



Vol. 50, no. 9

# The W.A.S.P.



September, 2019

## The Warren Astronomical Society Paper



# Astronomy at the Beach

September 13, 14

Photo credits: Jonathan Kade, Brian Thieme, Joe Tocco

# 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.
- Free use of W.A.S. library. See librarian.

The Warren Astronomical Society Paper (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.

**Library.** The Society maintains a library of astronomy-related books and periodicals at the Cranbrook meeting location. See the librarian, Jonathan Kade, to check out a book.

# Snack Volunteer Schedule

Sep 9	Cranbrook	Mike O'Dowd
Sep 19	Macomb	Mark Jakubisin
Oct 7	Cranbrook	David Baranski
Oct 17	Macomb	Geoffrey Vasquez

If you are unable to bring the snacks on your scheduled day, or if you need to reschedule, please email the board at [board@warrenastro.org](mailto:board@warrenastro.org) as soon as you are able so that other arrangements can be made.



## Discussion Group Meeting

Come on over, and talk astronomy, space news, and whatnot!

**When:** Wednesday, September 18, at 6:30pm.

**Where:** 3219 Woodside Ct. Bloomfield Hills, MI

## Amenities and Refreshments:

Laura will provide wines, Coke, hot tea, coffee, and garden salad with vegetables in it.

Members can bring snacks or desserts of their choice.

For particulars, contact [info@warrenastro.org](mailto:info@warrenastro.org)

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# ASTRONOMY AT THE BEACH

SEPTEMBER 13TH & 14TH

6:00 PM - Midnight

**FREE PUBLIC EVENT**

[WWW.GLAAC.ORG](http://WWW.GLAAC.ORG)

## ACTIVITIES

Bring your friends, family, and co-workers to a fun filled evening under the moon.  
Additional details can be found at [www.glaac.org](http://www.glaac.org)



### TELESCOPES

Come out and take a look through some amazing telescopes



### PRESENTATIONS

Family friendly, fact filled exhibitions



### HANDS ON SCIENCE

Fun filled activities for all ages

## ISLAND LAKE STATE PARK

6301 Kensington Rd, Brighton, MI 48116

## Friday & Saturday at Island Lake Picnic Area

What To Bring: Sweatshirt, Bug Spray (please put on before arriving), Telescope (not necessary to attend), Chairs or Blankets (optional)

*State Park Recreational Pass needed to enter ([www.michigan.gov/dnr](http://www.michigan.gov/dnr))*

GET IN TOUCH: • 1 586-709-5888 • 6301 Kensington Rd, Brighton, MI 48116 • [www.glaac.org](http://www.glaac.org)



## President's Field of View

What can you say about a month like August? Well August was the end of my summer semester, Spanish one is behind me, one semester of Spanish to go, muy bueno! The Fall semester at Wayne has started with a bang, its stellar physics and thermodynamics for the rest of the year. I am pretty excited about stellar physics, I'm lukewarm to thermo. But the beginning of classes also coincided with me hosting the discussion group in the planetarium as well as an astronaut, Colonel Shane Kimbrough visiting the engineering building at Wayne State. So, it was a fun packed day for me, I went from stellar, to astronaut to discussion group! The discussion group got off to a rocky start, my apologies to anyone that got to the planetarium on time, I was the late one. However, I was told meeting an astronaut was an acceptable excuse. The meeting began by me setting off the planetarium alarms. That woke everyone up, but eventually we got in, booted up the system and started showing people some Messier objects under the dome. We had many first-time attendees, so I hope to do more of these type of events in the future. We talked about Messier himself, M1, M57, M13, M42, M31, and more, if you don't know the numbers that's the crab nebula (supernova remnant), the ring nebula (planetary nebula), the Hercules cluster (globular cluster), the Orion Nebula (stellar nursery), and Andromeda (spiral galaxy). We also talked about lunar librations and the death of the universe. It was a fun and productive discussion group. The most productive part was when an attendee revealed that he works for Spitz (the people who make the planetarium systems) and help me fix some bugs we had been dealing with. Thanks again Dave!

Okay so its September, you all know what that means don't you? Astronomy at the Beach! If you have been under a rock or in Canada the past week like I have been maybe you haven't heard. So, here are the detail (they are also in the WASP in other places and online). It will take place September 13th & 14th (Friday Saturday) from 6pm to Midnight. Happening in the Kent lake area of Island Lake State Recreation Area. The theme this year is "Apollo 11 50th Anniversary" So come out, bring a scope or not, volunteer or just bring yourself. Definitely tell everyone you know! Let make this year one for the history books.

August was also probably the hardest month I have every had as president of this club. I admittedly made some miscalculations I wish I had not made, things got heated, things were said. I will spare you the details as they are truly unimportant. The end result is that Ken Bertin is stepping down from his role as our bimonthly "In The News" presenter. Who is replacing him? You are! "In The News &

In The Sky" (ITN/ITS) will now be presented by an individual from an ITN group, anyone who is interested in presenting ITN for a meeting may join this team. We are hoping this will bring more members to the podium and get more people comfortable with presenting. I am hoping that this will lead to more short talk/long talks from members and maybe be a stepping stone to becoming a board member. I would personally like to thank Ken Bertin for his years of service to the club in his many capacities, as the presenter of ITN as long as I have been a member, as a former President and as one of our most active outreach participates, and as a personal friend. If you are interested or have any questions about how to do ITN/ITS please reach out to me, there are many of us who are willing to help.

So, time for another math problem. This month lets do something a bit easier, maybe. You are going to travel to the Andromeda Galaxy 2.5 million light years away (a light year is ). I will give you a craft much faster than any current spacecraft, but slow enough that you do need to concern yourself with space warping or time dilation or anything like that. Your craft goes 100km/s! That's fast, New Horizons only goes 16.26km/s, Voyager 1 is leaving the solar system at 16.98km/s, and Juno was briefly accelerated by Jupiter to 73.8km/s! The question is, how many years will it take you to reach the andromeda galaxy? Remember, no Einstein stuff. Easy right?



### Club Member Name Tags

Email [publications@warrenastro.org](mailto:publications@warrenastro.org) for your personalized name tag

### Lecture Opportunity

The **Southeastern Michigan Sierra Club** is having a meeting Thursday, September 5th at 7 PM at the Royal Oak Elks Club on Fourth Street and Chrysler Service Drive. The speaker is Sally Oey, U of M Professor of Astronomy, and will describe the benefits of darkness for us and our fellow beings while suggesting ways to navigate our nighttime lives with less escaped light. Presentation is free and open to all. It's a fairly large room but try to get there early.



## Letters

### UFOMANIA

I am in the Englehardt Branch of the Kent Library, after coming in flying on Meijer's gas station coffee, but not the only one flyin'. What greeted my bleary gaze -- after dawn at the Veen Observatory -- whilst walking by the reference desk?

An array of books on Unidentified Flying Objects, "great balls of fire", probably a Scriptural reference to aurorae. None of the books had that on the covers, pardon a learned aside

For full disclosure, when I was a boy and a little beyond, I was a U.F.O. semi-enthusiast. Oh, the thrill, the mystery in early spring of 1966, when J. Allen Hynek, Professor of Astronomy, came to Detroit for a press conference about mysterious sightings in Washtenaw and possibly Livingston/ Jackson Counties. Even the great (much missed) John F. Szymanski kissed his new bride, and from the east side of Detroit, mounted an expedition to the then remote country. One late night in that legendary spring I was observing west of Oxford in Oakland County -- keeping an eye out for strange glows hovering. Years later I wrote a prose poem about those heady days. Looking back in embarrassment, I was as "they" say, young.

No longer young now, with sense of wonder sinking beneath a weight of empiricism and geriatric ennui which began very early. After a lecture by Dr Hynek aboard H.M.S. Canberra in 1973, the (now) great and not missed Mark John Christensen said: U.F.O. canoodling was "non-verifiable". I noted the phrase, having used it occasionally with hoped-for deadly effect. Professor-to-be Christensen was, as usual, disappointingly correct.

The W.A.S.P. is not the place to explore the individual and social psychology of "great balls [or tiny] balls of fire". Better men like Carl Gustav Jung in the 1950's have addressed what "flying saucers" may signify in contemporary society. More over, waxing "verbose" might offend some within the ambit of our Astronomical Society, including a former editrix.

Of note is that not seen on special display: astronomy. Mundane stuff, not what inflames the imagination about What Might Be. Are there things science can not explain? (Yes, Unified Field Theory or the generation of the Soul from electrical impulses and biochemical cascades.) Are there things which big bad government is keeping from us? (Yes, like how yawning deficits will help us through a possible recession.) Astronomy is just poking around in the mostly night sky. Ho-hum.

I have been told the Englehardt is for "family" clientele, a small regional shop of the Kent umbrella. No, I will not be annoying (me?) to point out mistaken priority. They want to encourage patronage, good policy and not make a fuss.

All astro-honchos have been at public star parties to confront the two questions: Have you seen any thing mysterious up there? Do you believe in "aliens", translation; extra-terrestrials. Seriatim: Yes. I see possibly two unidentified satellites per observing session, some telescopically. Yes. There are worlds of them extremely far away, which man will not discover with current technologies. Also there are approximately 11.1 millions within American borders, albeit better looking.

