



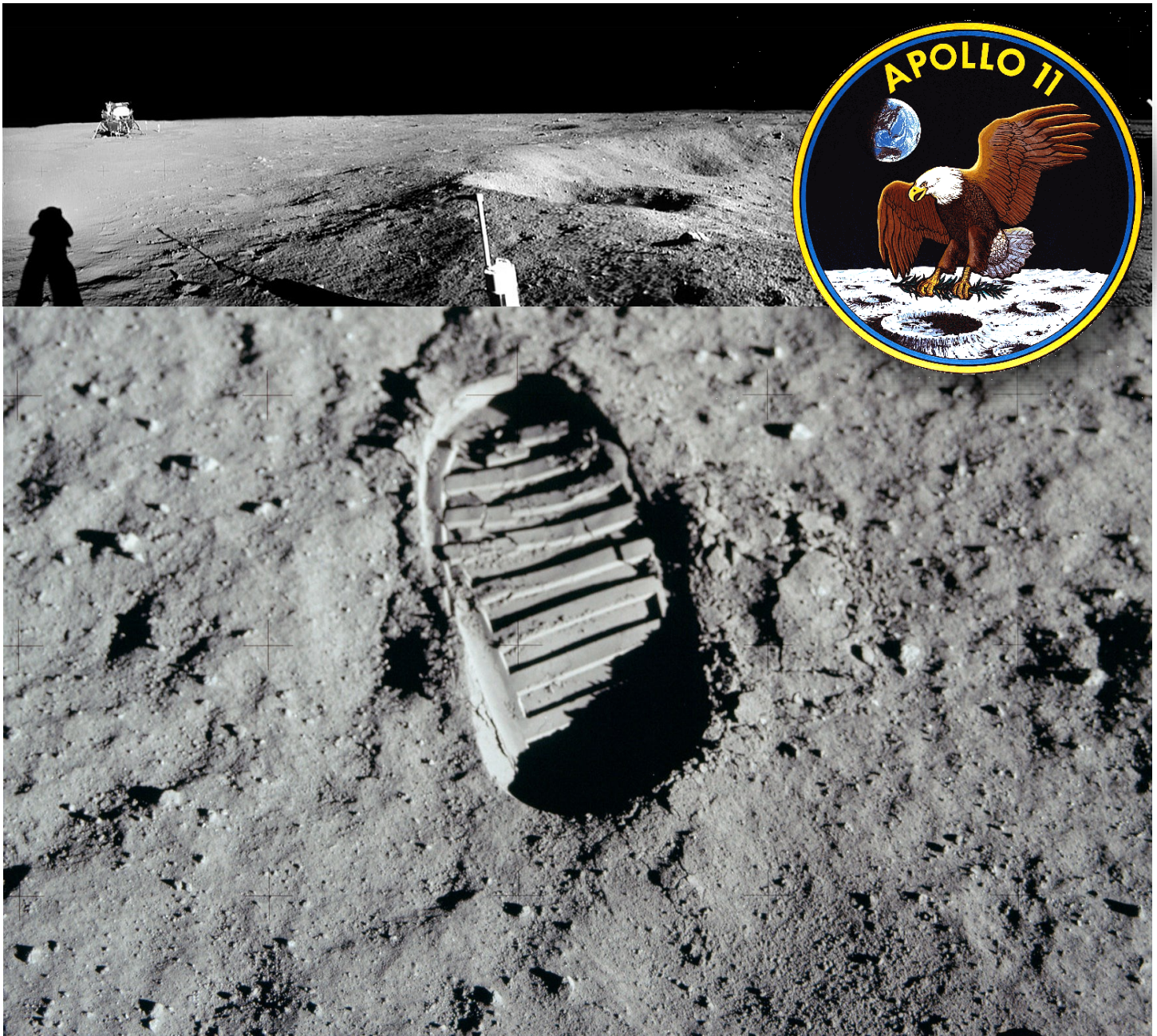
Vol. 50, no. 7

The W.A.S.P.



July, 2019

The Warren Astronomical Society Paper



50 Years ago...

We set foot on the Moon

The WASP

Published by
Warren Astronomical Society, Inc.
P.O. Box 1505
Warren, Michigan 48090-1505



Dale Thieme, Editor

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

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

Membership and Annual Dues

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

Astronomical League (optional)\$7.50

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

Pay at the meetings
Also via PayPal (send funds to treasurer@warrenastro.org)

Among the many benefits of membership are

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

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.

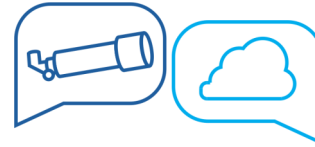
Stargate Observatory is owned and operated by the Society. Located on the grounds of Camp Rotary on 29 Mile Road, 1.8 miles east of Romeo Plank Road, Stargate features an 8-inch refractor telescope under a steel dome. The observatory is open according to the open house schedule published by the 2nd VP.

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

Jul 1	Cranbrook	Cliff Jones
Jul 18	Macomb	Glenn Wilkins
Aug 5	Cranbrook	Jon Blum
Aug 15	Macomb	Jonathan Kade and Diane Hall

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 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!

July discussion group will be Wednesday 7/24, at 7 PM at the home of Gary Ross (1828 North Lafayette, Royal Oak MI 48071). The usual cheap red wine will be provided; alternate beverages and forms of junk food appreciated.

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President's Field of View

Alright, it is officially July which means Apollo fever is upon us, nearly 20 of us went to the Henry Ford on Sunday to watch the Apollo 11 documentary on the big screen. If you haven't made the trip to see this movie you need to change that before it's too late. The Club has lots to look forward to this month, on top of all the usual fun that come with July weather and the 4th festivities. The WAS is going to have its annual picnic on the 27th, this year it will overlap with the Openhouse, so we just need better weather than years past. We will have burgers and dogs, pops and water. Just bring a side dish to share and enjoy! We will have a mini swap meet as well so if you are looking to get rid of some old gear bring it along. In past picnic news the Veen Observatory Star-B-Que was held on Saturday the 22, the same night as our Openhouse. I was unable to attend either event, but I hope you made it to one. In future picnic news the FAAC multi-club picnic is going to be on Saturday August 10th, details can be found at for-astronomyclub.com. Last but certainly not least is the actual 50th anniversary of the Apollo 11 moon landing is this month! 7/20/2019 We will have a special observing night at Stargate to mark the occasion. The moon might be making a rather late appearance that night, but we don't need the moon to celebrate, just you!

In Homework, only one person solved the problem. The praise again goes to Gary Ross for saying it was either Mars or Mercury. It was in fact, Mercury but I had not considered how close mars is to the same value.

Solution: we know quite a bit now, the time, and the distance to fall, we can plug this into the equation of motion of falling bodies (ill skip the derivation) $\Delta x = vt + (1/2)gt^2$ where delta x is the distance (174.6meters), t is the time 9.72 seconds, v is initial velocity (zero) and of course g is the gravitational constant (little g). Plugging everything in and solving for g we get.

$$174.6 = (1/2)g(9.72^2)$$

$$349.2 = 94.48g$$

$$g = 3.7$$

Now just a quick google search (Gary used the book of all knowledge) shows that little g for Mercury is 3.7m/s so this is our answer, mars is 3.71 so it is also an acceptable answer.

HW-7/19: Perhaps the problems have been too easy, its time for a hard problem. If nobody solves this then we might have to go back to some simple problems. Ok here

it is, you are throwing a ball up a hill of angle (θ), at what angle (with respect to the hill) should you throw the ball for maximum distance up the hill. Hint: On flat ground a 45° angle maximizes distance. Do not concern yourself with air resistance.



Letters

"This is just a little of what I have read". -- Cynthia Maher

To-morrow (06/19/2014-ed.) will be five years since Cynthia Maher lectured the Society at Macomb C. C. Although many may have forgotten her *obra maestra*, and more may not have been present, there should be a retrospective.

"I do not have a degree in Astronomy, Biology, Environment, Atmospheric Science, or Earth Science . . . , I find myself wondering about all sorts of earthly things . . .". From her *apologium*.

Maher is an automotive engineer. I duly skip the speaker's biography concerning a considerable number of children and fluff, but point to her occupational training. Like so many Astronomical Society members, roving intellect and research skills took her into fascinating — and some controversial territory.

As the hand-out came around the room, I was flabbergasted, a tome twenty leaves thick, nearly all in colour. It inspired this comment (albeit not in the proper preservation). The diagrams, the plethora of graphs, the web-sites, and citations, if expanded would be a Master's degree. This, she did only for us. Maher is an intellectual omnivore of a "thresher's" appetite, so her humility, *supra*, is out of place.

To do an imperfect slog though material she was forced to rush through in an hour's time is inappropriate for the W.A.S.P. One must, give *some* recognition to such effort:

"GLOBAL TEMPERATURE RECORD"

Yes, the "Temperature Anomaly" (deg. C.) has been going up, 1975-2010.

With the exception of a dip at 1910, global temperature has been going up for 135 years.

Maher then presents six fascinating graphs for global temperature going back *five and-a-half* MY. What a wild ride! What emerges from this froth are possible a 41 KY cycle (insolation) and 100 KY cycle (dust accretion).

"ASTRONOMY INSOLATION THEORY"

What degree of sunlight reaches what part of Earth per

three independent variables: eccentricity, obliquity, precession. Moral: Our planet is not as astronomically "fixed" as we might like.

Were ice ages from "dust accretion" because "something exploded nearby"? Earth's orbit crosses the dust but it does not "block the sunlight". Maher wonders if the whole hypothesis "bites the dust" per an interview with theoretician Richard Muller. How many speakers before the Society track down a scientist for material?

"RADIATION AND CLOUDS"

Cloud formation is bound up with the exogenous variable of cosmic rays, those in turn affected by solar magnetic field. The 20th century saw considerable increase field strength. "During the last 100 years cosmic rays have become scarcer . . ." per Henrik Svensmark. (This writer: how complete data before - 1950?)

Graph: "Correlation claimed by Svensmark" between cosmic ray flux and sea temperature -- to 500 MY. Low cosmic rays mean lower water temperatures, like proverbial fly paper, but how well do we know antediluvian oceanic conditions?

"GREENHOUSE THEORY"

With a novelist's instinct, Maher saves this one for last. All the cognoscenti know that water vapour represents the lion's share of greenhouse gasses, CO-2 a distant second. Without the four principal gasses we would be approximately a vile 33 (C.) colder.

Based on Antarctic ice cores back 450,000 years, there is the statistician's "good" agreement between temperature and carbon dioxide levels. But *caveat*, in that long run there have been five temperature peaks similar to the one in the last ten thousand years. Sharp ascents are fol-

lowed by slow ragged declines.

Yes, the villain of our (contentious) times is CO-2, but Maher ends on a cautionary note. Is the hypothesis "[f]oudering"? Her final graph, a riot of colour, is the six hundred *million* year record of the atmospheric gas levels -- and global temperature. Waxing colloquial, the relationship is all over the place. Even the great Devonian Extinction does not show up!

Moral, mine not hers: The global warning "deniers" will deny even if they can not maintain ice in their G&T glasses. So said, and Savant Maher would agree, be careful is assigning a policy addressable villain in all this climatology and meteorology. Stop implying -- as the newsies do -- that every forest fire and Mississippi flood season is from "climate change".

