



Celebrating Sixty Years of the Warren Astronomical Society



The W.A.S.P.

Vol. 53, no. 9

Winner of the Astronomical League's 2021 Mabel Sterns Award

September 2021

The Warren Astronomical Society Publication

Photo-bombed by the Perseids



Adrian Bradley found some Perseid meteors in his Milky Way images in August. Here's one.



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)

Among the many benefits of membership are

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

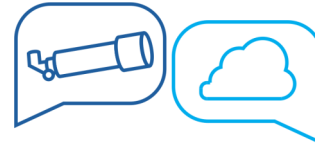
The Warren Astronomical Society Publication (WASP) is the official monthly publication of the Society. Articles for inclusion in the WASP are strongly encouraged and should be submitted to the editor on or before the end of each month. Any format of submission is accepted. Materials can either be transmitted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

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

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

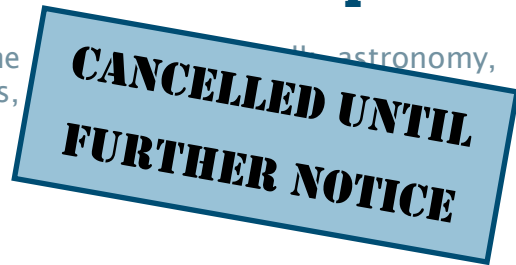
Snack Volunteer Schedule

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



Discussion Group Meeting

Come discuss the latest in astronomy, space news,



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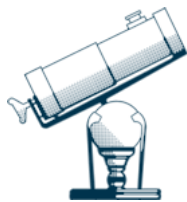


President's Field of View

The Personal Solar Telescope had been in the hatch of my car for almost a week; I'd been forced to cancel my plans for an event in St. Clair on Sunday afternoon and now it was Thursday. The scarred surveyor's tripod, a secondhand bequest from a former coworker, likewise had been rattling around in my back seat for four days and counting. Each day that week had been a little hotter, a little more humid, and a little less tolerable than the last and Thursday promised to be the peak of this miserable crescendo— ninety-eight degrees Fahrenheit and air like damp cotton wool against the skin. I was going to redeem myself and the summer sun that day, because I had business to conduct in a parking lot and a car full of astro gear and there were spots on the sun.

I set up the canvass launch in my usual spot in the parking lot of the civic center-library-courthouse conglomerate common to Michigan suburbs of a certain vintage. The handful of ornamental trees offered me no shade but gave my telescope minimal obstruction; the legs of the ancient tripod splayed out across the breadth of a parking spot but I knew nobody was coming to pack the parking lot on that Thursday morning because no one ever does on a Thursday. The only people showing up at that end of the lot would be the people I'd invited to come knock doors with me on behalf of the state legislature. I popped a 25mm eyepiece into the PST and drew it into focus. The sun showed as an orange-red ball, flecked with black spots here and there, licked by one obvious prominence and with clear granulation in one hemisphere.

And so, after an eighteen month drought of in-person outreach, I declared that sweltering Thursday to be Bring Your Telescope to Work Day, because the chance was there and I took it. Five of my colleagues, including two legislators, peered carefully through the lens and each was rewarded with their first-ever glimpse of the surface of the sun. I rocked back and forth on my walking shoes on the blacktop, feeling that old thrill of giving someone a "wow" moment for the first time in long months. Back in Business, at least for a few minutes of tactical-strike astronomy. Sidewalk astronomy, guerrilla astronomy... and it felt good to be back in action.



Employment Opportunities



PlaneWave Instruments manufactures telescopes for astronomical use, scientific inquiry, aerospace needs and laser communication ground stations. PlaneWave has been in business since 2006 and is the industry leader in remotely controlled robotic telescopes. Most of the manufacturing occurs in Adrian and Deerfield MI. The job offerings here are for our headquarters location in Adrian, MI.

Optical Technician

PlaneWave Instruments is looking for optics technicians to join our company. We require well motivated individuals who would find it exciting to make surfaces 1000x better than CNC machines can make. The job uses computerized optics machines and optical testing hardware both designed by PlaneWave. The job is hands-on and requires some lifting when moving optics. The job also requires being comfortable with computers. Having some basic math is also helpful. Optics are measured in either microns, nanometers or fractions of a wavelength of light. No experience in optics is required as PlaneWave will provide training, but having an attention to detail is a must.