You will miss me when I have gone, G. M. Ross

## 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!

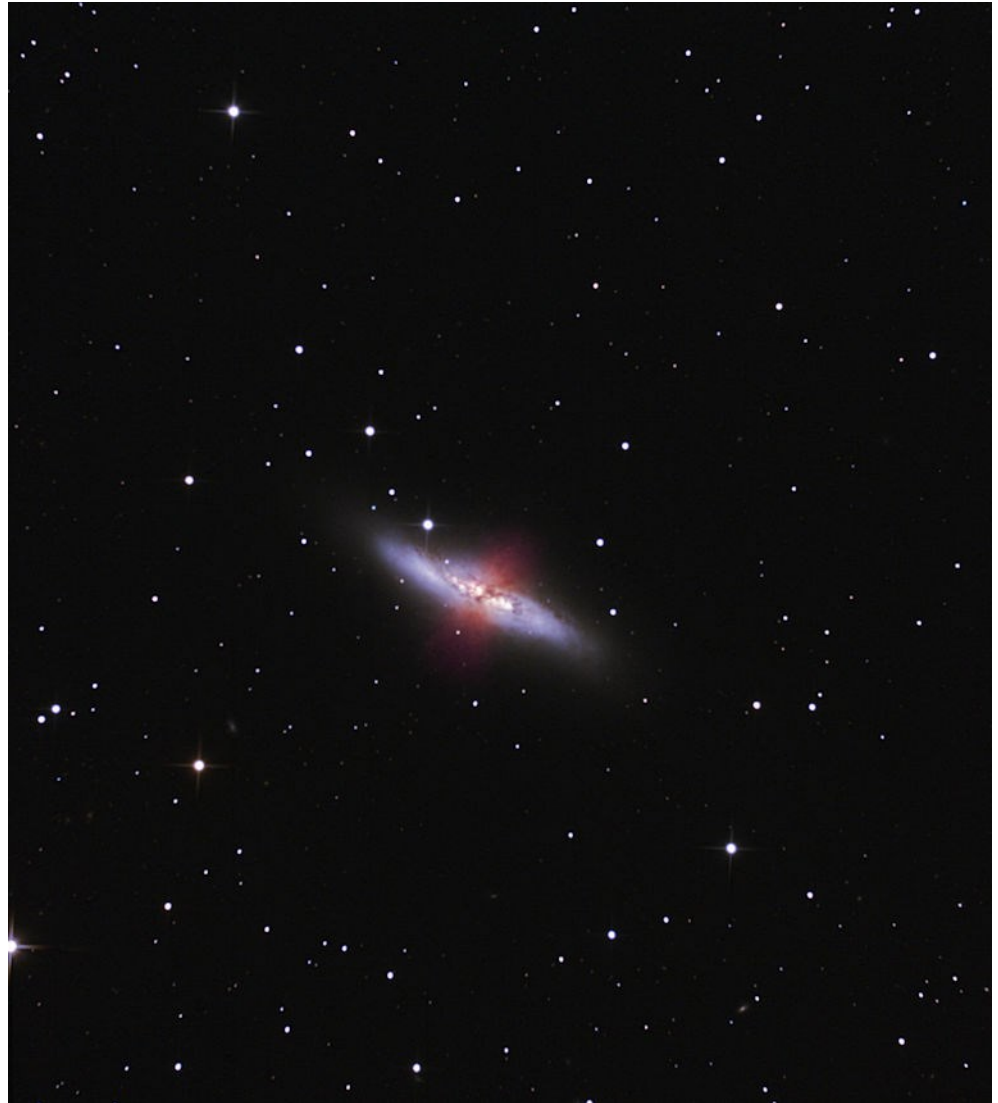
Send items to: [publications@warrenastro.org](mailto:publications@warrenastro.org)

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 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.

# The View From C.W. Sirius Observatory

## M 82

Messier 82 (also known as NGC 3034, Cigar Galaxy or M82) is a starburst galaxy approximately 12 million light-years away in the constellation Ursa Major. A member of the M81 Group, it is about five times more luminous than the whole Milky Way and has a center one hundred times more luminous than our galaxy's center. The starburst activity is thought to have been triggered by interaction with neighboring galaxy M81. As the closest starburst galaxy to Earth, M82 is the prototypical example of this galaxy type. M82 was first discovered by Johann Elert Bode on December 31, 1774 together with M81; he described it as a "nebulous patch", about 0.75 deg away from M81, "very pale and of elongated shape". In 1779, Pierre Méchain independently rediscovered both galaxies and reported them to Charles Messier, who added them to his catalog. In 2005, the Hubble Space Telescope revealed 197 young massive clusters in the starburst core. The average mass of these clusters is around 200,000 solar masses, making the starburst core a very energetic and high-density environment. Throughout the galaxy's center, young stars are being born 10 times faster than they are inside the entire Milky Way Galaxy, causing the reddish plumes of hydrogen blasting out from its central region. M82 can be viewed using a small telescope in relatively dark skies. But using a 10" or larger telescope can reveal the nice vertical dark lane that runs through the center.



### 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.



# From the Desk of the Northern Cross Observatory

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## FALL OBJECTS

Doug Bock | Galaxies | August 24, 2019

### Objective

This month I decided to image some more galaxies. This collection is from both now and last fall.

### Process

Both objects took multiple nights of data acquisition. Stacked with Deep Sky Stacker, processing performed in PixInsight.

### Equipment

10" f/8 RC telescope, with the Asi071mc one shot color camera.

Losmandy g11 mount

## IC 342

From Wikipedia:

**IC 342** (also known as **Caldwell 5**) is an [intermediate spiral galaxy](#) in the [constellation Camelopardalis](#), located relatively close to the Milky Way. Despite its size and actual brightness, its location in dusty areas near the [galactic equator](#) makes it difficult to observe, leading to the nickname "The Hidden Galaxy",<sup>[4][1]</sup> though it can readily be detected even with binoculars.<sup>[5]</sup> The dust makes it difficult to determine its precise distance; modern estimates range from about 7 Mly<sup>[6]</sup> to about 11 Mly.<sup>[2]</sup>

The galaxy was discovered by [William Frederick Denning](#) in 1892.<sup>[7]</sup> It is one of the brightest in the [IC 342/Maffei Group](#), one of the closest [galaxy groups](#) to the [Local Group](#). [Edwin Hubble](#) first thought it to be in the Local Group, but it was later determined not to be a member.<sup>[8]</sup>

In 1935, [Harlow Shapley](#) found that it was wider than the [full moon](#), and by angular size the third-largest spiral galaxy then known, smaller only than the [Andromeda Galaxy](#) (M31) and the [Triangulum Galaxy](#) (M33).<sup>[9]</sup> (Modern estimates are more conservative, giving the apparent size as one-half to two-thirds the diameter of the full moon).<sup>[1][5]</sup>

It has an H II nucleus.<sup>[10]</sup>

THE DATA ACQUISITION WAS 12 HOURS 39 MINUTES OVER 3 NIGHTS (AUGUST 23-25, 2019).

*(Continued on page 7)*

## IC 342 (CALDWELL 5)



## NGC 7331, the Deer Lick Group and Stephan's quintet

From Wikipedia:

**NGC 7331 Group** is a group of galaxies in the [constellation Pegasus](#). [Spiral galaxy NGC 7331](#) is the brightest member of the group. This group is also called the *Deer Lick Group*,<sup>[1]</sup> and contains four other members; NGC 7335, NGC 7336, NGC 7337 and NGC 7340, affectionately referred to as the "fleas".

**Stephan's Quintet** is a visual grouping of five [galaxies](#) of which four form the first [compact galaxy group](#) ever discovered.<sup>[2]</sup> The group, visible in the constellation [Pegasus](#), was discovered by [Édouard Stephan](#) in 1877 at the [Marseille Observatory](#).<sup>[3]</sup> The group is the most studied of all the compact galaxy groups.<sup>[2]</sup> The brightest member of the visual grouping is [NGC 7320](#) that is shown to have extensive [H II regions](#), identified as red blobs, where active star formation is occurring.

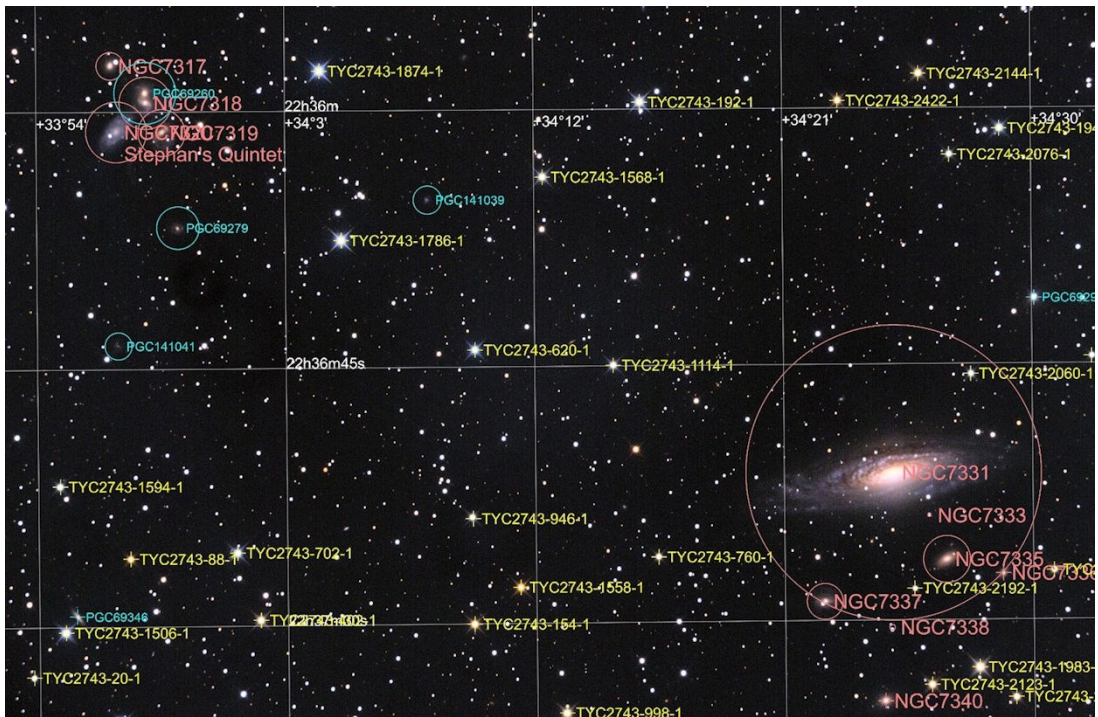
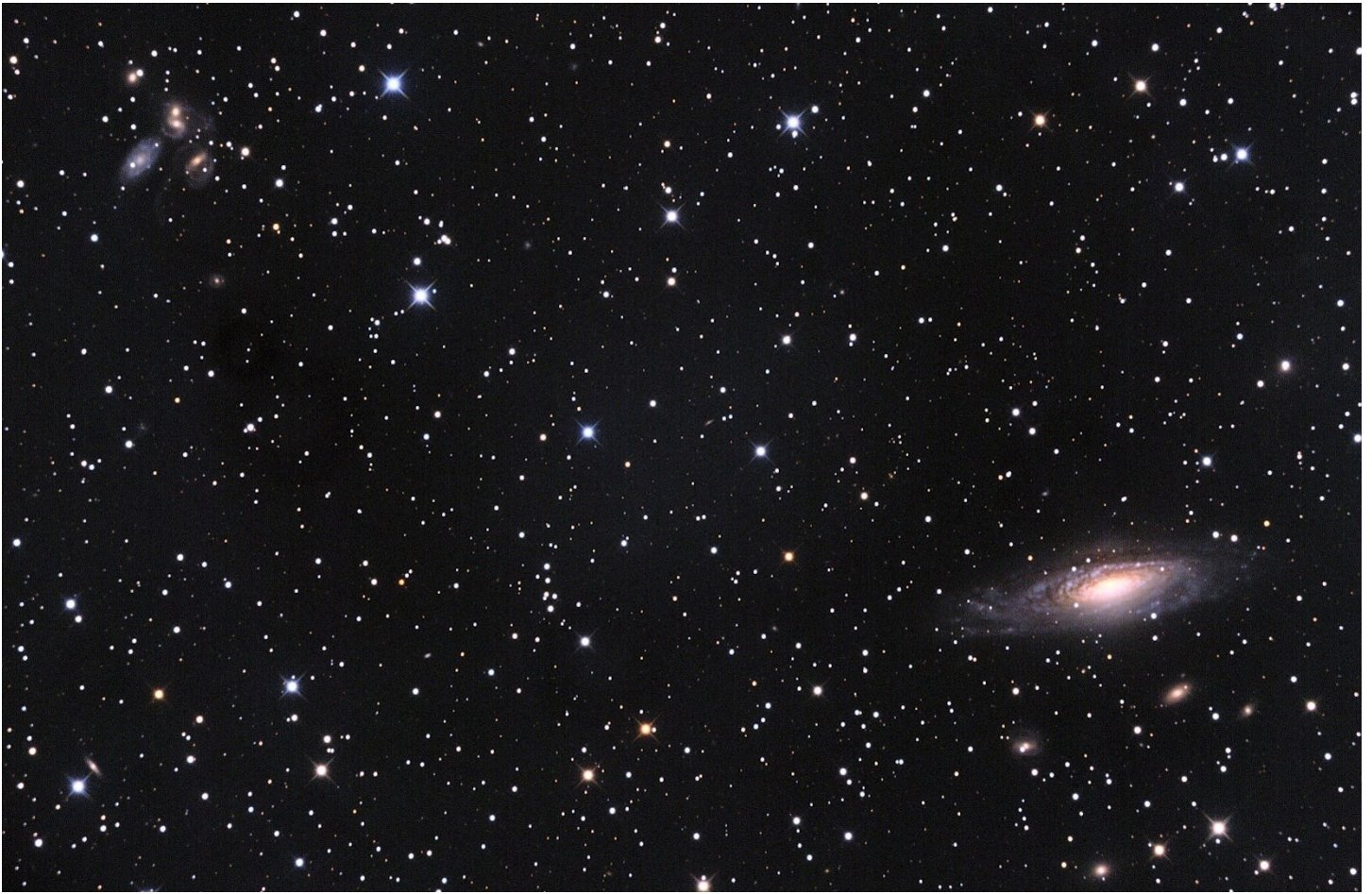
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(Continued from page 8)