Volver a empezar . . .

Said in mother Spain. Call this piece a "fan rave" if one must. So said, Cynthia Maher, engineer and indefatigable scholar, served our Society well in the lecture of five years ago. A lot of work, truly, but she should consider a *reprise*, all typical of our Society in attracting talent of the first magnitude.

G. M. ROSS, *sine die*
18 June 2019



Warren Astronomical Society
Your Name
Here

**Club Member
Name Tags**

Email publications@warrenastro.org for
your personalized name tag

Warren Astronomical Society Annual Picnic &

Open House

Saturday, July 27

5:30 PM

Stargate Observatory, Ray Twp., MI



Hot dogs, hamburgers and pop will be provided. Please bring a dish to pass!

Service animals allowed, otherwise, no pets.

Ray Township Library Joins the Telescope Program

On Monday, June 24, the WAS donated an Orion Starblast 4.5 inch telescope to the Ray Township Public Library. A picture shows the scope with Dale Partin and the Library Director, Christy DeMeulenaere. It was modified to make it more durable and easy to use by Mark Kedzior and Dale, and included a fold-up table to put it on and other accessories, such as a zoom eyepiece. Mark and Dale will be available to teach library patrons and staff how to use it, and to keep it in good repair.

About the Library Telescope Program

Mark Kedzior writes:

“At an Warren Astronomical Society Outreach Event at the Grosse Pointe Woods Branch Library in January 2015, I had discussions with Pat McClary, Library Programs Coordinator (now Branch Manager), explaining the Library Telescope Program to her, and if interested, would be willing to assist he in developing and starting the program for the



Photo: Alana Giacalone



Christy DeMeulenaere, Dr. Dale Partin

patrons in Grosse Pointe. In March of 2015, Pat informed me that she applied for a grant through their library foundation, and was approved for an amount that would purchase seven telescopes to be spread out amongst their three branches. After getting approval and support from the WAS Board to partner with Grosse Pointe in implementing the program, the items were ordered as needed.

Once all items arrived, the process of modifying the telescopes as described in the New Hampshire Astronomical Society's instructions began in May of 2015, with assistance from Diane Hall, Joe Tocco, Dale Thieme and myself. The launch of the program took place on June 26, 2015. Following the launch, I provided support to the library staff to monitor the scope's return to see if there was anything overlooked. In addition, I have provided a monthly telescope class at the Woods Branch to show interested patrons on the use of the telescope and answered any astronomy related questions that they may have. In

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2017, I began to include a PowerPoint presentation similar to Ken Bertin's "In The Sky", to show patrons how and where to locate celestial objects of interest with their library telescope. Classes are announced via their weekly e-newsletter that goes out on each weekend. Class sizes vary from one month to the next (one to sixteen patrons), but that doesn't matter to me!

The most popular event with the Library Telescopes took place on August 21, 2017 - four library telescopes were fitted with solar filters for the patrons to observe the Great American Solar Eclipse at two locations in Grosse Pointe - the Woods Branch, which had 450 people in attendance, and at the Ewald Branch, where 275 people witnessed this event. I have also set up telescopes at the Woods and Central Branch for some good old fashioned "Sidewalk Astronomy", mostly on 1st quarter moon nights.

Most recently, the Chesterfield Township Library purchased two telescopes, which were modified, and their program was launched on June 18, 2019. I have found it very rewarding to participate in this program, from modifying the telescopes, explaining how to use the telescope, and to do a brief astronomical presentation to attending patrons wanting to explore our night skies."

For more on the Library Telescope Program, here is the recording of Mark's presentation:

<https://www.youtube.com/watch?v=HUGEn9Y8kSY>



The View From C.W. Sirius Observatory



Messier 13

Messier 13 or M13, also designated NGC 6205 and sometimes called the Great Globular Cluster in Hercules or the Hercules Globular Cluster, is a globular cluster of stars in the constellation of Hercules. M13 is about 145 light-years in diameter, and it is composed of several hundred thousand stars, the brightest of which is a red giant. M13 is about 22,200 light-years away from Earth. It wasn't until 1779 that the single stars in this globular cluster were resolved. Compared to the stars in the neighborhood of the Sun, the stars in M13's stellar population are more than a hundred times denser. They are so

densely packed together that they sometimes collide and produce new stars. Traditional binoculars make the Hercules Globular Cluster look similar to a round patch of light. At least four inches of telescope aperture will allow observing the stars that constitute M13 as small pinpoints of light. However, only larger telescopes allow resolving stars further into the center of the cluster.

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

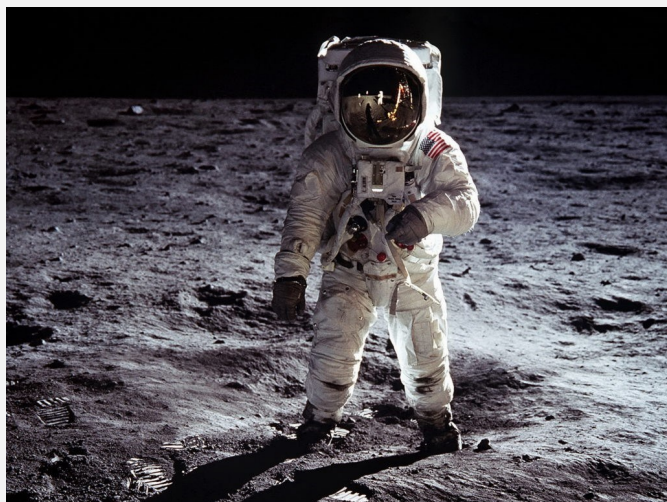


CMOS camera, as well as a QHY8L color or CCD camera. The telescope can be remotely operated from inside Bills house.



Simulating the First Moon Landing

**Saturday, July 20, 2019,
1:00-2:00 p.m.**



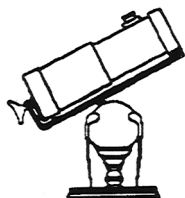
Join us as we celebrate the 50th anniversary of the first moon landing. Astronomer Mike O'Dowd will be showing a computer simulation of the first moon landing by Apollo 11. From inside the Lunar Module we will fly down to the lunar surface while dodging boulders and craters. He will also go over some little known facts about the Lunar Module, provide historical context and answer questions.

RSVP: <https://firstmoonlanding.eventbrite.com>

**Main Library
Old Fine Arts**
5201 Woodward Avenue
Detroit, MI 48202

313/481-1391

www.detroitpubliclibrary.org



Breaking News

The American Astronomical Society Acquires S&T

The AAS has agreed to acquire Sky & Telescope (S&T) magazine and its related business assets, including the skyandtelescope.com website, SkyWatch annual, digital editions, astronomy-themed tours, and S&T-branded books, sky atlases, globes, apps, and other stargazing products.

S&T's current owner, the magazine- and book-publishing company F+W Media, sought Chapter 11 bankruptcy protection in March 2019 after what court filings described as six years of poor strategy and management at the corporate level. The AAS, the major organization of professional astronomers in North America and a 501(c)(3) nonprofit corporation, was the winning bidder for S&T in a bankruptcy auction process that concluded on Monday, 17 June, pending approval by all parties to the transaction, final documentation, filing of final sales agreements and schedules with the bankruptcy court, and a successful closing process.

The AAS anticipates that S&T's staff of editors, designers, illustrators, and advertising sales representatives will become AAS employees but will continue to work out of the magazine's offices in Cambridge, Massachusetts. The AAS is headquartered in Washington, DC, but already has about a dozen remote staff members scattered from coast to coast. As it accomplishes the operational transitions needed to publish S&T, the Society anticipates making few if any changes to the editorial content or the way the magazine operates, and subscribers should see no interruption in its monthly delivery schedule. Enhancements and new products and services are likely in the future; these will be developed in partnership with the magazine's editors and readers and with the Society's members and other stakeholders.

"We couldn't be happier that we'll now be producing Sky & Telescope and our other products under the auspices of the American Astronomical Society," Tyson says. "We look forward to working with the AAS on our shared goals: supporting astronomers of all stripes, getting the word out about astronomical discoveries, enhancing pro-am collaborations, and mentoring the next generation of astronomers. It feels like S&T is finally landing where it belongs."

(Excerpts from an AAS email announcement)

From the Desk of the Northern Cross Observatory



PLANETARY PLAY

DOUG BOCK | SOLAR SYSTEM | JUNE 21, 2019

Objective

This month I decided to use some of the bright side of the Moon time, doing Lunar and Planetary imaging. This would be a more in-depth attempt, than just a shot of our moon. I've acquired single images of the moon many times, and processed them as is, but this will be the first time using videos.

I decided to give Jupiter a shot as well, since it is in opposition now. This month's attempts are as a beginner, since I've not done planetary imaging before with this system, nor any of the software that is used to do so, both acquisition and processing.

PROCESS

I acquired data on June 11-12, 2019 of our moon and Jupiter. This was done using the 10" f/8 RC and the ZWO asi071mc camera hardware. I decided to download the ZWO software ASICAP, to run the camera in video mode. This is a simple to use piece of software designed for the ZWO cameras.

I used this software to run 30, 60 and 90 second video recordings of the targets.



MOON

The first target was our moon, and here are several shots in various stages of processing.

This is close to full frame of the sensor, with the first image being the output of using AutoStakkert 3 software to pull 20% of the best frames from the 30 second video I recorded. The color aberration is the debayered matrix that was applied. One shot color cameras use 4 pixels to render a color pattern. In this case this camera's matrix is RGGB (Red, Green, Green, Blue)

The second image is after processing it through PixInsight and Registax to clean up color and resolution.

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I also reran the video through Autostakkert 3, zoomed into a section, to see how that would render. Below are the results of that. This image is processed using PixInsight, with no influence from Registax.



This image is after running it through Registax 6, using the Wavelets functions. Note the image is 'sharper'

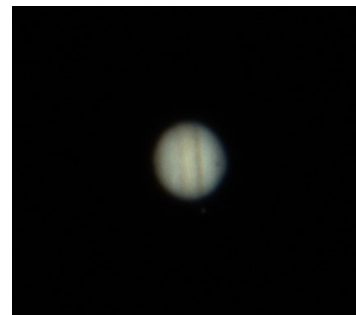
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JUPITER

I recorded several 30 second and a few 2 minute videos on this target. I started when it was only 14 degrees above the horizon in the SE. By the time I finished it was about 20 degrees above the horizon. The seeing was poor, with the onscreen video bubbling all over the place. This was the night that Io and Ganymede were transiting the planet, along with their shadows. For most of the evening, I couldn't even see the shadows in the live view, with only brief seconds of Ganymede's shadow appearing then disappearing.

To give you an idea here is the "best", "average", and "worst" single shots of Jupiter during the recordings.

After running the video through Autostakkert 3, and my initial processing I generated this image. The first thing I noticed is no color. The second thing I noticed is the resolution at 2000mm focal length, just wasn't enough.