Electrical Technician

PlaneWave Instruments is looking for electrical technicians. The job entails the following:

- Building up wiring harnesses
- Assembling wiring harnesses into telescopes
- Wiring coils in the stator of telescope drive motors built and assembled at PlaneWave
- Programming firmware into custom boards that drive the telescope systems

Proficiency in soldering, being comfortable around computers and having an attention to detail is required. Experience in soldering is preferred.

Competitive salary and benefit package



Letters

Sweet Caroline

Last month our esteemed G M Ross wrote a very nice article about the achievements of Caroline Herschel, sister of the great William Herschel. But how could Gary have forgotten to mention Miss Herschel's MOST notable accomplishment? Her 1783 discovery of one of the most beautiful star clusters in astronomy. NGC7789 (Caroline's Rose). Located in the constellation Cassiopeia, a deep sky object observed and photographed by millions. THAT is how she will be remembered. Rest assured, I will be showing Gary, "Caroline's Rose" though the big 10" dob the next time we are up at CW.

-Bill Beers

Snow-Flakes Keep Fallin' on My Head

In the Matter of a dispatch from Our Man in Hamilton.

By the Grace of God and Scholar Thieme, in this space last month was a discussion of gently fractured history about women's place in science. But from the venerable GLOBE AND MAIL, now comes a far more ominous Orwellian developent: biological nomenclature.

Last month, Raimondo, M.S., J.D., Esq. sent an article in which "decolonizing" appeared in the very first sentence. I knew waving that "bloody shirt" spelled trouble, and was right. As usual in contemporary journalism, we start with a human interest hook, this one from British Columbia and a worthy named Yousif Attia who encountered a Hutton's vireo. "At a time when North American society is reckoning with historical injustices, such as slavery and residential schools, names of all sorts are receiving scrutiny..

. . . Now bird names are coming under the magnifying glass".

Yes, "trouble with a capital T, that rhymes with P, that stands for [political correctness]". "Each one of these birds is unique. They deserve a name that describes them, not just the dude [ital.] that shot one' says Mr Attia . . .". (Emphasis added.)

Then we fly in to the founding of Black Birders Week, based upon a nasty incident in Central Park. Then we have a quote, "wove the fabric of systemic racism through every aspect of our lives, including the birds we see every day". And we learn of a new movement, Bird's Names for Birds. Then the piece ends in a long sentence that begins unhappily: data of North American bird loss since 1970. It ends with th asinine per ornitologist Attia, "Anything we

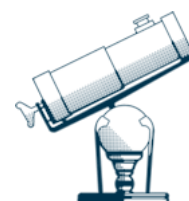
can do to help people care about birds is a step in the right direction".

Bli' me! One hopes Edwin Hubble did not have stock in coal mines which used child labour. May Allah forbid that George E. Hale's gran-daddy might have owned slaves. Did the first Struve oppose the emancipation of Russian serfdom? The Cheka was re-named the N.K.V.D. because it concealed purpose -- but was the same personnel doing the same grotesque things. As O'Brien of the Inner Party says to Smith of the Outer Party: The past is what we say it is.

My absolutely favourite fresh-water aquatic organism is *Craspedacusta sowerbii*. For the price of a pint I will give you the Irish bard's version of that clearing morning at the end of August, 1980. We were on Boot Lake in the Upper Peninsula doing plankton drags. In the bow, I pulled up the conical net to shake down the glass ampoule, and could not believe my eyes . . . We went a little crazy, and the pick-up truck practically floated back to the Bio. Sta. at Pellston.

What if Sowerby was an amateur field man, the kind who made science history great? But what if his factory employed women, coloured people, and immigrants at low wages, and the superintendent would pull a "piece" on a union organiser? Be mature by choosing your targets. Neurotic revisionism invites right-wing ridicule. Woodrow Wilson is not the U-boat captain who knowingly fired at Lusitania. [Ital.] Sir John A. MacDonald did not help assemble the Nagasaki bomb. Columbus did not exterminate the Arawaks. "Gypsy moth" is not conceivably a slur against the much abused Romani. "By the pricking of my thumbs, [sensitivity police] this way comes".