THE DATA ACQUISITION WAS 6 HOURS AND 5 MINUTES

NGC 7331, the Deer Lick Group and Stephan's quintet

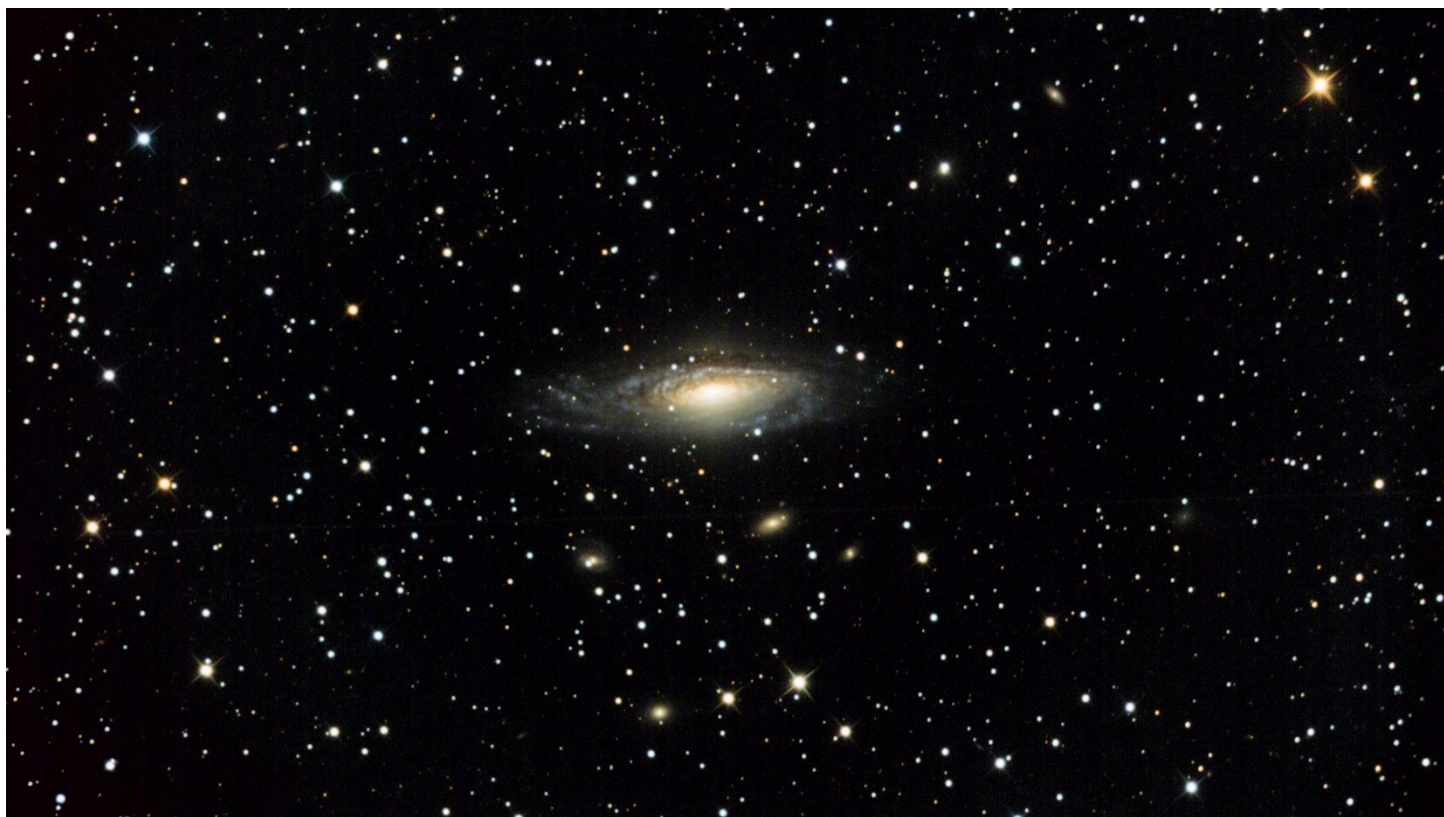


Location Chart

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*(Continued from page 9)*

## NGC 7331 AND THE DEER LICK GROUP - DATA ACQUISITION - 8 HOURS 21 MINUTES



## STEPHANS QUINTET - DATA ACQUISITION - 9 HOURS 5 MINUTES





# Movie Review

By Diane Hall

## From the Earth to the Moon (1998)

To celebrate the 50th Anniversary of Apollo 11's Moon landing, former President Diane Hall will be contributing a series of space-themed movie reviews to the WASP in upcoming months. On to something that isn't a movie but remains essential two decades after its release.

Disc One:

"Can We Do This?"

"Apollo One"

"We Have Cleared the Tower"

While it never appeared in theaters, no run-down of Space Race dramatizations is complete without a look at *From The Earth to the Moon*, the 1998 miniseries that included *Apollo 13*'s Ron Howard and Tom Hanks among its co-producers. Despite hailing from an era in which "TV movie" was a pejorative and television in general lacked the script and production values regularly found today, this well-researched and splendidly-cast series uses its twelve hours of runtime to do what couldn't be done in a two or three hours of a feature film— come close to telling What Actually Happened in an enjoyable way. It helps that the book on which the series was modeled, Andrew Chaikin's *A Man of the Moon*, itself possesses a knack for a strong narrative and colorful character detail.

The first three episodes of the series, found on Disc 1 of the box set, function like the three acts of a drama whose central event is the fire that killed the crew of Apollo 1. The first episode ("Can We Do This?") is the rising action as the space program rises from dull boardroom hypotheticals to the sublime success of the Gemini 12 mission; it's a merry-go-round of new faces and new technology that captures the go-go frenzy of the race to the moon while also capturing small character moments that make a space geek like me nod in satisfaction— Elliot See (Steve Zahn) gets a speaking role, fercryingoutloud!



Actors now familiar from 21st-century prestige television (Bryan Cranston, Mark Harmon, John Slattery) pepper the cast and former Senator Al Franken appears as a Kennedy-era science adviser. Cranston's turn as Edwin "Buzz" Aldrin seems particularly apt in retrospect given Cranston's success at playing the antihero; it almost seems a waste we aren't given more time with his moody Aldrin, but he'll have to wait his turn because the way things stand at the end of the first episode, Gus Grissom (Mark Rolston) is slated to be the first man on the moon.

That, of course, doesn't happen. "Apollo One" focuses not just on the fire's impact on the astronauts and their families but on how the catastrophe swept up the lives and careers of two men with desk jobs, NASA's Joe Shea and North American Aviation's Harrison Storms. It's an interesting choice to humanize these behind-the-scenes guys and there's enough workplace gallows humor to pull it off. "We Have Cleared the Tower" then introduces a fictional documentary crew (kitted out in groovy shirts and Lennon glasses) as a framing device for the Apollo 7 mission; the series will use similar ploys in later episodes to keep the series from feeling like a singular twelve-hour docudrama. While Hanks introduces each episode, a rotating cast of directors also keeps the results from feeling like specifically like a twelve-hour *Ron Howard movie*.

"We Have Cleared the Tower" ends on a note of triumph as Apollo 7 blazes into the skies on its Saturn 1B rocket, but the space aficionado knows that the mission, while technically successful, will go sour and erupt into a mutiny that kills the careers of the two junior crew members, Donn Eisele and Walt Cunningham. Apollo 7 could've been dramatized as an acidic workplace sitcom with Wally Schirra (Harmon) as its disgruntled center of gravity, but that real-life drama is only hinted at here. Instead, Apollo 7 makes for the theatrical falling action that redeems the Apollo 1 tragedy— the rocket flies, the command module doesn't catch fire, and the last of the Mercury Seven rides off into history, passing the torch to the next generation of astronauts who will actually make that journey from the Earth to the Moon.

Works for me. Can't wait for Disc 2.

Rating: 4.5 out of 5 Moons. Needs more Bryan Cranston.