This is a work in progress, and I'll do some more data acquisition at higher magnification to see what I can render in our turbulent skies at 20 degrees off the horizon. However, given this was my first attempt, at prime focus with this equipment, and all the other challenges, I was surprised at what I did get. This is by no means anywhere near the quality of most planetary imagers. I just enjoy learning and a challenge. Maybe I'll have some new results over the summer.

Clear Skies,

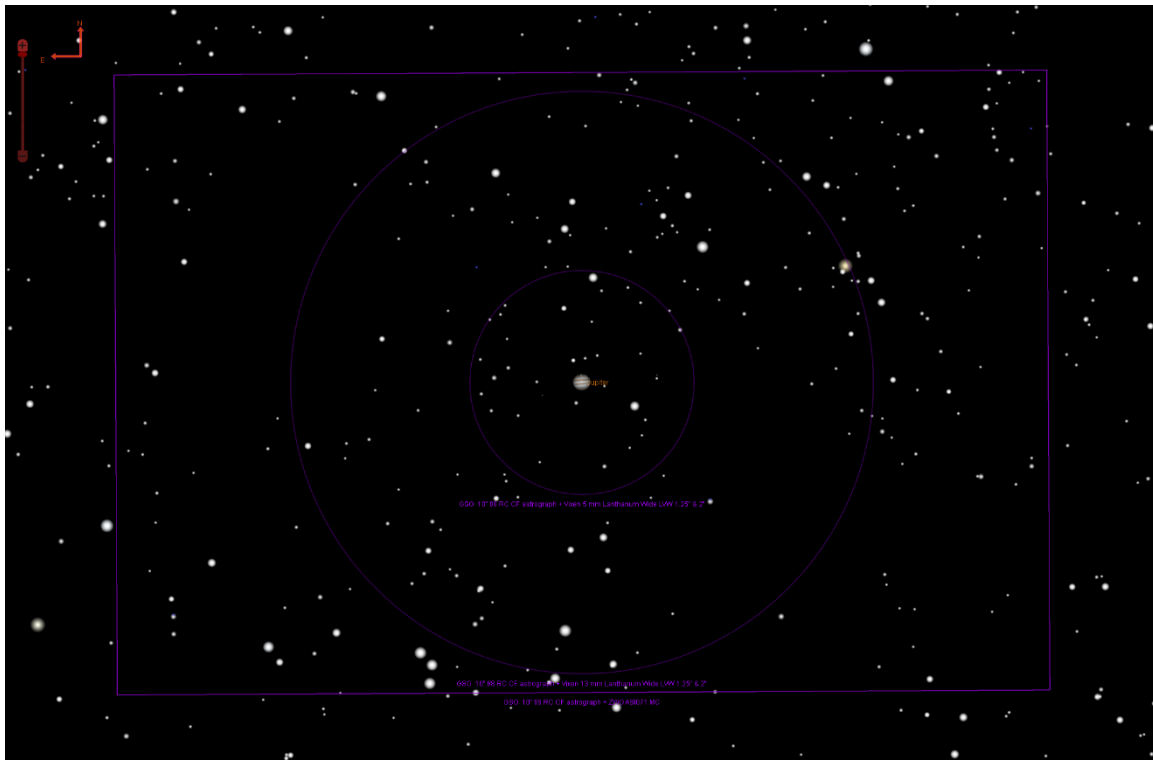
Doug Bock

(Continued on page 12)



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By the way, this is the field of view of the 10" at prime focus.



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

We'd like to see your photos and articles in the W.A.S.P. Your contribution is ESSENTIAL! – This is YOUR publication!

Send items to: publications@warrenastro.org

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



Movie Review

By Diane Hall

First Man (2018)

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. What more appropriate for the month in which Neil Armstrong took his first step upon the Moon than a film analyzing the First Man himself?

As a fan of James Hansen's biography of Neil Armstrong I was very much looking forward to the cinema adaptation of *First Man*, so it disappointed me that the movie flamed out of theaters over an asinine controversy over whether or not it showcased the American flag enough to be deemed patriotic. Rest assured plenty of American flags are on display, though it does raise the question of whether or not putting American men on the Moon was the best use of American tax dollars at the time. *First Man* is, however, anti-triumphalist, anti-feelgood, and essentially the anti-*Apollo 13*. Instead of "dramatizing" true events by cranking up the *drama* or "humanizing" real people by giving their names to Hollywood archetypes, *First Man* demands the audience take an emotionally remote hero on its— and his— own terms. Neil Armstrong (Ryan Gosling) escapes from one near-death scenario after another, and in the quieter spaces between crises he loses his daughter, changes jobs, makes friends, loses those friends, and puts a strain on wife Janet (Claire Foy) and his surviving children. Oh, and he walks on the moon.

It does little to no hand-holding for the audience on the

journey, from the opening sequence of Armstrong in an X-15 that conveys what claustrophobic and rattle-trap vehicles NASA test pilots flew, and how every flight at that speed and altitude might be a pilot's last. Introductions of supporting characters are sparse, making Armstrong's fellow astronauts a dizzying parade of clean-shaven white guys with buzzcuts. Who are these people anyway, and why should we care? Only Elliot See (Patrick Fugit), the other civilian besides Armstrong in Project Gemini, makes a sympathetic figure, though eventually Ed White (Jason Clarke) manages to become Armstrong's friend as the astronauts and their families start over in Houston. Even a scene wherein Armstrong is introduced to new recruits Buzz Aldrin (Corey Stoll) and Ensign Redshirt, I mean Roger Chaffee (Cory Michael Smith), didn't help me to recognize Aldrin a few scenes later, where he's being obnoxious after a funeral. The abrasive Aldrin functions as a foil to Armstrong— unfiltered where Armstrong is guarded, happy in the spotlight where Armstrong shies away from the attention, but the full import of the friction between Armstrong and Aldrin

over which of them would be the "First Man" to step out of the spacecraft is only touched upon and not resolved on-screen. Fellow Apollo 11 pilot Michael Collins (Lukas Haas) is barely present and mostly registers as a normal human being with the misfortune to be trapped in a spaceship with Armstrong and Aldrin. A scene from the original screenplay wherein Armstrong signs off on his oddball crew never made it into the final cut of the film, though it might have brought some additional depth to all three of



these characters on their history-making journey.

Neil Armstrong the man was, by all accounts, remote and essentially unknowable, but also possessed of humility and kindness and a sense of deadpan humor. Gosling nails the remote detachment while conveying that Armstrong has a maelstrom of unpleasant emotion under his facade and is escaping to space to get away from everything he doesn't want to engage with on the earth, but there seems something amiss when one compares his interpretation to footage of the actual First Man. Perhaps a muted measure of the Tom Hanks "astronaut as Boy Scout" approach might've helped lighten the film— Armstrong was, after all, an Eagle Scout himself. It's Janet Armstrong who gets the movie's main moments of heroism, whether confronting Mission Control during a crisis or forcing Neil to talk to his boys about the possibility he won't be coming back from the jaunt to the Moon. (For what it's worth, Armstrong's surviving sons Rick and Mark signed off on this portrayal of both their parents.)

First Man has so many elements that are very, very good,

so many little details that are a delight for a Space Race buff, and some of the best spaceflight sequences I've ever seen... and yet left me feeling that for all the painstaking research, an elusive spark of something didn't make it to the screen. "I can't talk to you, I have to figure this," says Armstrong to his Gemini crew mate Dave Scott (Christopher Abbott) as he works on the math to correct their course. "Can't talk — doing the math" is hardly "Houston, we have a problem" in terms of a memorable turn of phrase, and it's the strength and perplexing weakness of *First Man* that it was never meant to be.

Rating: 4 out of 5 Moons and the original screenplay entitled "Armstrong" makes for a fascinating read.



Next month, we'll resume our attempt to revisit The Right Stuff.

AMERICAN EXPERIENCE
CHASING THE MOON
A FILM BY ROBERT STONE

A SPECIAL THREE-NIGHT EVENT
TUNE IN OR STREAM MON JULY 8-10 9 PM

pbs.org/chasingthemoon #ChasingTheMoonPBS

Detroit Public TV

The poster features a central image of an astronaut in a white spacesuit walking away from the viewer on a lunar surface. In the background, a large rocket is being mated to a mobile launcher platform on a launch pad. The sky is a deep blue with stars. The text is overlaid on the image in white and yellow.

Presentations

Monday, July 1, 2019 Cranbrook Presentations

Main Talk:

Edward Charles Pickering
of the Harvard College Observatory

By Jim Foerch



Edward Charles Pickering directed the Harvard College Observatory from 1877 - 1919. He and his talented team of women 'computers' developed the classification of stars by their spectra, established the period-luminosity relation for the cosmic distance ladder and built the greatest collection of historical astrophotography in the world. He didn't do these things alone but they wouldn't have happened without him. He himself was an indefatigable observer and theorist as well as a program administrator, lead scientist and fund raiser



Burning non-native species at West Michigan Land Conservancy

Longtime Grand Rapids Amateur Astronomical Association member Jim Foerch has been an enthusiastic amateur astronomer since his sister showed him the cloud bands and Galilean satellites of Jupiter on Thanksgiving 1988. He has built telescopes and takes particular joy in sharing astronomy at the James C. Veen Observatory and at the Roger B. Chaffee Planetarium of the Grand Rapids Public Museum.

Short Talk:

A Week at Possum Space Academy

By Rebecca Blum

Possum Space Academy, at Embry Riddle Aeronautical University in Florida, offers a one-week course in immersive science education for tomorrow's astronautics profes-

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.

(Continued from page 15)

sionals. This includes mission simulation, spacesuit training, high-G and microgravity flight in an aerobatic aircraft, and more. Rebecca Blum recently attended that course and will report about her experiences.



Photo: Jon Blum

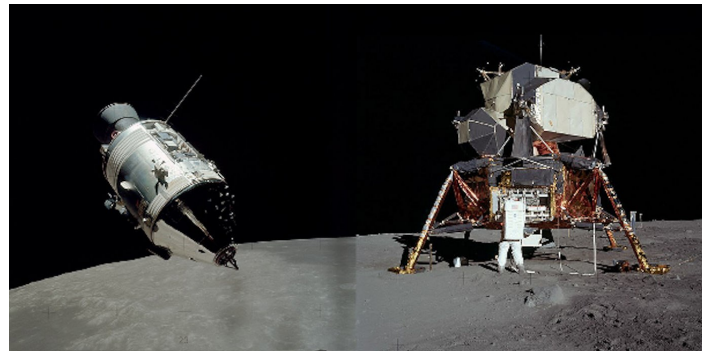
Rebecca has just completed her junior year at Cranbrook Kingswood High School, and is presently researching her college choices. She has been looking through her grandfather Jon's telescope since she was three years old, and has wanted to be an astronaut for almost that long. Her previous WAS presentations were about Space Camp in Huntsville, Alabama, and the Kennedy Space Center on Merritt Island, Florida.

Thursday, July 18, 2019 Macomb Presentation

Columbia & Eagle + 3 the true adventures of the best ship to come down the line

by Diane Hall

The good ships Columbia and Eagle and the three humans that piloted them to another world have more to tell us besides the handful of moments from Apollo 11's lunar landing that have entered the collective consciousness as something more mythic than historic. Let's get beneath the skin of these two fine spacecraft and their idiosyncratic crew to have a richer understanding of Apollo 11 as the astronomical community celebrates the 50th anniversary of Eagle's touchdown on the Moon.