G. M. ROSS, 21.VIII.21



Observation Reports

From Michigan's West Coast

30-31 July

Jupiter. Just past meridian (consequential currently).

Hint of N. Temperate Belt. Aequatorward margin of N.E.B. strongly reddish-orange, all though not full width as best could be seen. South Aeq. Belt all most vanishing by comparison.

Transparency poor. Seeing fair.

6-cm. refractor @ 100X

COMMENTARY: Fugitive western smoke so evident, local N.W.S. forecasts mention.

1 - 2 August

Jupiter. With/w/o green filter: Strong showing by N. Aequatorial Belt, very dark and bifurcated in lat. N. Temperate Belt evident. S. Aequatorial Belt anaemic in part from suspected appearance of Great Red Spot & environs. Spot is NOT red or close thereto, so filter little advantage. Not poss. to be completely sure. No trace of southern polar "hood". Callisto @ far western elong. lo dim with filter, indicating orange component of surface + proximity to the ball.

Transparency good. Seeing good, brief dimming prob. smoke tendrils.

6-cm. f/11 refractor. 100X

3 - 4 August

Jupiter. With green (No.58), the North Aequatorial Belt narrow and VERY pronounced. Further evidence of red component in tint. N. T. B. similar response but much fainter and very narrow. S. Aequatorial Belt enhanced but anaemic by comparison save for southern margin. Obs'd on prev. occasions:

Aequatorial Zone yellowish in green filter. lo very dim to W. of planet, from intrinsic orange enhanced by filter + proximity to the ball.

Past meridian, Jupiter appeared yellow-gold. At intervals in the eye-piece, may have dimmed briefly from smoke-haze.

Transparency fair. Seeing good.

6-cm. refractor, 100X

4 - 5 August

The Moon. Three d. before New. With illumination very low and few reference points around terminator, actually mistook Riccioli for Grimaldi and Hevelius and Riccioli. Phocylides prominent, especially Phocylides F, a deep satellite crater to S. Adjacent, the famous filled crater Wargentini not seen, likely from solar angle. In northern hemis. Repsold, only prominent feature. No trace of "shining mtns." around mid-crescent limb. On

the night portion, Mare Crisium only vaguely visible, normally prominent at waning crescent from earthlight.

Transparency poor. Seeing good.

5-cm. refractor, 85X.

COMMENTARY: At start of obs'n the Moon was gold-tan. At first light, on meridian looking S. no stars visible below 45 deg.

5 - 6 August

Jupiter on meridian. The south "polar hood" might have been visible. North Aequatorial Belt, as in previous obs'ns with much suppressed tint. To west of the ball, satellites I, II, and IV tightly aligned in formation reminiscent of Orion's "belt". Rare. No colourimetry, given conditions.

Transparency poor. Seeing fair. Approaching stratus.

6-cm. refractor @ 100X

26-27 July

The Moon. Waning gibbous. Terminator at the deranged super-feature centred on Hommel + Valcq + Pitiscus + Nearchus. Given all subsidiary impacts, the region is very old. Seven subaltern craters to Hommel are assigned letters on Rukl's Plate 76. The disturbed [sel]ain draws the eye because of an impressive jumble at sun-set. To the S. the partially drowned Fracastorius (by Mare Nectaris) well displayed the long ray which originates from the vicinity of Tycho. This ray touches the crater as a tangent, well in evidence despite very low illumination. Farther north, The famous twin of Cyrillus/ Theophilus both sport doubled central peaks, at least in very late afternoon solar angle. With a magnifying glass the peaks may be made out on the North American Aviation photo-map from early 1960's.

Transparency / seeing, no data.

6-cm. f/11 refractor @ 100X

COMMENTARY: With 2ndary data, triangulation is imp. Neither the N. American photo-montage, nor the reduced Sky Publishing reproduction of *Mappa Selenographica*, 1926, even list Hommel despite all its "progeny". The former uses Lick plates from the Moore-Chappell work of the 1930's, while Sky made a much reduced version of *Selenographica* to fit its magazine. Rukl's excellent *ATLAS OF THE MOON* affords many pages of relatively large scale.