# Presentations

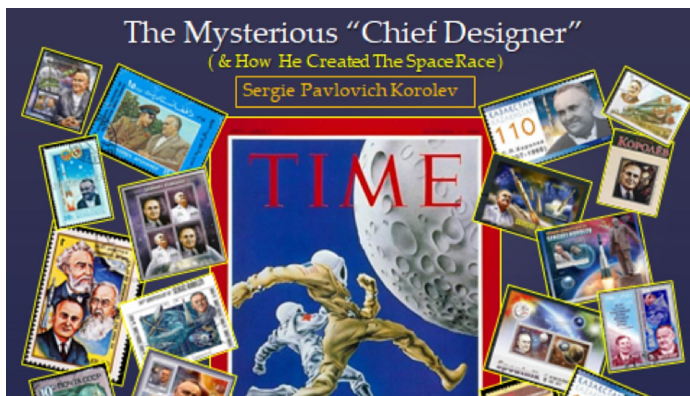
## Monday, September 9, 2019 Cranbrook Presentations

Main Talk:

### “Sergei Korolev”

#### The Man Who Started The Space Race

By Jim Shedlowsky



“The Space Race”, That period of time from the launching of Sputnik, the world’s first earth satellite...to Neil Armstrong’s harrowing landing of Apollo 11 on the Moon. It was an exciting period of time for those of us old enough to remember it first hand and a memorable era in history, which produced a quantum leap acceleration in mankind’s technical prowess, leading to such things as the internet, personal computing, advanced medical technology, GPS, and the like, and ahh yes,....the mastery of Rocket Science.

But how many of you know how this all came about?? What were the circumstances that brought about the “Space Race”? How did it happen? Why? And who was responsible??

While many individuals were involved (some might say John F Kennedy or Wernher von Braun or ???) Jim hopes to convince you, that one man, more than any other single person or group of people...was largely responsible for starting...and then steering the “Space Race”.

This man, who did not live to see Armstrong’s moon landing of the Eagle, and who’s very identity was a secret while he was alive, was a Ukrainian named Korolev, Sergei Pavlovich Korolev, “The Chief Designer”, a monumental figure in the history of space exploration, but unknown to the western world until his tragic death in 1966, after which he was a worldwide celebrity. He was the mastermind behind the Soviet space effort from its beginning and personally responsible for many of the ground breaking “first achievements” in space travel ... such as the first satellite (Sputnik), the first animal in space (Laika the dog), the first photos of the back side of the moon, Yuri Gagarin, the first man in space, the first woman in space (Valentina Tereshkova), the first spacewalk, the first spacecraft to impact the moon or another planet (Venus), and to orbit and soft-land on the moon.

As we shall see he not only conceived and executed these and other milestones, but created the massive infrastructure and intricate technological development system which made them possible. This, in a country recovering from the terrible devastation of World War 2.

*(Continued on page 13)*

## 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 Jonathan Kade at:

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

(Continued from page 12)

Short Talk:

## The Dawn of the Russian Space Program

By Jim Shedlowsky

We'll have a short overview from Jim about the underpinnings of the Soviet space program.



Jim Shedlowsky, long time member, former WAS treasurer, and rockabilly legend, worked for 36 years as a Vehicle Development Engineer/Manager, specializing in Acoustics and Noise & Vibration, retiring in 1999. He graduated from the University of Michigan in 1960 with a degree in Engineering Physics and spent two years as an officer in the U.S. Army in Germany. In his spare time, he wrote and recorded music for Epic and Roulette Records as one of the "Skee Brothers", who appeared on Dick Clark's "Bandstand" in 1958. In 2015, they released their latest album, "That's All She Wrote... After 57 Years".

Jim's astronomical interests include observation and outreach (he owns several telescopes), but in recent years his passion for astronomical history and technology has become a major factor. He is a member of the McMath-Hulbert Astronomical Society, and has visited a number of major observatories. He thoroughly enjoys the WAS Discussion Group.

He and his wife winter in Mesa, Arizona ( a great place for observing ), and he participates in activities of the East Valley Astronomy Club. He took part in the "All Arizona Messier Marathon" in March of 2009, earning a certificate for observing 104 Messier Objects in one night.

## Thursday, September 19, 2019 Macomb Presentation

### A Tour of the Local Neighborhood

By Bob Trembley

Bob Trembley will take you on a tour of the Solar System, the Milky Way Galaxy and beyond! Using the amazing app Space Engine, Bob will fly you to several different planets and moons in our solar system, and then fly you to nebulae, star clusters and wherever else the audience might wish to go. Bob's comment about Space Engine is that "it's one of the few apps that really makes you appreciate that you live in a sea of stars!" SpaceEngine is the application used to create the graphics for OVERVIEW VR - which Bob has shown to hundreds of people, including several WAS members. Bob uses SpaceEngine every week to create exoplanet images for his posts on the Sacred Space Astronomy blog - the blog of the Vatican Observatory Foundation.



Bob Trembley has been an amateur astronomer and has loved astronomy and space his entire life; he is a volunteer NASA/JPL Solar System Ambassador, and the 2019 outreach officer for the Warren Astronomical Society. Bob works for the Vatican Observatory Foundation, writing astronomy and space science posts for the "Sacred Space Astronomy Blog" with Br. Guy Consolmagno and other astronomers. Bob also maintains the VOF website, does social media work, creates newsletters and media... and whatever else gets thrown at him.

Bob is fantastically interested in asteroids, near-Earth objects (NEOs), and meteorites. Bob is a HUGE fan of educational space-related PC software such as: NASA's Eyes on the Solar System, Universe Sandbox, SpaceEngine and Kerbal Space Program. Bob and his wife Constance, a middle-school science teacher and also a Solar System Ambassador, run an after-school astronomy and space science club at Connie's school called the "Endeavour Space Academy."



# Over the Moon

With Rik Hill

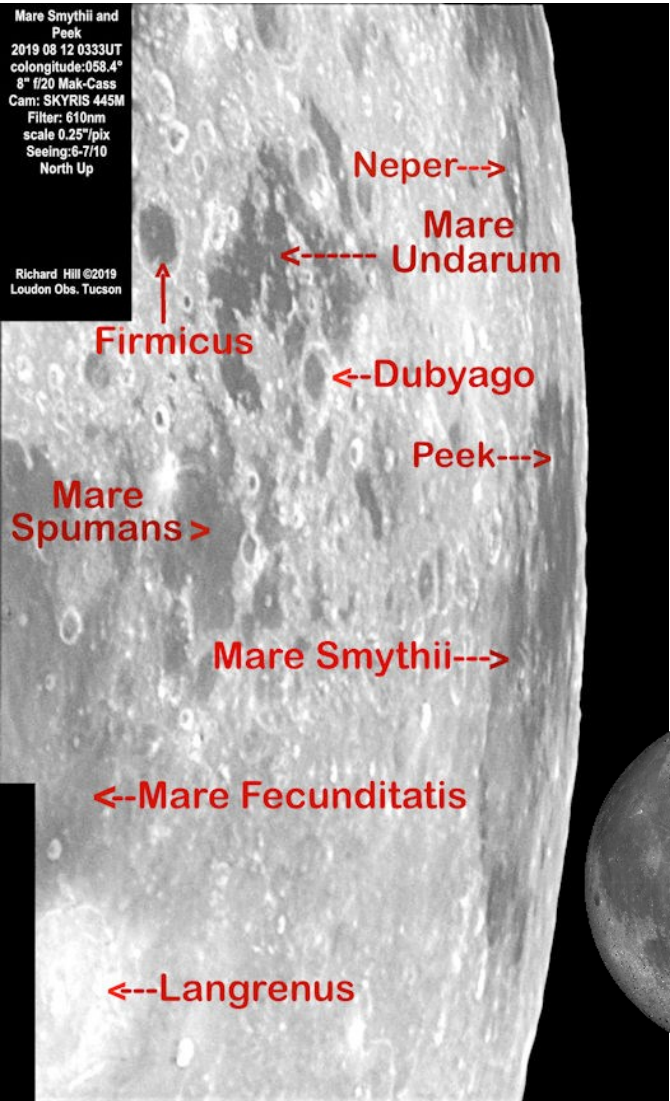
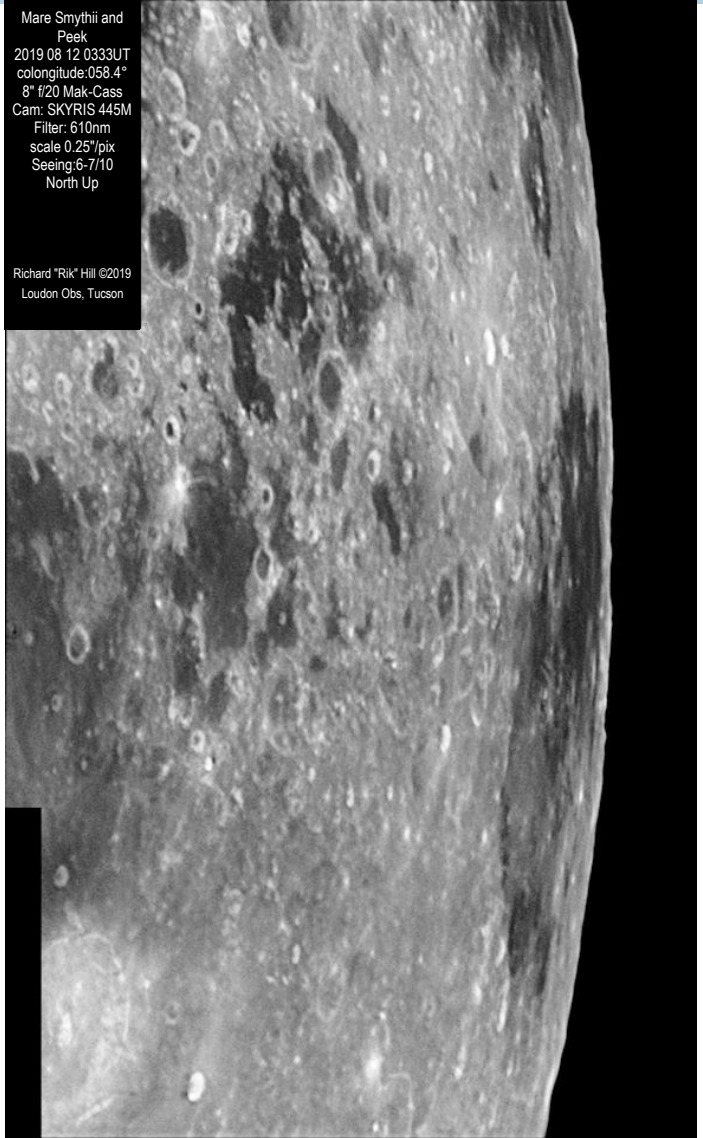
## Sailing the Smythii Sea