Diane Hall is a past president of this august society and the 2018 E. John Searles Award recipient. She still has her entire Space Camp uniform and manual from 1990, when she "piloted" the shuttle Columbia on a simulated mission. She is still crying inside that both spacefaring Columbias aren't in the Smithsonian together.

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



Reflections on the Apollo Moon Landing

Larry F. Kalinowski

Introduction:

Earlier this year, the WASP received an email from Mark Kalinowski, son of Larry Kalinowski and lifetime member, regarding an article his father wrote concerning the Apollo 11 Moon landing. Mark thought the anniversary month would be an appropriate place to publish Larry's thoughts on the landing. —ed.

From Mark:

As you know, my dad passed away in May 2010. After my mom passed in December 2015, I went through her stuff, which of course by then included a fair amount of my dad's stuff.

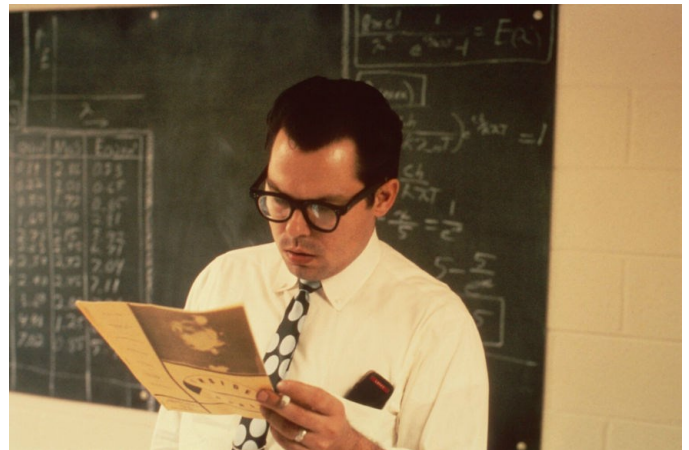
The following was something I found written by my dad.

I have no idea if it was ever published in any way (WASP or otherwise). My best guess is that it was written in the late 1980s, or perhaps in the very early 1990s, before the November 1991 fall of the Berlin Wall and December 1991 dissolution of the Soviet Union. There's no date on the printout I have, but it looks suspiciously like Commodore 64-style printing, and there is a phrase in the text below "Over the past twenty or so years..."

The following is more political than I would expect of my dad. He was not one given to political discussion with me. Dinnertime at the Kalinowski household -- back then families had dinners together, remember? -- was never a great gabfest about any topic, but I certainly don't remember politics being discussed. I can't tell you if my father voted for Ford or for Carter in 1976, or if he voted for Mondale or Reagan in 1980. (For all I know he was a maverick who voted Anderson in 1980.) This isn't to say my dad didn't hold robust opinions -- I know he did. Sometimes on a topic here and there he would make his opinions abundantly known to me. And the father/son context can be quite different from the context my dad enjoyed other folks... Gary Ross and Jack Szymanski, to name two. Bet those two guys didn't hold back their political opinions around my dad! And perhaps that would have made my dad more likely to open up about his political views in those contexts. Gary would know better than me on that...

In any case, if there's any chance the following could be published in the July 2019 edition of the WASP, I'd be grateful!

- Mark Kalinowski



"Commentary about July 20, 1969"

by Larry F. Kalinowski

Some of us have forgotten the date mentioned above and its significance as a historical event. Amazingly, many of us weren't even around at that time, which only goes to show how fast time flies in this space age.

I can remember reading about historical events in my Modern History class and saying to myself that someday, events that occurred during my lifetime will eventually appear in one of those books. Well, the amazing part is, not only did a particular event that occurred during my lifetime finally get recorded in the history books, I'm also amazed that I'm still around to read about it. Of course, I'm talking about the first manned landing on the surface of the moon.

Those of us who were around to see that significant event being televised will probably talk about it for the rest of our lives. It made us proud to be an American. It was only a "walk" to the Earth's backyard, so to speak, but so many problems had to be overcome in reaching that goal that the real significance of that landing was overshadowed by our exuberance. It's true that just getting there made the event historical, but the most important part of that landing wasn't just getting there, it was the seemingly insignificant planting of the American flag (televised around the world) that was the most important part of that trip. If those astronauts were never able to return for some unknown mechanical or electronic reason... if they had to perish on the Lunar surface for all the effort they had put into the landing, the American flag planting would have made those loss of lives worth every inch of the trek. Every dollar spent for that space race to the Moon culminated not in the return of those astronauts to Earth, but in the planting of "Old Glory."

I know just what you're thinking. You're thinking it would have been a tragedy if those lives hadn't made it back to Earth. Yes, it would have been a horrible thing to witness. We would have considered it a failure at the time, but as ghastly as such an occurrence might have been, our government felt the chance was worth the tragedy. Why?... because that space race was more than a show of might between two superpowers, it was an actual technological "war" that occurred on our home ground. A war that would have engulfed the entire world under one political influence if we had not been the first to plant our flag on the Moon. That space race "war" can now be revealed to be worth every dime some American people felt was pure waste... and worth it even if our "boys" had perished on the Moon.

Before 1945, the year the Second World War ended, the Americans and the Russians fought hand-in-hand against a common enemy, the German war machine. Look how things have changed. Now we are defending the Germans against our "friends" the Russians. If we had the foresight then, to see how the Russians were going to engulf those smaller European countries that they walked across to subdue the Germans, we might have tried to fight the Germans on our own. The Americans liberated those countries held by the Germans.

The Russians engulfed those weakened countries and squeezed the life out of them. The Russians took advantage of the motto, to the victor belongs the spoils.... as sad as it seems, we actually helped the Russians engulf those smaller countries, in our effort to stop the Germans.

Now, the point of all this. We now realize the Russians will take advantage of any situation to capture or keep any land that will contribute to its well being... and that includes the Moon. Over the past twenty or so years the importance of the Moon as a military base has grown by leaps and bounds. Can you imagine how much power the Russians would have acquired by simply claiming the Moon as their own? Sure, every other country in the world would object to such an occupation, but could they do anything about it? If they could, would they? I believe it is safe to say that not only would the Russians have occupied that piece of real estate, they would've begun arming it to the hilt. That's a situation that makes every sane man on the surface of this Earth cringe with fear. Somewhere in the past I've read about some kind of treaty that abolishes weapons in space. Does that treaty apply to the Moon? If it does, how do we know the Russians will abide by it?

The significance of our lunar landing is now fully apparent. Not only do we now have the capability of laying claim to the Moon, if we choose, we have even sealed that claim with the planting of our flag in the lunar soil. An event re-

quired by law in order to lay claim to any lands, by any country, not presently occupied. You say that law doesn't apply to the Moon? I wonder. Do you really think the Russian effort was just a little muscle flexing? The U.S. has dealt a blow to the Russians that they will never forget.

Strange as it may seem, it would have been better if the Russians had kept their space efforts a secret back during the days when satellites were just a figment of someone's imagination. They could have developed the rocket to reach the Moon and no one would have been the wiser. The Americans would have kept at their leisurely pace and let the Russians take a great leap forward. Instead of the U.S.S.R., looking for a display of space superiority, let the cat out of the bag... or should I say, the space race out of the bag. They lost an opportunity of a lifetime. You might even say, the blunder of blunders.

The Moon's importance will continue to increase as the world slowly acclimates itself to space travel and exploration. Not only will it serve as the first step to the planets and beyond, it will also serve as Earth's bodyguard, to keep offensive countries from overstepping their bounds.

Now that you have a chance to step back and contemplate the U.S.A.'s advance to the Moon, do you now feel you would be better off with that celestial sphere under totalitarian rule? Think about it.





SUMMER READING AND SUMMER LEARNING PROGRAMS

Sign up for the Summer
Reading Program and
READsquared

SATURDAY PROGRAMS:

Summer Reading Kick-off

June 22, Noon-3:00 p.m. Cass Lawn

SRP Theater Program - Universe of Stories June 29-
August 17, 1 :00-3:00 p.m.

8-week summer program for children ages 6-12. Learn about theater: set design, basic acting, and script writing, then perform a play on the last session. Free! Register at Children's Library desk.

NASA Solar System Ambassadors Series

June 29-August 17, 3:00-4:00 p.m.

8-week summer program for children ages 6-12. Learn about the solar system and make a craft to take home. Presented by Jenny Pon and Emily Elmer.

Introduction to the Solar System - Pocket Solar System

Saturday, June 29

Solar System and NASA Overview-Sundial

Saturday, July 6

Our Earth - Lava Lamp

Saturday, July 13

Remembering the First Moon Landing- Oreo Lunar Phases

Saturday, July 20

Our Sun- Sun Paintings Saturday, July 27

Mars- Make a Paper Rover Saturday, August 3

Voyager - Galaxy Pinwheels Saturday, August 10

Engineering - Physics Machine Saturday, August 17

THURSDAY PROGRAMS:

Please call to reserve space for your students if you have a large group

"Reach for the Moon" With Mad Science Thursday, July 11, 10:30-11 :15 a.m.

Astronomical Size and Distance- Ken Bertin Thursday, July 18, 10:30-11:15 a.m.

One Small Step-Jesse Mason Thursday, July 25, 10:30-11:15 a.m.

Pop Art Mosaic Art - Michael Albert Thursday, August 1, 10:30-11 :15 a.m.

So You Wanna Be an Astronaut -Diane Hall Thursday, August 8, 10:30-11: 15 a.m.

"Amazing Astronomy and Fantastic Physics" with Michigan Science Center Thursday, August 15, 10:30-11 :15 a.m.

Space Craft

Thursday, August 22, 10:30-11 :15 a.m.

SPECIAL EVENTS:

Live Feed of Total Solar Eclipse in Chile Tuesday, July 2, 4:00-6:00 p.m.

"Park and Read" Belle Isle Field Trip Friday, July 12, 9:00-2:30 p.m.

Children ages 9 and up with parent or guardian. Please register in Children's Library by July 10. Limit 45 participants.

Harry Potter's Birthday

Wednesday July 31, 4:00-5:30 p.m. Age 6-12

SEPTEMBER IS LIBRARY CARD SIGN UP MONTH.

Save the Date- Exotic Zoo Program Saturday September 28, 2019 2:00-3:00 p.m.