20 August

The Sun

(Continued on page 6)

(Continued from page 5)

No sun-spots

Transparency fair

5-cm. f /11 refractor @ 90X

21-22 August

Jupiter. Shortly past conjunction with Full Moon, 4 deg. at closest approach. (05h. U.T.) With green No. 58 filter, N. Aequatorial Belt striking, narrow dense. By contrast S. B. of same width, but order of mag. fainter. Low power not allow for polar "hood" nor Temperate Belts. To R. of ball two satellites in tight "cat's eye" proximity, easternmost mistaken for Callisto because faint. Europa/ Ganymede in stead. Confusion probably from deep green + proximity of Moon in a turbid sky.

Transparency fair. Seeing good.

6-cm. refractor @ 75X

23-24 August.

Jupiter. With light blue (No.80). Confirmed: N. Aequatorial Belt bifurcated in lat., but 2nd component faint, toward Aequator. N. Temp. Belt well defined, the border of N. polar "hood". Faint trace of the N. N. Temperate Belt within. "Hood" vaguely bluish. South Aequatorial Belt all so bifurcated, the faint companion toward Aequator too. This Belt much narrower than former yrs. Linear. Great Red Spot visible barely, well to E. of Central Meridian. Small, of minimal colouration, blends in to S. Belt.

Possible darker "eye-brow" on S. margin of the G.R.S. South polar "hood" all so in that hemisphere defined by S.T.B., but fainter than northern one, very light grey. Aequatorial Zone less colour than with green filter: yellows (longer wave-length) absent with No. 80. To E. of ball, emerging Callisto faint from forward scatter, whilst Ganymede stunning bright approaching greatest W. elongation. Differential tint/ features in the hemisphere presented at W. elongation?

Transparency fair (+ Moon). Seeing good.

16" Borr Teles. @ 225X

28-29 August

Jupiter. Alignment of satellites. On the east, a "cat's eyes" of Ganymede/ Europa, whilst Callisto near greatest elongation. Callisto seemed unusually bright (mean value 5.7), but initially Europa (5.3) mistaken for her because of hue. Easy to identify Ganymede at 1st blush from brightness.

Possible reasons for initial mistake: Europa adjacent to Ganymede, making her seem dim as well as bluer by comparison with Ganymede's warmer tone.

Ergo, like sister moon. But why Callisto bright? Condition of Earth atmosphere, turbidity + low elevation? Effect should be opposite with the "blue moon", i.e. reddening, hence dimmer. Hemisphere of Callisto being presented? Std. deviation of her mean mag. from positions in orbit, unknown.

Tranparency poor. Seeing good.

8" Newtonian reflector.

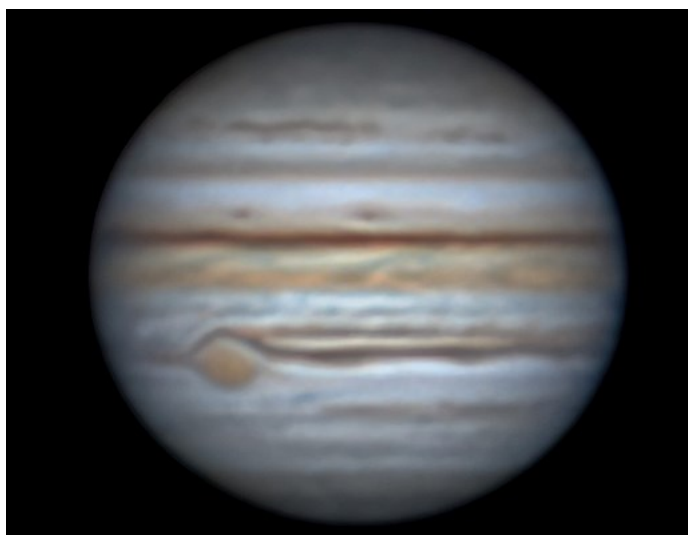


Image of Jupiter taken 25-Aug-2021 by Dale Hollenbaugh as the Great Red Spot rotated into view.

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.