With high sun over the lunar east limb at this libration we see Mare Smythii dominating the limb region. It's the large dark area near the limb from the middle of this image to nearly the lower edge. The particular processing used in this image shows the basaltic areas prominently, better than what the eye will see. Above this large mare is a small patch or dark oval. This is the large flooded crater Neper (141km diameter) . Further away from the limb is a collection of dark areas with a dark crater on the east (right) and west side. The dark patches make up Mare Undarum. The east crater is Dubiago (53km) and on the west side is Firmicus (58km). Below is yet another dark patch. This is Mare Spumans a 206km diameter "sea". On the left edge of the image we see a small portion of Mare



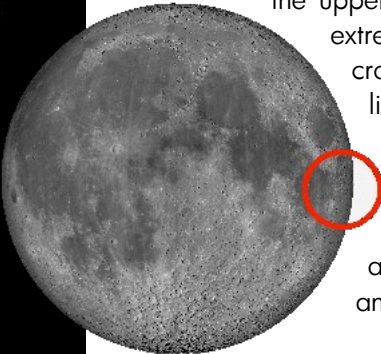
Mare Smythii and Peek  
2019 08 12 0333UT  
colongitude:058.4°  
8" f/20 Mak-Cass  
Cam: SKYRIS 445M  
Filter: 610nm  
scale 0.25"/pix  
Seeing:6-7/10  
North Up

Richard "Rik" Hill ©2019  
Loudon Obs. Tucson



Fecunditatis and at bottom is a portion of the great crater Langrenus (136km)

Lastly, in Mare Smythii you can see a little white streak in the uppermost region of the mare. This is an extremely foreshortened view of a small crater Peek (14km). It is only at such a libration as this that you can get a peek at Peek!



This image was made from 3 stacked AVIs done with AVIStack2 and then further processed with GIMP and IrfanView.



# Object of the Month

By Chuck Dezelah

## NGC 7129



NGC 7129 is a reflection nebula centered around a sparse open cluster in the constellation Cepheus. Although the object lacks a popular common name, it has a complex and intriguing morphology, largely resembling a rosebud in overall shape. Its appearance is mostly the result of direct illumination of a gas cloud by the hot young stars of the cluster. However, a weaker emission component whereby irradiated gas and dust emit light and a central bubble region enveloping the brightest constituent stars are also notable. The nebula has an integrated apparent magnitude of 11.5 and angular dimensions of about  $8' \times 7'$ . It is about 3,300 light years away and three light years in diameter. The cluster portion contains more than 100 known members, but fewer than a dozen are visible in most amateur telescopes. The object was the target of a study by the Spitzer Space Telescope, whereby aspects of the early stages of stellar evolution were investigated. It is believed that our sun was likely formed under circumstances similar to those found in this nebula.

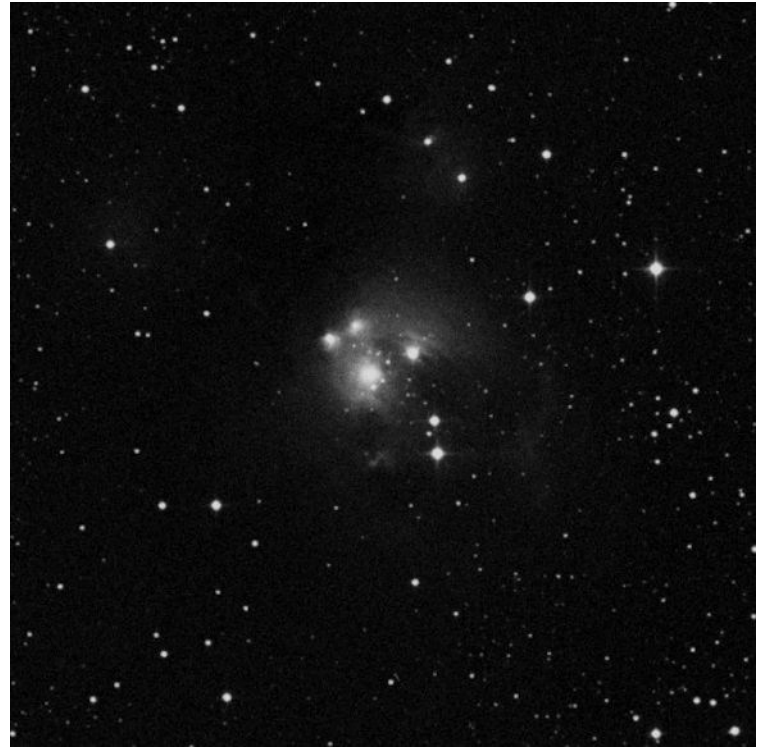
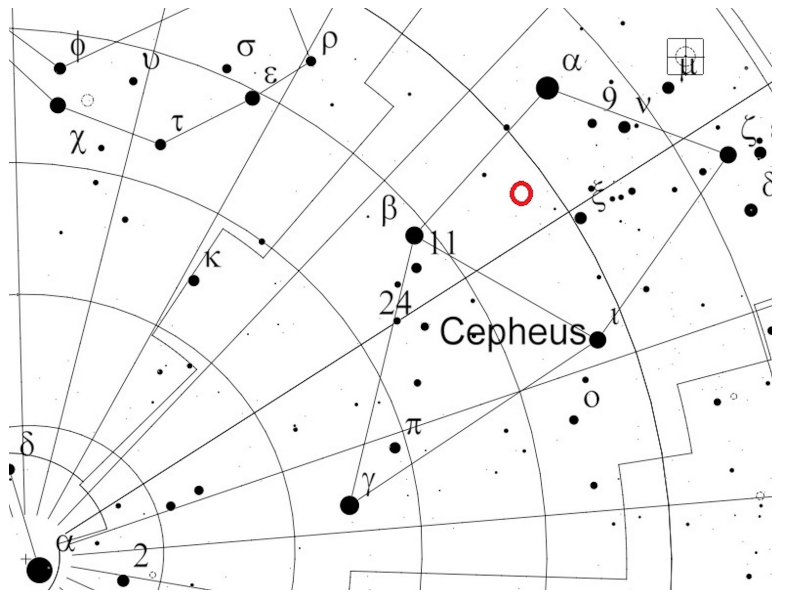


Image from Digital Sky Survey, F0V=0.25°

NGC 7129 is located within the interior of the square that makes up the midsection of Cepheus' body. The object lies about  $4.6^\circ$  south-southeast of  $\beta$  Cephei (mag. 3.2), and slightly north of the center point of a triangle having  $\alpha$ ,  $\beta$ , and  $\xi$  Cephei at the vertices. Once in the eyepiece, the six brightest cluster stars should be the most apparent, ranging in magnitude from 9.5 to 12.8 and forming a parallelogram reminiscent of the constellation Delphinus. The nebula and cluster are best observed in telescopes of 6-inch or larger apertures and moderate power, with magnifications between 60x and 90x being the most useful for uncovering detail. The nebular features can be somewhat challenging to observe, especially under light polluted conditions, and often benefit from the use of a UHC filter. The nebulosity mostly consists of curving wisps of light that arc around the stellar grouping. It should be noted that the open cluster NGC 7142 is positioned only  $0.5^\circ$  away and can be easily confused with the target object, especially in smaller telescopes or under conditions where the nebulosity of NGC 7129 isn't readily obvious. The two objects form a nice low power pairing, with NGC 7142 being the richer and more southwesterly of the duo.



Source: Cartes du Ciel

## September 1982

A group photo of the participants at the 1982 Great Lakes Regional Astronomical League Convention graces the cover of this issue. Besides the articles, the minutes of the June and July meetings were posted and in there we find the beginnings of our first go around at incorporating and getting a non-profit status. Now, astronomically:



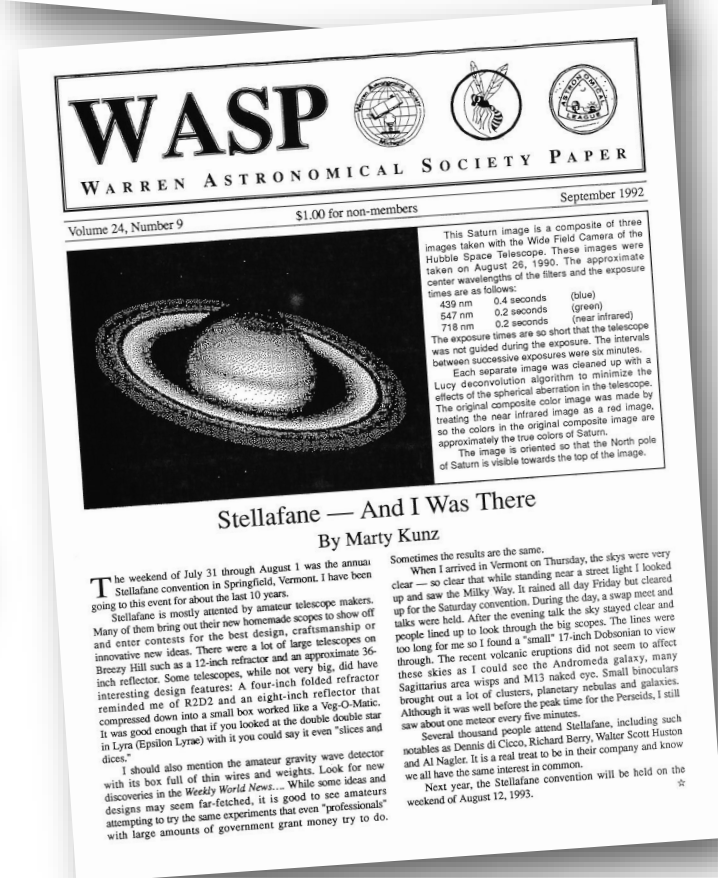
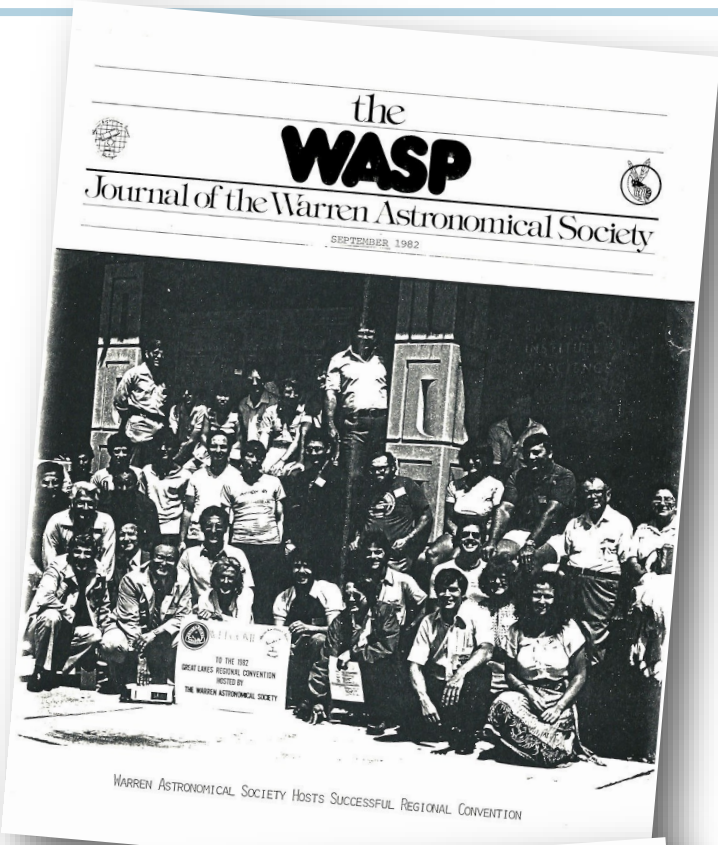
Larry F. Kalinowski writes a piece on an observing opportunity in "Here Comes a Brand New COMET", another observing report, "The Great Aurora Display of July 13, 1982" is penned by Jonathan Baditoi. Ken Kelly provides a program to generate "A Lunar Ephemeris" - Part I and also a Fourth Order Interpolation Program.