Main Library
Children's Library
5201 Woodward Ave.
Detroit, MI 48202
313.481-1409

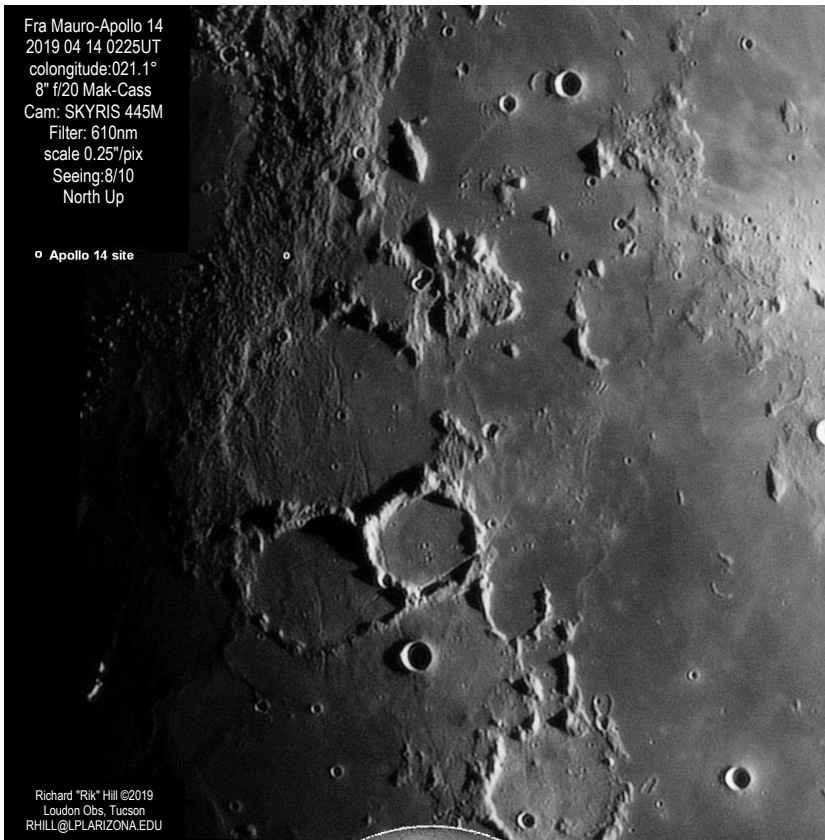
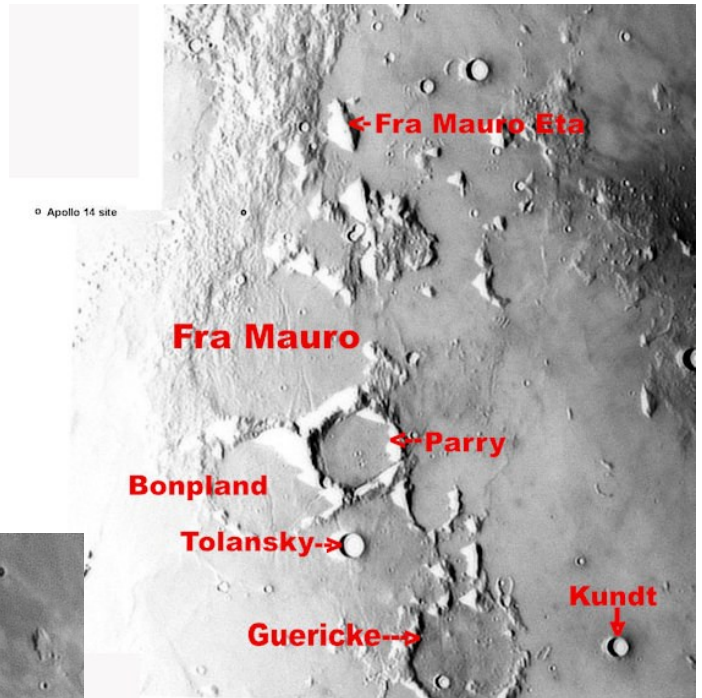


Over the Moon

With Rik Hill

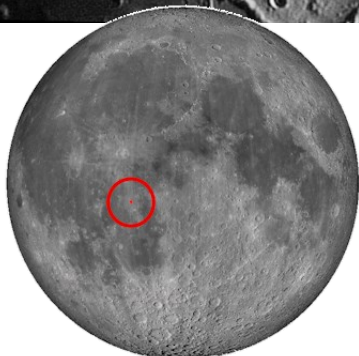
Fore!

Somewhere near the large crater Fra Mauro are two golf balls. That is what most people remember best from the Apollo 14 mission, the third manned mission to land on the moon. Not only did Commander Alan Shepard hit those two golf balls during over 9 hours of EVA (Extra Vehicular Activity) but they also brought back a then record 42.8kg of rocks. The landing site was north of the crater Fra Mauro (99km dia.) seen here just left of center with a small central crater, Fra Mauro E (4km) in the center and is marked with a small circle in the fairly rugged terrain (compared to the previous two landing sites of Apollo 11 and 12).



Below Fra Mauro are two craters, one with two large rimae almost at right angles to each other. This is Parry (49km) with the Rimae Parry and to the left of it is Bonpland (61km). These three are old craters, maybe over 4 billion years old. Below these ancient rings is a smaller, obviously younger crater, Tolansky (14km) about a billion years younger. At the bottom of the image is another ruined crater, Guericke (60km). To the right of Guericke is a very young crater Kundt (12km) possibly less than a billion years old. Before leaving this scene look to the upper right of Fra Mauro and the odd mountainous terrain there. The largest mountain, shaped like a spearhead, is Fra Mauro Eta which has a small crater Fra Mauro R (3km) on top (unfortunately in the shadow in this image). It was speculated, at one time, that this might be a volcanic vent but LROC QuickMap imagery shows it to be little different from surrounding craters of similar diameter.

This image is a montage of two images each stacked from 1800 image AVIs and further processed with GIMP and IrfanView.





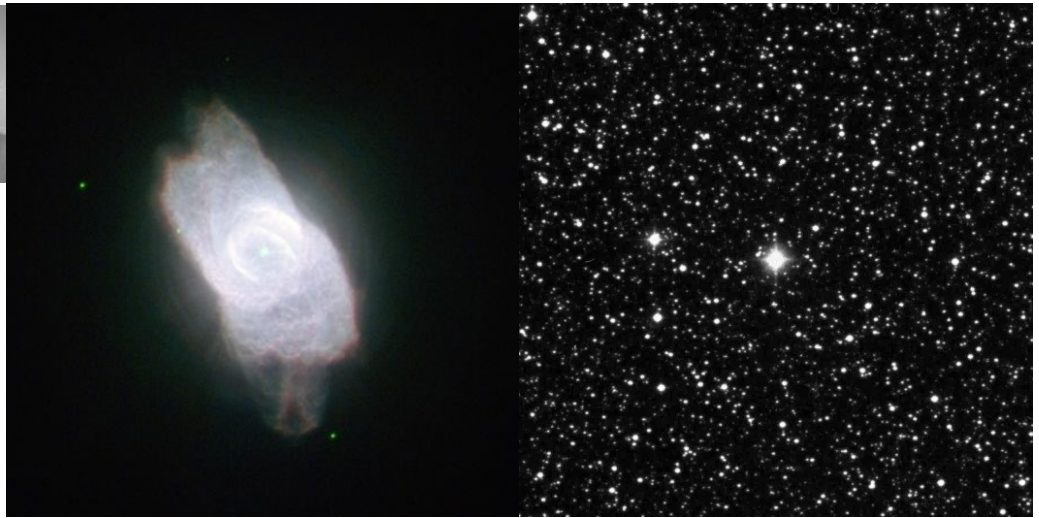
Object of the Month

By Chuck Dezelah

NGC 6572



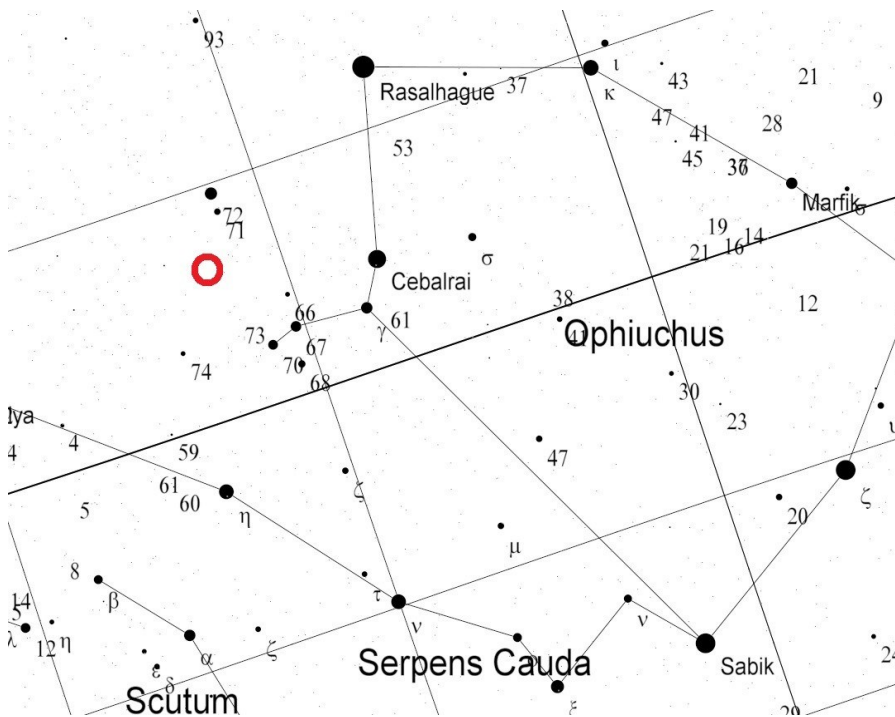
NGC 6572 is a planetary nebula in the constellation Ophiuchus and is often referred to by one of its several nicknames derived from its color and overall appearance: the Blue Racquetball, the Emerald Eye or the Turquoise Orb. It was discovered in 1825 by the German-Russian astronomer Friedrich von Struve, famous for his extensive catalog of double stars. The nebula has an integrated apparent magnitude of 8.1, angular dimensions of $18'' \times 15''$, and is Type 2a in the Vorontsov-Velyaminov classification system, indicating that it is comprised of a smooth disk that is brighter towards the center and lacks any obvious ring structure. As its common names suggest, the nebula's bluish-green color is readily observed. The Blue Racquetball is very bright for an object of its type, undoubtedly the result of its very young age. The planetary nebula would have been a red



Source: ESA/Hubble and NASA (left), Digitized Sky Survey (right)

giant star only a few thousand years ago, after which time it shed its outer envelope to produce luminous clouds of hot gas as it entered the final stage of its lifecycle.

NGC 6572 is relatively easy to locate by star-hopping, but due to its small size can be difficult to distinguish from an ordinary star at low magnification. The nebula is 3° south-southeast of 72 Ophiuchi (mag. 3.7) and about 7.5° east-northeast of Cebalrai (β Ophiuchi, mag 2.7). Due to its high surface brightness, the Blue Racquetball can be detected in nearly any sized amateur telescope, however, higher magnifications and steady conditions are often required to see the object for what it is. At 70x power and below, NGC 6572 will appear as a bloated and slightly elongated star with an oddly greenish tinge to its hue. At 120x the disk should be clearly discernable and the coloration clearly prominent. In 12-inch or larger apertures and at magnifications of 180x or higher, it may be possible to see that the shape is notably oblong and that the outer edge is diffuse. The 13th magnitude white dwarf that lies at the heart of the nebula may also be intermittently visible. At all magnifications, however, NGC 6552 provides a nice color-contrasted pair with the 9.5 magnitude star lying directly to the west.



Source: Cartes du Ciel

History S.I.G.

July 1989

On the cover of this issue, we have the unsettling image of several rockets (some very big) aimed at our club logo. The chief scanner knows not what to make of this. There is no mention of any anniversary of the Moon landing ten years earlier. But understandable as this issue arrived on the heels of a major shake-up in the club. I imagine everyone was quite distracted.



