked eye, in Orion's sword? How does it look via binoculars or a telescope? What other details can you discern? Please note that some deep sky objects aren't listed here for clarity's sake. For example, M43, a nebula located directly above M42 and separated by a dark dust lane, is not shown. Orion's Belt and Sword are crowded, since they star-forming regions! You can read more in our November 2019 article *Orion: Window Into a Stellar Nursery*, at [bit.ly/orionlight](https://bit.ly/orionlight).

Image created with assistance from Stellarium.