## September 1992

Every so often a member of our club makes the trek to Stellafane and in 1992, Marty Kunz did, here is his take: "Stellafane - And I Was There". The remainder of the 8 page issue (we had a long stretch of this four sheet, double sided format which aided in the digitizing process) is from NASA (NASA Spacelink, apparently an effort to supply club newsletters with copy, we still utilize it under a different name):

Mars Observer Fact Sheet: Mission Summary, "NASA'S Hubble Space Telescope Uncovers a Starburst Galaxy", "HST to Resume Normal Operation After Brief Delay" "Hubble Telescope Resolves Dark 'X' Across Spiral Galaxy Center", and "HST Begins to Provide Accurate Distances to Galaxies" are the articles presented.

Dale Thieme,  
Chief scanner



### Stellafane — And I Was There By Marty Kunz

Sometimes the results are the same. When I arrived in Vermont on Thursday, the sky was very clear — so clear that while standing near a street light I looked up and saw the Milky Way. It rained all day Friday but cleared up for the Saturday convention. During the day, a swap meet and talks were held. After the evening talk the sky stayed clear and people lined up to look through the big scopes. The lines were too long for me so I found a "small" 17-inch Dobsonian to view through. The recent volcanic eruptions did not seem to affect these skies as I could see the Andromeda galaxy, many Sagittarius area wisps and M13 naked eye. Small binoculars brought out a lot of clusters, planetary nebulas and galaxies. Although it was well before the peak time for the Perseids, I still saw about one meteor every five minutes.

Several thousand people attend Stellafane, including such notables as Dennis di Cicco, Richard Berry, Walter Scott Huston and Al Nagler. It is a real treat to be in their company and know we all have the same interest in common.

Next year, the Stellafane convention will be held on the weekend of August 12, 1993.

Join the Astronomical League!

Only \$7.50 (membership starts July 1)



- Get the Reflector
- Participate in the Observing Program
- Avail yourself of the League Store
- Astronomy Books at a discount

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



This chart shows the sky as it appears at approximately 10pm EDT near mid-month at northern mid-latitudes.

# SEPTEMBER 2019

## Notable Sky Happenings

### Sep. 1 - 7

The Moon is to the right of Jupiter the evening of the 5th (SW) and to the right of Saturn the evening of the 7th (SSW).

### Sep. 8 - 14

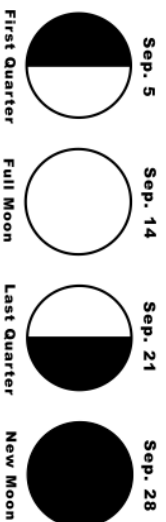
The Moon has moved to the left of Saturn the evening of the 8th (SSW). The Full Moon on the 14th is the Harvest Moon.

### Sep. 15 - 21

The star to the lower left of the Moon on the 20th is Aldebaran, the "eye" of Taurus (S predawn).

### Sep. 22 - 30

September (Autumnal) Equinox is at 3:50 a.m. EDT on the 23rd. The Moon is to the left of Regulus, the "heart" of Leo, on the 26th (E predawn).



## Coming Sep. 27

### "Robot Explorers"

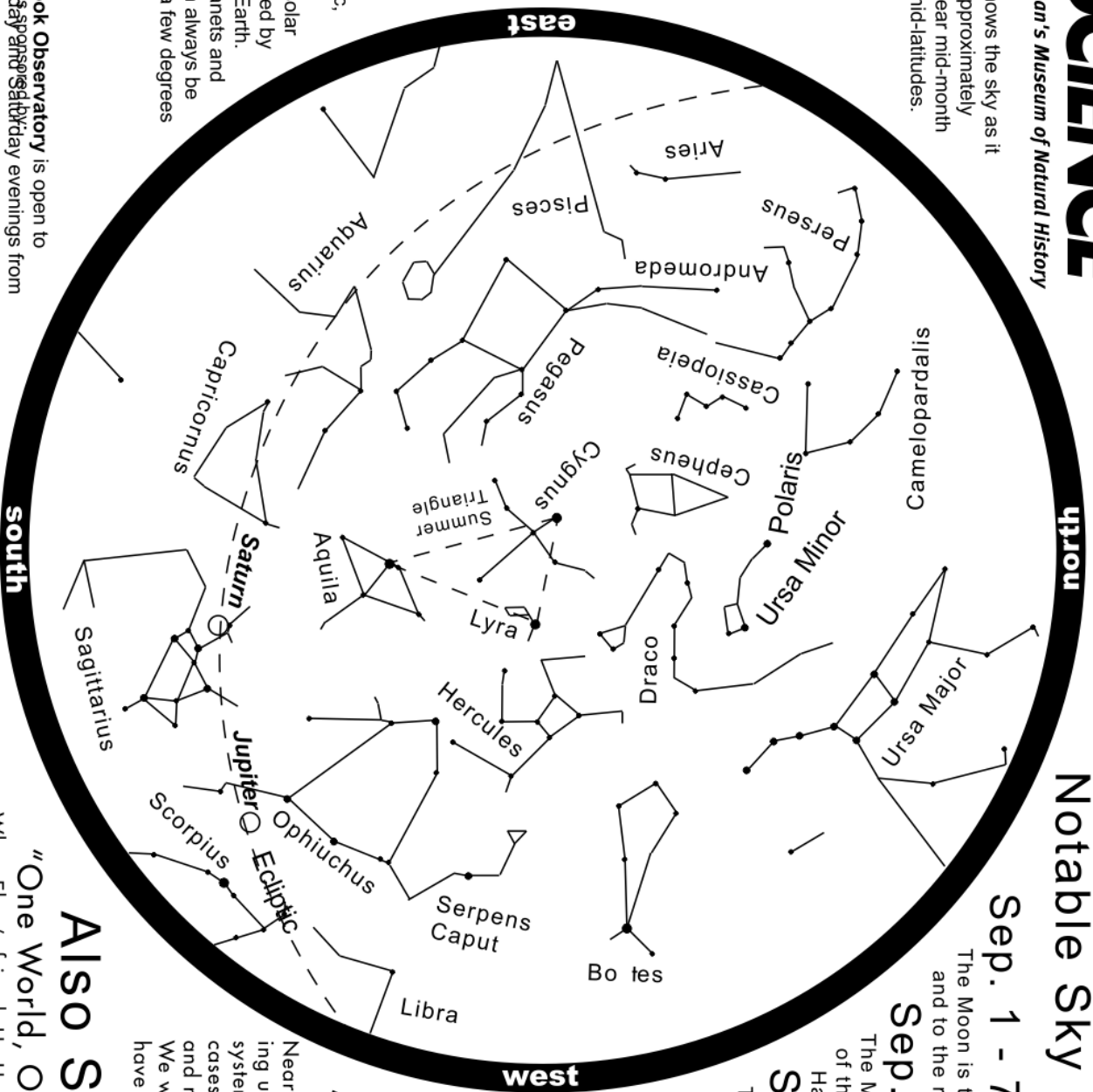
Near the end of the twentieth century, we began launching unmanned probes into the far reaches of the solar system. What they discovered was amazing and in some cases unexpected. New space missions are underway, and many of these robust spacecraft are still operational. We will pay tribute to these robots and learn what they have taught us about our solar system.

## 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 always be found within a few degrees of this plane.

The Cranbrook Observatory is open to the public on Friday and Saturday 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/explorer/observatory>





## Stargate Observatory

### Monthly Free Astronomy Open House and Star Party

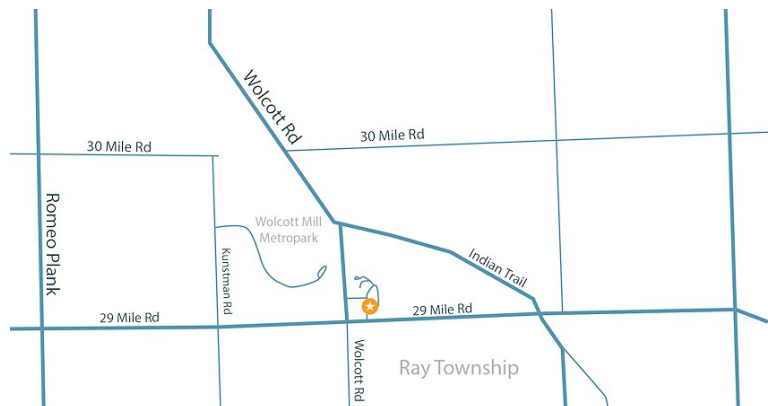
4th Saturday of the month!

Wolcott Mill Metropark - Camp Rotary entrance

- 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](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  
82° 55'04" West Longitude, 42° 45'29" North Latitude

#### Observatory Rules:

1. Closing time depends on weather, etc.
2. May be closed one hour after opening time if no members arrive within the first hour.
3. Contact the 2nd VP for other arrangements, such as late arrival time. Call (586) 634-6240 .
4. An alternate person may be appointed to open.
5. Members may arrive before or stay after the scheduled open house time.
6. Dates are subject to change or cancellation depending on weather or staff availability.
7. Postings to the Yahoo Group and/or email no later than 2 hours before starting time in case of date change or cancellation.
8. 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.
9. 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 Open House August 2019

The August Open House was a great success! We had clear skies from horizon to horizon, with exceptional seeing all night. The Observatory and field had an estimated 100+ visitors. Most visitors were notably interested in viewing Jupiter & Saturn. Several Messier objects were viewed later in the evening. Special "Thanks" to Jonathan Kade & Diane Hall in assisting at the Observatory.