Two articles grace this issue, a how-to: "Collimation of A Newtonian" by Dan Cwiertniewicz and "Three Easy Summertime Variable Stars" by Jeff Bondono.

The minutes of the Macomb and the board meetings shed some low wattage light on the club's shake up.

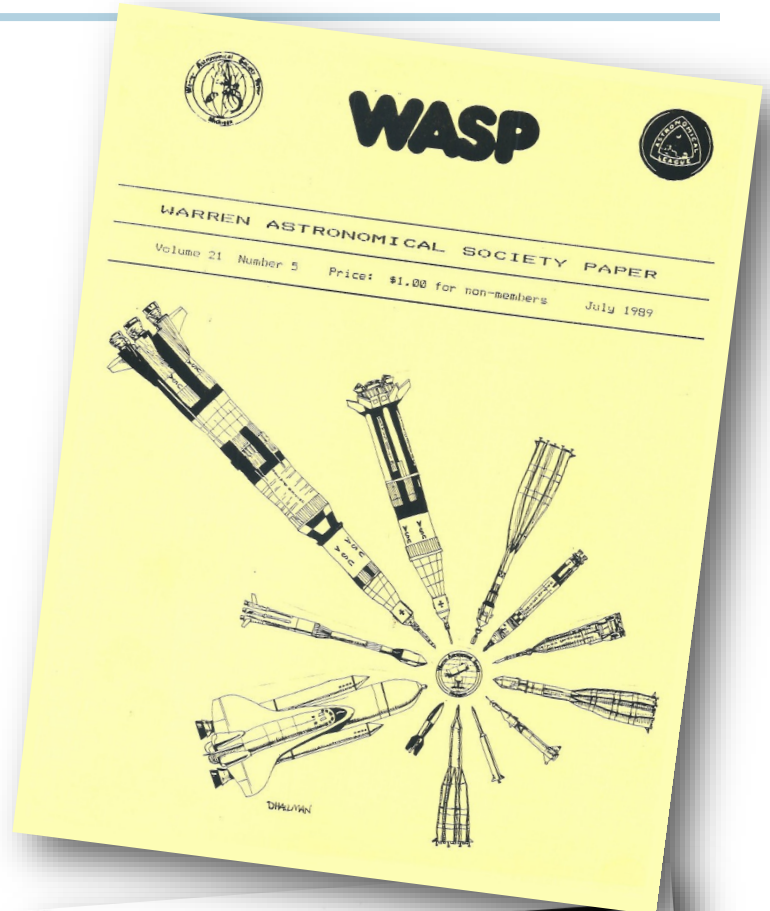
July 1999

Astro Chatter by Larry Kalinowski leads the way in this issue and is the only original content, the other article being a look back in: "The WASP 25 years ago: A Symbolic Quiz by Kenneth Wilson; Astronomy Puns for a cloudy night (reproduced from the July 1974 issue of the WASP)

—Sounds suspiciously like what I'm doing—Chief Scanner

Dale Thieme,
Chief scanner

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



WASP
Warren Astronomical Society Paper
Volume 31, Number 7
http://www.eaglequest.com/~bondono/WAS
July, 1999

Astro Chatter
by Larry Kalinowski

SETI made another splash in the local paper with the announcement that it is asking all interested computer users to log on to their websites around May 15, and download a program that will actually analyze the data that radio astronomers have been collecting over the last few years. The expected starting date is May 15. Once the analyzing program and data are downloaded, it'll take about twenty-four hours to analyze one batch of data. It can be done at night when you're sleeping or just about any time you're not using your computer. You must sign up at the website in order to receive your data assignment and program. The following websites are available for sign-up: <http://setiathome.ssi.berkeley.edu> and <http://planetary.org>. If you happen to be the lucky one to recognize an extraterrestrial signal, your name could go down in the history books.

Mars has plate tectonics. The Global Surveyor space probe that was sent to Mars recently has seen magnetic signals that are very similar to the Earth's. It means that Mars does have moving plates, or did have in the past. However, it was long before (about four million years) the Earth had them.

Comet Lee (C/1999 H1) is becoming an interesting object to observe in the southern sky. By the end of May it will be located near the head of Hydra with a magnitude of about 7.0, just on the limit of visibility but a good object for a camera with ordinary film or a CCD chip. I'll provide an ephemeris for Lee at the meetings.

If you didn't make the May meeting at MCCC, then you missed a superb lecture on the expanding universe by Lou

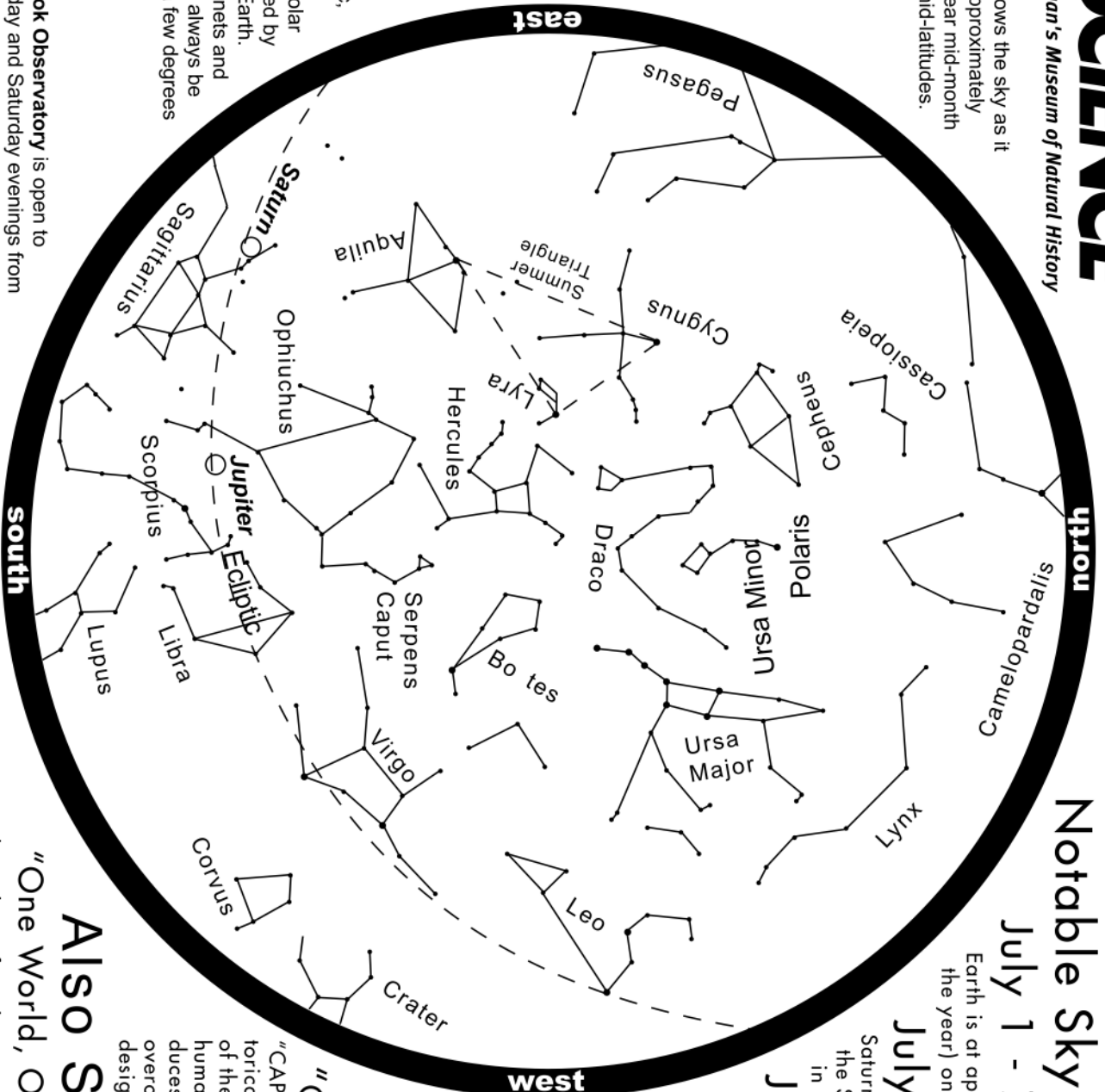
Felix. I hope Lou will present that same lecture to the Cranbrook group sometime in the near future. It was so good that I copied the electronic version that he used for the lecture and will make it available from the WAS computer library. It's a self running program that uses DOS to operate. You can run it right from your "A" drive if you're using WIN95 or 98.

The June computer meeting will be held at Gary Galthen's home on Thursday, the 24th. His address is 21 Elm Park, Three blocks south of the I-696 expressway and about half a block west of Woodward in Pleasant Ridge. You can reach him at 248-543-3366 for further information. ★

You are invited to the
Warren Astronomical Society's
Annual Club Picnic
on June 19, 1999
from 1 p.m. until ???
Activities to include:
Solar, Lunar & Double Star Observing
Plus Food, Fun & Friends!!
Please R.S.V.P. to (810) 598-1199
by June 11, 1999

WASP Page 1

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



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

The Cranbrook Observatory is open to the public 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/explore/observatory>

JULY 2019

Notable Sky Happenings

July 1 - 7

Earth is at aphelion (its greatest distance from the Sun for the year) on the 4th.

July 8 - 14

Saturn is at opposition on the 9th. It rises in the SE as the Sun sets in the NW. The Moon is left of Jupiter in the SSE the evening of the 13th.

July 15 - 21

The Moon is to the right of Saturn in the SE the evening of the 15th.

July 22 - 31

The Moon is upper right of Aldebaran in the east before dawn on the 27th and lower left on the 28th. Delta-Aquarid Meteor Shower peaks on the night of the 28th-29th.

Jul. 2 & 31	Jul. 9	Jul. 16	Jul. 24
New Moon	First Quarter	Full Moon	Last Quarter

Now Showing

"CAPCOM GO! The Apollo Story" "CAPCOM GO! The Apollo Story" is an immersive, historical documentary that showcases the achievements of the Apollo program and what it took to put the first humans on the Moon 50 years ago this month. It introduces a new generation to the immense challenges they overcame and will inspire them to become the explorers, designers, engineers, thinkers and dreamers of the future.

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>





Stargate Observatory

Monthly Free Astronomy Open House and Star Party

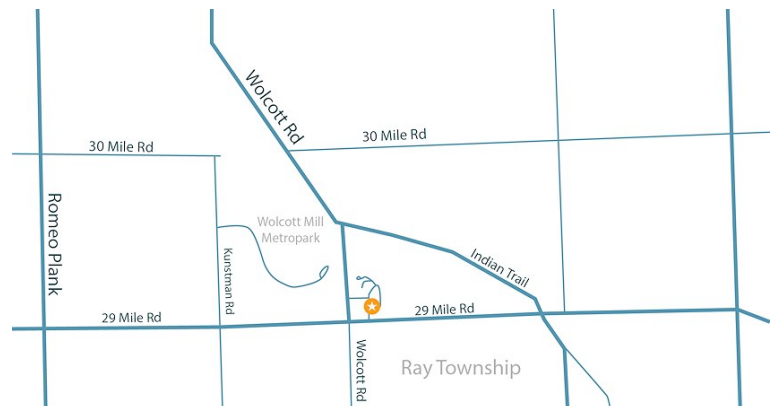
4th Saturday of the month!