## Next Month Events

Friday, September 13th, Astronomy at the Beach – Night #1

Sunset : 7:48pm

Astronomical Twilight Ending : 9:25pm

Moonrise : 8:02pm

Saturday, September 14th, Astronomy at the Beach – Night #2

Sunset : 7:46pm

Astronomical Twilight Ending : 9:23pm

Moonrise : 8:27pm

Saturday, September, 28th, Stargate Observatory Open House

Sunset : 7:18pm

Astronomical Twilight Ending : 8:52pm

Moonrise : - New Moon

David Baranski  
2nd VP (Observatory Chairperson 2019)



Astronomical Events for September 2019		
Add one hour for Daylight Savings Time		
Source: <a href="http://www.astropixels.com/ephemeris/astrocal/astrocal2019est.html">http://www.astropixels.com/ephemeris/astrocal/astrocal2019est.html</a>		
Day	EST (h:m)	Event
02	05:00	Mars in Conjunction with Sun
03	20:00	Mercury at Superior Conjunction
05	22:10	FIRST QUARTER MOON
06	01:52	Jupiter 2.3°S of Moon
08	08:53	Saturn 0.0°N of Moon: Occn.
08	12:35	Moon at Descending Node
10	01:00	Neptune at Opposition
13	08:32	Moon at Apogee: 406378 km
13	23:33	FULL MOON
20	11:14	Aldebaran 2.6°S of Moon
21	21:41	LAST QUARTER MOON
23	01:30	Moon at Ascending Node
23	02:50	Autumnal Equinox
23	18:34	Pollux 5.9°N of Moon
24	16:15	Beehive 0.4°S of Moon
26	03:30	Regulus 3.3°S of Moon
27	21:27	Moon at Perigee: 357803 km
28	13:26	NEW MOON
28	23:15	Mercury 1.2°N of Spica

# Outreach Report

The school year is starting back up, and my wife and I will again be running an after-school astronomy and space science club: the [Endeavour Space Academy](#). This year, I'm going to concentrate on different bodies in the solar system, and the science of how astronomy is done. Students will also be required to log some observing sessions. During the first few minutes, I take the students through my latest "[In the Sky](#)" post for current events, and what to look for in the sky.

September is here, and that means two things: [Solar System Ambassador \(SSA\) application](#) period is now open for the next month, and Astronomy at the Beach is right around the corner! Several members of the W.A.S. are SSAs - if you do a lot of outreach, it makes sense to be an SSA; you get up-to-date info direct from NASA, and can order freebies to hand-out at your events.

[Astronomy at the Beach \(AATB\)](#) happens September 13 and 14th; we're pushing advertising hard right now. We've made a lot of changes for 2019 - the biggest is NOT having a keynote speaker - which can be *expensive*. Instead, we will have members of local astronomy clubs giving presentations instead. We're going to make sure that telescope operators get a break, and any assistance they need, AND there will be free coffee! I will be giving my lecture/demo of Space Simulation Software - which I've *REALLY* wanted to do at an AATB!

Please help advertise Astronomy at the Beach by distributing the flyer far and wide: <https://drive.google.com/file/d/1U7PoCipyJPvLGRpJgM88Yoi-hr5cneXu/view?usp=sharin>



Photo: Jonathan Kade

**Diane Hall at Crosswinds Marsh  
Hobby Day**

## Member Spotlight:

### Diane Hall Presentation at the Main Branch of the Detroit Library - Aug. 8th

Diane presented "So You Want to Be An Astronomer" for patrons at the Library's Children's section (w/ Jennifer Dye).

### Crosswinds Marsh for the annual Hobby Day event - Aug. 10th

Jonathan Kade and Diane Hall went to Crosswinds Marsh for the annual Hobby Day event; they had perfect weather and were able to show many dozens of people the sun complete with a looped prominence in our PST. A very good event with the Wayne County Parks.



**Image of sun by J. Kade at Crosswinds Marsh  
Hobby Day**

### Perseid Party at Stargate - Aug. 11th

We had a smaller crowd this year, but those who attended had a good time - the Moon, Jupiter and Saturn put on a good show; I had my VR gear there, and was busy all night. Diane Hall and Jonathan Kade closed up around midnight. Jonathan and Dale Partin closed up the dome and filled out the logbook. Diane saw all of five (5) Perseids... that's 5 more than *\*I\** saw...

*(Continued on page 21)*

(Continued from page 20)

### Family STEM Night at McKinley Park - Aug. 13th

I set up my 8" Dob and showed the Moon, Saturn and Jupiter. I also had my Virtual Reality gear there and showed about 15 kids and a couple adults a VR fly-over of Saturn in VR. Several other members of the Warren Astronomical Society were present: Sandra M. had her meteorites, and John Horton was there too.

### Lake St. Clair Metropark Nature Center (Metrobeach) - Aug. 31st

Sandra Macika brought her meteorites to the nature center for a presentation.

### Upcoming events:

#### Village of East Harbor (Senior living center) - Sept. 17th

##### - Volunteers Needed

In September they are doing a week of "back to school" programs - They would like to do a lecture on Tuesday, September 17 at 7:30pm indoors then take a group outside with telescopes at approximately 8:00pm

Contact: Betsy Mianeki [bmianeki@PVM.org](mailto:bmianeki@PVM.org), 586-716-7143

WAS Outreach Calendar: [\[Link\]](#)

#### Cub Scout Pack at Stargate - Sept. 27 & 28th

##### - Volunteers Needed

Cub Scout pack 206 out of Fraser Lions club will be camping at Wolcott Mill the weekend of September 27 through 29. They would like us to do something for their scouts (K-5) during the scheduled open house on the 28th.

Contact: Kara Menzel Skorupski, cell: 602.741.6632

### [Astronomy Day / International Observe the Moon Night](#) at Lake St. Clair Metropark Nature Center (Metrobeach) - Oct. 5th

##### - Additional Volunteers Welcome!

Bob Trembley will be setting up his telescope and showing a Virtual Reality fly-over of Saturn to attendees of an [Astronomy Day](#) event at Metrobeach on [October 5, 2019](#)

Contact: Samantha Volz [Samantha.Volz@metroparks.com](mailto:Samantha.Volz@metroparks.com) 586-463-4581

### Astronomy Day / International Observe the Moon Night at the Detroit Public Library - Oct. 5

##### - Volunteers Needed

The DPL would like to host an event on this date from 4:00-5:30 PM.

Contact: Jennifer Dye <[jdye@detroitpubliclibrary.org](mailto:jdye@detroitpubliclibrary.org)>

### Astronomy Day / International Observe the Moon Night at Stargate Observatory - Oct. 5

##### - Planning Stages

Hosting an Astronomy Day event at Stargate was discussed with our contacts from Wolcott Mill during the Perseid party. If we can get some volunteers for this event,

please let me know so I can have the Metropark put it on their calendar.

Contact: Bob Trembley <[outreach@warrenastro.org](mailto:outreach@warrenastro.org)>

### Girl Scouts at Stargate - Oct. 18 or 19

##### - Volunteers Needed

A LARGE troop of Girl Scouts is going to be camping at Wolcott Mills Oct. 18-20, and would like to use Stargate observatory that weekend, and possibly have someone give a presentation in the pavilion. 150-200 girls are expected.

Contact: Denise Kroetsch <[kroetschd@gmail.com](mailto:kroetschd@gmail.com)>

Outreach Calendar: [\[Oct.18\]](#), [\[Oct. 19\]](#)

### Warren Rotary Club - Oct 8

Bob Berta & Dale Partin are scheduled to give a short talk about the W.A.S. and what we do. I'm sure they will get a few questions about astronomy too.

### The Sunday Outreach at the DPL

##### - Planning Stages

The DPL would like to have speakers on Sundays starting in December. Open dates are: 12/15, 1/19, 2/16, 3/15, 4/19, and 5/17

Contact: Jennifer Dye <[jdye@detroitpubliclibrary.org](mailto:jdye@detroitpubliclibrary.org)>

### City for Frazer

##### - Planning Stages

Would like to do quarterly events with us - they hosted the recent Family STEM Night at McKinley Park on Aug. 13th.

Contact: Christina Woods

<[christinaw@micityoffrazer.com](mailto:christinaw@micityoffrazer.com)> 586.296.8483



**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)

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# Meeting Minutes

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## BOARD MEETING – August 5th, 2019

Members present: David Baranski, Jeff MacLeod, Jonathan Kade, Mark Jakubisin, Jack Dr. Dale Partin, Bob Trembly, Diane Hall, Ken Bertin, and Jerry Voorheis.

The meeting was called to order by Jeff MacLeod at: 6:369 PM

### Officer's reports

President Jeff MacLeod had nothing to report

Jonathan Kade gave the 1st Vice President's report. The presentation schedule has openings September 19 and October 7.

Officer reports were skipped

### Old Business

There was a discussion about money for GLAAC for Astronomy on the beach.

Bob Trembly gave the Outreach report.

There was a discussion about the WAS survey.

There was a heated discussion about changes to In the News.

### New Business

There was a discussion about a plaque for Stargate.

There was a discussion about changing the term limits for WAS officers from 2 years to 3 years.

There was a tabled motion to buy a telescope from Parker Huellmantel.

The meeting adjourned at: 7:30 PM

## CRANBROOK MEETING August 5th, 2019

Meeting called to order at 7:30 PM by Jeff MacLeod, President.

Roll call. 37 persons were present.

Jeff McLeod gave the President's report. He reported about John Glenn Astronomy Park.

Dale Partin presented an abbreviated version of In the News.

Jeff MacLeod presented In the Sky.

Jonathan Kade gave the 1<sup>st</sup> Vice President's report. He reported that the presentation schedule has openings September 19 and October 7 and that the schedule for next year was wide open.

David Baranski gave the 2<sup>nd</sup> Vice Presidents report. He

reported on 2 Stargate events. The 50<sup>th</sup> moon landing anniversary Open House was rained out. The regular Open House was good. He asked for members to support the Wolcott Metroparks Perseid meteor shower event Sunday, August 11<sup>th</sup>. The next Open House will be August 24<sup>th</sup>.