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

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 Events

The Stargate Observatory only hosted one event for June 2019, the monthly Open House.

Riyad Matti opened & closed the observatory for the Open House.

Despite the initial partly cloudy forecast, the skies cleared and we had about 15 club members with scopes and estimated 50+ visitors thru the observatory.

The major attraction was Jupiter and GRS transit.

Next Month Events

Next Open House is scheduled for Saturday, July 27, 2019.

Please arrive just after sunset (or sooner if you plan to set up a scope or do solar observing).

A friendly reminder to be courteous if you arrive after dark, dim your headlights upon entry to the park, and no white light flashlights please.

If you are setting up a large scope or have a lot of equipment to set up then you are permitted to park on the observing field, with your vehicle lights pointed away from the observatory and other telescopes.

Remember to dress warm and in layers!

Sunset : 8:57pm

Astronomical Twilight Ending : 9:57pm

Moonrise : 1:05am

Thank You
David Baranski

2nd VP (Observatory Chairperson 2019)

Phone : 248 934 9836

personal Email : d.r.baranski@sbcglobal.net

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)

Astronomical Events for July 2019

Add one hour for Daylight Savings Time

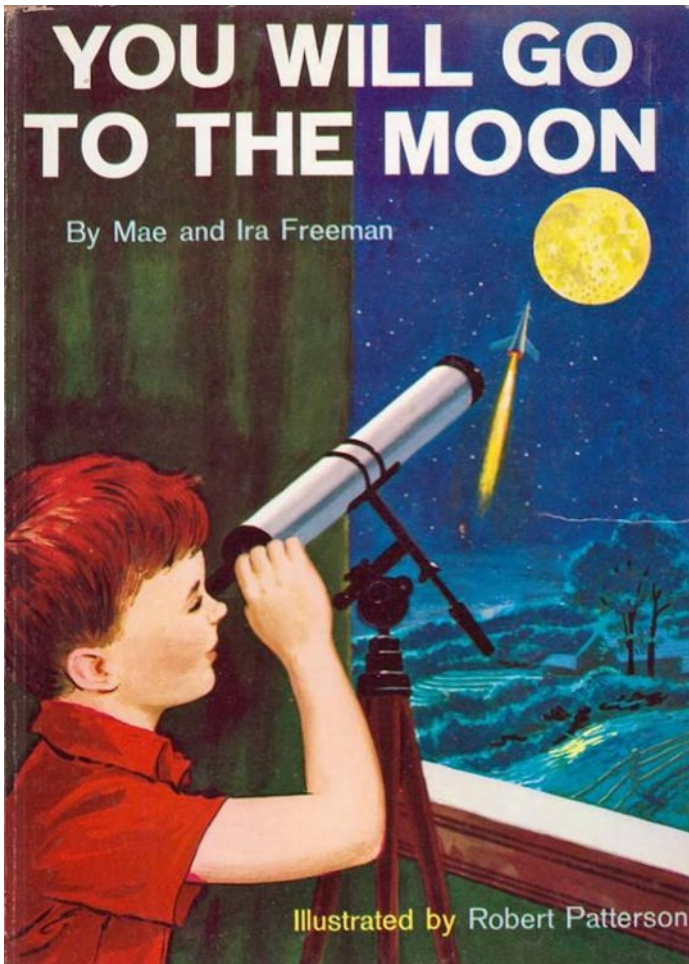
Source:

<http://www.astropixels.com/ephemeris/astrocal/astrocal2019est.html>

Day	EST (h:m)	Event
02	14:16	NEW MOON
02	14:23	Total Solar Eclipse; mag=1.046
03	01:53	Moon at Ascending Node
04	03:34	Mercury 3.3°S of Moon
04	08:20	Mercury 2.5°S of Beehive
04	10:02	Beehive 0.2°S of Moon
04	18:00	Earth at Aphelion: 1.01676 AU
04	23:54	Moon at Perigee: 363729 km
05	18:00	Mercury 3.8° of Mars
05	21:17	Regulus 3.2°S of Moon
07	02:00	Mercury at Aphelion
09	05:55	FIRST QUARTER MOON
09	11:00	Saturn at Opposition
13	02:06	Mars 0.4°S of Beehive
13	14:43	Jupiter 2.3°S of Moon
16	02:27	Saturn 0.2°N of Moon: Occn.
16	04:05	Moon at Descending Node
16	16:31	Partial Lunar Eclipse; mag=0.653
16	16:38	FULL MOON
20	19:01	Moon at Apogee: 405480 km
21	08:00	Mercury at Inferior Conjunction
24	20:18	LAST QUARTER MOON
27	19:47	Aldebaran 2.3°S of Moon
28	10:00	Delta-Aquarid Meteor Shower
30	12:02	Moon at Ascending Node
31	22:12	NEW MOON

Outreach Report

My wife and I are packing up our home of 22 years, and will be moving a few miles north. While I was clearing my bookshelf, I found a book that I owned as a child, that has somehow remained with me, albeit a bit worse for wear. "You Will Go To the Moon" 1959 by Mae and Ira Freeman. Illustrated by Robert Patterson.

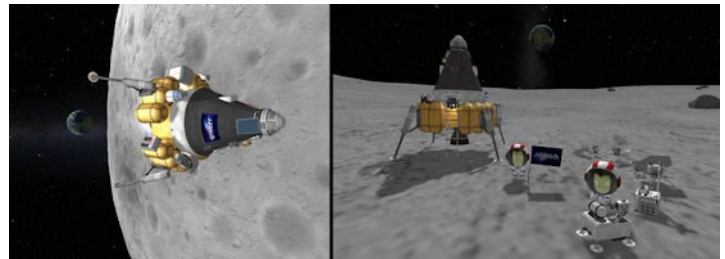


I was a child of the Apollo era, and like many others of that time, our lives were influenced-by, and in many cases shaped-by the events of the early space age. As I look at through the book now, many of the images are *very* reminiscent of Chesley Bonestell's artwork - also something from my childhood. This book shows a Moon lander leaving from a toroidal space station - something Bonestell featured in many pieces of his art way before 2001: A Space Odyssey; there's also a whimsical image of an adult and child, both in spacesuits, jumping off the Moon's surface!

You can view "You Will Go To the Moon" here [\[Link\]](#)

60 years after that children's book was published, and 50 years after

having landed on the Moon, we *still* don't have cool toroidal space stations, or children on the Moon. But with the China National Space Agency recently landing 2 rovers on the Moon, and NASA's announcement of plans to send the first woman to the Moon by 2024, I am hopeful that *maybe* my grandchildren may be the ones to finally "Go To the Moon" and stay. In the meantime, I'll have to be satisfied with going there myself in Kerbal Space Program!



June 30th was 5th annual **International #AsteroidDay**. From their website: "Asteroid Day is a dynamic awareness and educational program to inspire the world about asteroids - their role in the formation of our universe, how we can use their resources, how asteroids can pave the way for future exploration and finally how we can protect our planet from asteroid impacts."



Dozens of AsteroidDay events were held around the world on or around June 30th - the anniversary of the Tunguska impact of 1908; Bob Trembley spoke at Cranbrook during their AsteroidDay event on June 29th.

AsteroidDay Website: [\[Link\]](#) UN AsteroidDay Article: [\[Link\]](#)

(Continued on page 27)



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Member Spotlight

Mark Kedzior did his telescope class / night sky presentation on Wednesday June 12th at Grosse Pointe Woods Library to 4 patrons.

The **Chesterfield TWP Library Telescope Program** launched on Tuesday, June 18! Mark reports they had 11 patrons in attendance, and the telescopes were checked out after the program. The program consisted of how to use the library telescope, then a presentation on the night skies and celestial objects of the month/summer. It was well received to say the least.

I was at **STARBASE One** at Selfridge Air National Guard Base on June 11 & 12th as part of their Summer Academy - I taught the students how to fly rockets in Kerbal Space Program. I created several different rockets for them to launch:



a small and large sounding rockets, and crewed sub-orbital and orbital vessels. Students also got to experience a virtual reality Apollo 11 lunar landing and Earth reentry! I showed a virtual reality Apollo 11 lunar landing to a couple people at the Macomb meeting, and a VR fly-over of Saturn's rings to at least a dozen people at the Stargate open house on June 27th.

Bob Berta helped some **Boy Scouts** (who were students at Mrs. Trembley's school) with some astronomy badge work at the Stargate open house. THANKS Bob!

Jonathan Kade gave the "Astronomy 101" presentation as scheduled at the Busch Library in Warren on Wednesday, June 26. There were about 15 people in attendance. I had a lot of good questions, and a number of people expressed an interest in coming out.

Upcoming Outreach Events

Bob Trembley is presenting "The Apollo program and its Legacy" at the **Chesterfield TWP Library** July 11 at 6:00 PM.

Mark Kedzior is giving a class/presentation at **Grosse Pointe Woods Library** Monday July 8, **Shelby TWP Library** July 10 and **Chesterfield TWP Library** July 17

Jonathan Kade is Presenting at the **Auburn Hills Public Library** July 10th at 7:00 PM

Mark Kedzior is Presenting at the **Auburn Hills Public Library** July 10th

Ken Bertin is Presenting:

- July 15 Southfield
- July 17 West Bloomfield
- July 25 Brandon

Outreach Events Needing Volunteers

Mark Kedzior passed along this new request:

Friday, July 19th - Family Campout at Grosse Pointe Woods Branch Library. [\[Link\]](#)

Contact: Branch Manager Pat McClary

Asking if the W.A.S. could provide either a few telescopes to show campers (they could also use any library telescopes that are on site) some night sky objects if the weather permits.

In in case of inclement weather, provide a PowerPoint presentation on astronomy/night sky objects. The volunteer (s) need only spend a few hours at campout, and there will be a hot dogs! Last year there were about 25 families signed up, but the event was cancelled last year due to the extreme solar vortex with stifling heat.

Family STEM Night at the Fraser Activity Center

Tuesday July 16th at 9:00 PM

The organizer has requested the W.A.S. have a telescope or binocular (or a few) at the event. They are also asking if any volunteers would be willing to come out and talk about astronomy, telescopes and the science of the stars.

Contact: Rachel Agusti rsagusti@gmail.com (586) 296-8483

Camp-out at Chesterfield Pollard Park

Friday Aug. 23 6:30 PM - Sat. Morning

The evening will include storytelling, sports games, s'mores stations, a flashlight night hike, and more.

Contact: Michele Vannerson mvannerson@chesterfieldtwp.org (586) 949-0400, ext. 6450

Bob Trembley
Outreach

Meeting Minutes

BOARD MEETING – June 3rd, 2019

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

The meeting was called to order by Jeff MacLeod at: 6:39 PM

Officer's reports

Jeff MacLeod gave the President's report

Jonathan Kade gave the 1st Vice President's report. The presentation schedule is shaping up.

David Baranski gave the 2nd Vice President's report.

Quotes for replacement of the Stargate dome were discussed.

Mark Jakubisin gave the Treasurer's report. The detailed report is in the WASP.

Jerry Voorheis reported that the minutes are in the WASP.

Bob Trembly gave the Outreach report. He is looking for presenters at Astronomy at the Beach.

Publications – Dr. Dale Partin reported that the WASP is up.

Old Business

Motion by Jeff MacLeod to remove Joe Tocco, Ruth Huellmantel, and Dianne and to add Mark Jakubisin, Jeff MacLeod, and Jonathan Kade as signers on the Warren Astronomical Society bank account. Second by Dr. Dale Partin. Motion passed

The meeting adjourned at: 7:23 PM

CRANBROOK MEETING – June 3rd, 2019

Meeting called to order at 7:31 PM by Jeff MacLeod, President.

Roll call.

41 persons were present.

Ken Bertin presented In the News and In the Sky.

Jeff MacLeod gave the President's report. He reported that 20 tickets were available for WAS members to see an Apollo 11 movie on Sunday, June 30th. Winners of Jeff's math problem were announced.

Jonathan Kade gave the 1st Vice President's report. He reported that presentations were scheduled for most of the year. He is looking for a new WAS Banquet venue.

David Baranski gave the 2nd Vice Presidents report. He reported on quotes for a new Stargate Dome.

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. He reported that GLAAC is seeking a speaker for Astronomy on the Beach.

Dr. Dale Partin reported that the WASP is up.

Marty Kunz reported that there was a sunspot on the far side of the sun which would become visible in a couple of days.

The next discussion group will be hosted by Joe Tocco on Thursday, June 27th.

Jonathan Kade reported that the WAS library was ending and that members could take books.

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

Observing reports: Gary Ross reported on observing T. Centauri with 8X French binoculars.

The WAS picnic and open house will be on July 27th.

The Short Presentation was given by Diane Hall "Last Call at Yerkes Observatory".

Snack/Break Time.

The Long Presentation was given by Professor Ed Cackett - "Mapping a Black Hole".

Meeting was adjourned at 10:03 PM.

MACOMB MEETING – June 20th, 2019

Meeting called to order at 7:32 PM by Jeff MacLeod, President.

Roll call.

33 persons were present.

Jeff MacLeod gave the President's Report He announced the Apollo 11 IMAX movie at 4:30 PM on June 30th, the WAS picnic on July 27th, and the Ford Astronomy Club picnic August 10 at Spring Mill Pond in Island Lake State Park.

Jeff MacLeod gave the 1st Vice President's report. The presentation schedule is filling up.

Jeff MacLeod gave the 2nd Vice President's report. There were 2 events last month. The open house was excellent.

The next open house will be on June 22nd.

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

Jeff MacLeod gave the Treasurer's report. There are 94 memberships.

Jeff MacLeod gave the Outreach report.

Jeff MacLeod gave the publications report The WASP is up.

Ken Bertin presented In the News and In the Sky.

Snack/Break Time.

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(Continued from page 28)

The Short Presentation was by Professor Jerry Dunifer –
“The Event Horizon Telescope”.
The Main Presentation was by Ben Coughenour-
“Photographing a Black Hole”
Meeting was adjourned at 9:37 PM.

Jerry Voorheis
Secretary

Treasurer's Report

Treasurer's Report for 6/30/2019

MEMBERSHIP

We have 99 current members

INCOME AND EXPENDITURES (SUMMARY)

We took in \$2,492 and spent/transferred \$295 We have
\$22,418 in the bank \$37 in checks and \$488 in cash,
totaling \$22,944 as of 6/30/2019.

INCOME

\$1,751	Memberships/renewals
\$90	Astronomical League
\$346	Snacks
\$165	Calendars
\$23.5	Paul Strong Scholarship

EXPENSES

\$173	Snacks / Supplies
\$90	Meetup Fees 2019
\$16	Library Storage Boxes

GLAAC REPORT 6/30/2019

Beginning Balance: \$5,101.34

INCOME

Received check for \$50 from Star Powers Author Ta-
ble Rental 2019 (not deposited yet)

EXPENSES

No activity
Ending Balance: \$5,101.34

Mark Jakubisin
Treasurer



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.

Classifieds

Orion 8" telescope, Atlas EQ-G GoTo Mount & Accessories for sale

Included in the sale is:

- 203mm f/4.9 Ref OTA w/Crayford 8" Orion telescope
- Atlas EQ-G w/HC Computerized Go-To Mount
- Baader Planetarium MPC8III
- Sirius Plossl 10mm 1.25"
- Mini 50mm Guide Scope
- StarShoot AutoGuider
- 5 Amp AC to 12V DC Power Adapter
- 2" Zero Profile Focus Cam. Adapter
- T-ring, Nikon
- Moon Filter, 13% T, 1.25"
- Shorty 2x Barlow 1.25"
- Sirius Plossl 32mm 1.25"
- Tube Rings, 235mm ID
- 3 of 11 lb. Counterweight Atlas/Sirius
- Dovetail Mounting Plate 13"
- Sirius Plossl 25mm 1.25"
- 8x40 Finder Scope Black



Lenovo Z51 laptop computer
All instruction manuals

Everything was purchased from Orion, invoices attached, with exception of the laptop. We paid just over \$2,500 plus the laptop and are asking \$1,750. See attached pictures.

This was set up but never used. Will send more pictures if interested.

Please contact Jeremy by email to j.m.myer@yahoo.com or call/text 248-830-0896.

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

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

GLAAC Club and Society Meeting Times

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

GLAAC Club and Society Newsletters

Warren Astronomical Society:
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
Bob Trembley: Balrog's Lair
Bill Beers: Sirius Astro Products

Jon Blum: Astronomy at JonRosie
Bob Trembley: Vatican Observatory Foundation Blog
Jeff MacLeod: 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>



This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.org to find local clubs, events, and more!

Observe the Moon and Beyond: Apollo 11 at 50

By David Prosper

Saturn is at opposition this month, beckoning to future explorers with its beautiful rings and varied, mysterious moons. The **Moon** prominently passes Saturn mid-month, just in time for the 50th anniversary of **Apollo 11**!

Saturn is in opposition on July 9, rising in the east as the Sun sets in the west. It is visible all night, hovering right above the teapot of Sagittarius. Saturn is not nearly as bright as Jupiter, next door in Scorpius, but both giant planets are easily the brightest objects in their constellations, making them easy to identify. A full **Moon** scrapes by the ringed planet late in the evening of the 15th through the early morning of the 16th. Some observers in South America will even see the Moon occult, or pass in front of, Saturn. Observe how fast the Moon moves in relation to Saturn throughout the night by recording their positions every half hour or so via sketches or photos.

While observing the Saturn-Moon celestial dance the early morning of the 16th, you can also contemplate the 50th anniversary of the launch of the **Apollo 11** mission! On June 16, 1969, Apollo 11 blasted off from Cape Canaveral in Florida on a journey of almost a quarter million miles to our nearest celestial neighbor, a mission made possible by the tremendous power of the Saturn V rocket – still the most powerful rocket ever launched. Just a few days later, on July 20, 1969 at 10:56 pm EDT, Neil Armstrong and Buzz Aldrin set foot on the lunar surface and became the first people in history to walk on another world. The astronauts set up equipment including a solar wind sampler, laser ranging retroreflector, and seismometer, and gathered up almost

22 kilograms (48 pounds) of precious lunar rocks and soil samples. After spending less than a day on the Moon's surface, the duo blasted off and returned to the orbiting Columbia Command Module, piloted by Michael Collins. Just a few days later, on July 24, all three astronauts splashed down safely in the Pacific Ocean. You can follow the timeline of the Apollo 11 mission in greater detail at bit.ly/TimelineApollo11 and dig deep into mission history and science on **NASA's Apollo History Site**: bit.ly/ApolloNASA.

Have you ever wanted to see the flag on the Moon left behind by the Apollo astronauts? While no telescope on Earth is powerful enough to see any items left behind the landing sites, you can discover how much you can observe with the **Flag on the Moon** handout: bit.ly/MoonFlag

You can catch up on all of NASA's current and future missions at nasa.gov

Copernicus

This crater (left) is easy to spot. It formed about 800 million years ago, and is 57 miles (92 km) wide. Note central peaks and terraced walls, caused by impact.

Aristarchus

Young crater. So bright that Sir William Herschel thought it was an active volcano.

Kepler

Small version of Copernicus

Grimaldi

Lava-filled crater is one of the darkest spots you can see on the Moon. It's 145 miles wide (233 km).

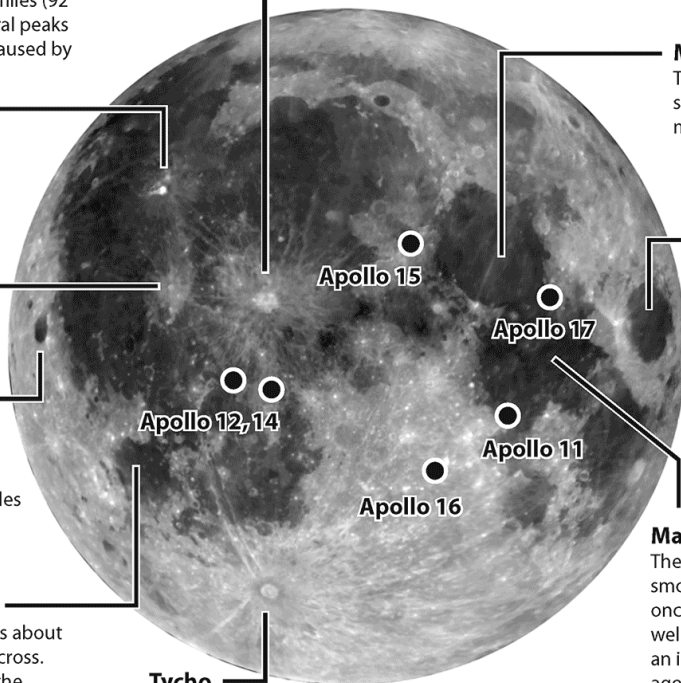
Mare Humorum

The Sea of Moisture is about 220 miles (350 km) across. You can spot it with the naked eye. With a telescope, you might notice two craters along its edge.

Tycho

Young crater best seen during a full Moon. Rays of bright material are ejecta blasted out of the crust when a large asteroid struck about 109 million years ago.

The Moon



Mare Serenitatis

The Sea of Serenity is solid lava, some 380 miles (610 km) across.

Mare Crisium

The Sea of Crisis is about 340 miles wide (550 km) and visible to the naked eye.

Mare Tranquillitatis

The Sea of Tranquility is a smooth plain filled with once-molten lava that welled up from below after an impact billions of years ago. The first humans to walk on the Moon, Apollo 11 astronauts, landed near the edge.

SOURCES: NASA; ADVANCED SKYWATCHING; CAMBRIDGE ATLAS OF ASTRONOMY; DK VISUAL ENCYCLOPEDIA

Photos: James Scala. Layout and text for Moon map used with permission: Robert Roy Britt/SPACE.com.

Caption: Observe the larger details on the Moon with help from this map, which also pinpoints the Apollo landing site. Full handout available at bit.ly/MoonHandout