Mark Jakubisin gave the Treasurer's report. Details are in the WASP.

Secretary Jerry Voorheis reported that the minutes are in the WASP.

Bob Trembly gave the Outreach report.

Dr. Dale Partin reported that the WASP is up.

Marty Kunz reported that there were no sun spots

The next discussion group will be hosted by Jeff MacLeod at Wayne State University Observatory.

Jonathan Kade reported that Astro League memberships were open, and that merchandise was available for sale.

Observing reports: Diane Hall and Jonathan Kade reported observing early Perseids and planetary nebulas at a deep sky park. Mark Jakubisin reported observing the Io shadow transit across Jupiter using a 70 mm telescope. Brenda W. reported observing the Coat Hanger Nebula near Albireo, M17, Iota Cassiopeia, and the Andromeda Galaxy. John Horton reported on observations from his observatory near Concho, Arizona.

The Short Presentation was given by Diane Hall - "WAS Membership Survey 2019".

Snack/Break Time.

The Long Presentation was given by Jon Blum - "Space Travel".

The meeting was adjourned at 9:56 PM.

## MACOMB MEETING August 15th, 2019

Meeting called to order at 7:30 PM by Jeff MacLeod, President.

Roll call. 28 persons were present.

There was a presentation by 2 ladies from the Frazer Recreation Department about their Astronomy outreach program.

Jeff MacLeod gave the President's Report. He told a story about his fall while wall climbing.

Jeff MacLeod gave the 1<sup>st</sup> Vice President's report.

Jeff MacLeod gave the 2<sup>nd</sup> Vice President's report. The moon landing anniversary event was canceled. The dome is in good working order thanks to the efforts of Riyad Matti. The open house was good. The Perseid meteor shower event was good. The next open house will be on August 24th.

Jeff MacLeod gave the Treasurer's report.

Jeff MacLeod gave the Secretary's report. The minutes are in the WASP.

Jeff MacLeod gave the publications report. The WASP is up.

Jeff MacLeod gave the Outreach report.

Bob Trembly presented In the News.

There was an Astronomy question asked by Jonathan Kade: Can meteors from a shower skip off the earth's atmosphere? A discussion followed.

Snack/Break Time.

The Main Presentation was by Jonathan Kade - "Satellites of Love, Missions to Venus"

Meeting was adjourned at 9:34 PM.

Jerry Voorheis  
Secretary

## Treasurer's Report

### Treasurer's Report for 8/31/2019

#### MEMBERSHIP

We have 108 current members

#### INCOME AND EXPENDITURES (SUMMARY)

We took in \$3062 and spent/transferred \$794 We have \$22780 in the bank \$22 in checks and \$438.38 in cash, totaling \$23,240 as of 7/31/2019.

#### INCOME

\$1,998	Memberships/renewals
\$143	Astronomical League
\$442	Snacks
\$165	Calendars
\$49	Paul Strong Scholarship

#### EXPENSES

\$325	Snacks / Supplies
\$90	Meetup Fees 2019
\$30	Library Storage Boxes

### GLAAC REPORT 8/31/2019

Beginning Balance: \$5,151.34

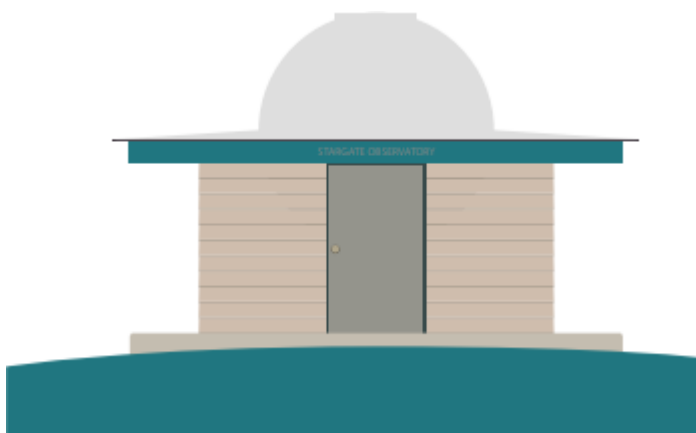
#### INCOME

No activity

#### EXPENSES

\$514 Reimbursement for printing 2018 Flyers  
\$2627 AATB 2019 Tent Rental  
Ending Balance: \$2010.10

Mark Jakubisin  
Treasurer



## Saw a Fireball?

Report it to the American Meteor Society!



[www.amsmeteors.org/  
members/fireball/  
report-a-fireball](http://www.amsmeteors.org/members/fireball/report-a-fireball)



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.

## 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="#">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

Warren Astronomical Society:  
Oakland Astronomy Club:  
Ford Amateur Astronomy Club:  
Sunset Astronomical Society:  
University Lowbrow Astronomers:

<http://www.warrenastro.org/was/newsletter/>  
<http://oaklandastronomy.net/newsletters/oacnews.html>  
<http://www.fordastronomyclub.com/starstuff/index.html>  
<http://www.sunsetastronomicalsociety.com/>  
<http://www.umich.edu/~lowbrows/reflections/>

### WAS Member Websites

Jon Blum: [MauiHawaii.org](http://MauiHawaii.org)  
Bob Trembley: [Balrog's Lair](http://Balrog's Lair)  
Bill Beers: [Sirius Astro Products](http://Sirius Astro Products)

Jon Blum: [Astronomy at JonRosie](http://Astronomy at JonRosie)  
Bob Trembley: [Vatican Observatory Foundation Blog](http://Vatican Observatory Foundation Blog)  
Jeff MacLeod: [A Life Of Entropy](http://A Life Of Entropy)

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>





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## Spot the Stars of the Summer Triangle

David Prosper

September skies are a showcase for the Summer Triangle, its three stars gleaming directly overhead after sunset. The equinox ushers in the official change of seasons on September 23. Jupiter and Saturn maintain their vigil over the southern horizon, but set earlier each evening, while the terrestrial planets remain hidden.

The bright three points of the Summer Triangle are among the first stars you can see after sunset: Deneb, Vega, and Altair. The Summer Triangle is called an asterism, as it's not an official constellation, but still a striking group of stars. However, the Triangle is the key to spotting multiple constellations! Its three stars are themselves the brightest in their respective constellations: Deneb, in Cygnus the Swan; Vega, in Lyra the Harp; and Altair, in Aquila the Eagle. That alone would be impressive, but the Summer Triangle also contains two small constellations inside its lines, Vulpecula the Fox and Sagitta the Arrow. There is even another small constellation just outside its borders: diminutive Delphinus the Dolphin. The Summer Triangle is huge!

The equinox occurs on September 23, officially ushering in autumn for folks in the Northern Hemisphere and bringing with it longer nights and shorter days, a change many stargazers appreciate. Right before sunrise on the 23rd, look

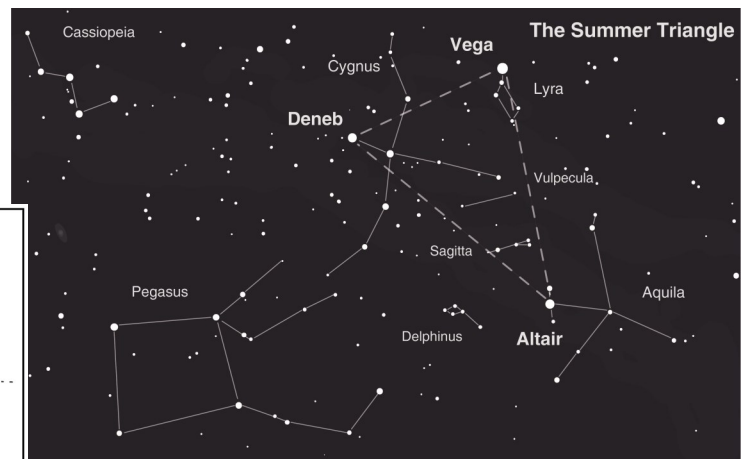
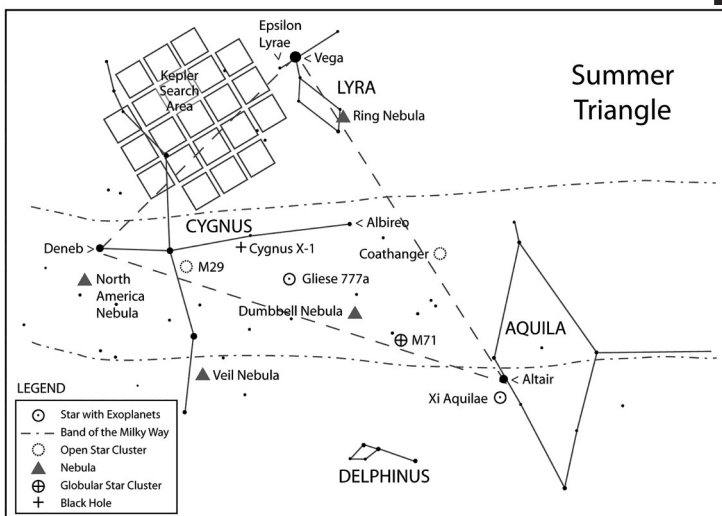
for Deneb - the Summer Triangle's last visible point - flickering right above the western horizon, almost as if saying goodbye to summer.

The Summer Triangle region is home to many important astronomical discoveries. Cygnus X-1, the first confirmed black hole, was initially detected here by x-ray equipment on board a sounding rocket launched in 1964. NASA's Kepler Mission, which revolutionized our understanding of exoplanets, discovered thousands of planet candidates within its initial field of view in Cygnus. The Dumbbell Nebula (M27), the first planetary nebula discovered, was spotted by Charles Messier in the diminutive constellation Vulpecula way back in 1764!

Planet watchers can easily find Jupiter and Saturn shining in the south after sunset, with Jupiter to the right and brighter than Saturn. At the beginning of September, Jupiter sets shortly after midnight, with Saturn following a couple of hours later, around 2:00am. By month's end the gas giant duo are setting noticeably earlier: Jupiter sets right before 10:30pm, with Saturn following just after midnight. Thankfully for planet watchers, earlier fall sunsets help these giant worlds remain in view for a bit longer. The terrestrial planets, Mars, Venus, and Mercury, remain hidden in the Sun's glare for the entire month.

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Once you spot the Summer Triangle, you can explore the cosmic treasures found in this busy region of the Milky Way. Make sure to "Take a Trip Around the Triangle" before it sets this fall! Find the full handout at [bit.ly/TriangleTrip](https://bit.ly/TriangleTrip)



This wider view of the area around the Summer Triangle includes another nearby asterism: the Great Square of Pegasus.