Caldwell 33 – Eastern Veil Nebula



Stellarvue SVX080T-3SV
ZWO ASI2600MC Pro
Optolong L-eXtreme duo-narrowband filter
108x600sec (18 hours integration)

Images by Dale Hollenbaugh

Jupiter at Opposition with Transit and Eclipse of Io

Celestron C11 EdgeHD @ f/20
ZWO ASI462MC w/ADC
Aug. 19, 2021 @ 11:53PM EDT

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Gastronomically Speaking

I call this photo “**Gastronomically Astronomical: The Food Is Out of This World.**” It was taken in July of 2019.

I confess that this is not a photo of an extraterrestrial body, but there is no denying its astronomical content.

I also must confess that in my short time available in London, I did not have the Royal Astronomical Society on my list of places to see. However, when I came out of the Royal Academy of Art Museum, it was right in front of me.

I could not resist taking the photo attached. The gentleman having his lunch on the steps was the icing on the cake. The gastronomy and astronomy relationship had to be honored, just as it has been for all those who have:

- gathered at the Red Coat Tavern after meeting at Cranbrook
- eaten at one of the astronomy discussion groups
- had a snack at a WAS Meeting
- Etcetera

- Ray Bosshard



Almost full moon with plane in transit shot shortly after sunset August 20th, 2021.

Submitter: Ray Bosshard

The View From C.W. Sirius Observatory

Messier 83(M83) - Southern Pinwheel Galaxy

While at the Texas star party this past spring, I wanted to image objects only visible at the lower latitudes. Even though Messier 83 can be seen from up here in Michigan, being fairly low in the sky makes it difficult to view and image due to the atmosphere. Located 30 degrees south of the celestial equator, Messier 83 is the southernmost galaxy listed in Messier's catalogue, which makes it one of the most difficult Messier objects for northern observers because it never rises very high above the southern horizon. Messier 83, also known as the Southern Pinwheel Galaxy, is located 15 million light-years away in the constellation Hydra. M83 got its nickname from resembling M101, the Pinwheel Galaxy located in the north in Ursa Major. It was discovered in 1752 by the French astronomer Nicolas Louis de Lacaille. And despite its very low position for Paris, it was next cataloged by Charles Messier in 1781. With an apparent magnitude of 7.5, M83 is one of the brightest spiral galaxies in the night sky. It can be observed using a pair of binoculars most easily in May. With a spatial diameter of about 55,000 light years, or roughly half the size of the Milky Way, M83 is one of the nearest and brightest barred spirals in the sky. Six supernovae have been observed in M83 over the last century. The newest



generations of stars in M83 are forming largely in clusters on the edges of the dark, spiraling dust lanes. These brilliant, young stellar groupings are only a few million years old and produce huge amounts of ultraviolet light.

I used my 11" SCT f/7 telescope, and the ZWO 071 one-shot color camera to image M83. It consists of a little over 2 hours of integration time. No filters were used. M83 can be best viewed in the spring. You will need a very good southern horizon because it is so low. A 3" telescope will reveal a fuzzy patch, while using the larger scopes, 8" and bigger will show some structure in the arms. Choosing a night with less atmospheric turbulence will definitely help with your observing this object.



About CW Sirius Observatory:

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

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



From the Desk of the Northern Cross Observatory



On August 1-2, 2021, we had some decent weather to try out the ZWO asi2600MC PRO camera I recently purchased.

This month was nebula time, rendering the Bubble Nebula, also known as NGC 7635, Sharpless 162, or Caldwell 11, it is an H II region emission nebula in the constellation Cassiopeia. It lies close to the direction of the open cluster Messier 52. The "bubble" is created by the stellar wind from a massive hot, 8.7 magnitude young central star, SAO 20575. This object is about 11,000 light years from Earth, with a radius of 3.5 light years. Its apparent magnitude is 10, spanning 15' x 8'.

This test image was compared to last year's version and appears to show more nebulosity with this camera. It is rated to be more sensitive than the asi071mc pro camera, and I think that proves to be true. More testing is in order.



Data Acquisition: 10" f/8 RC, ZWO asi2600MC PRO, 57 x 300 second subs, at a gain of 100, temp 0C, along with darks and flats.

I also had the 300mm f/4 Canon lens piggybacked on the 10" using my ZWO asi071mc PRO camera centered on the Bubble Nebula as well.

This image contains identification of several other deep sky objects in the area.

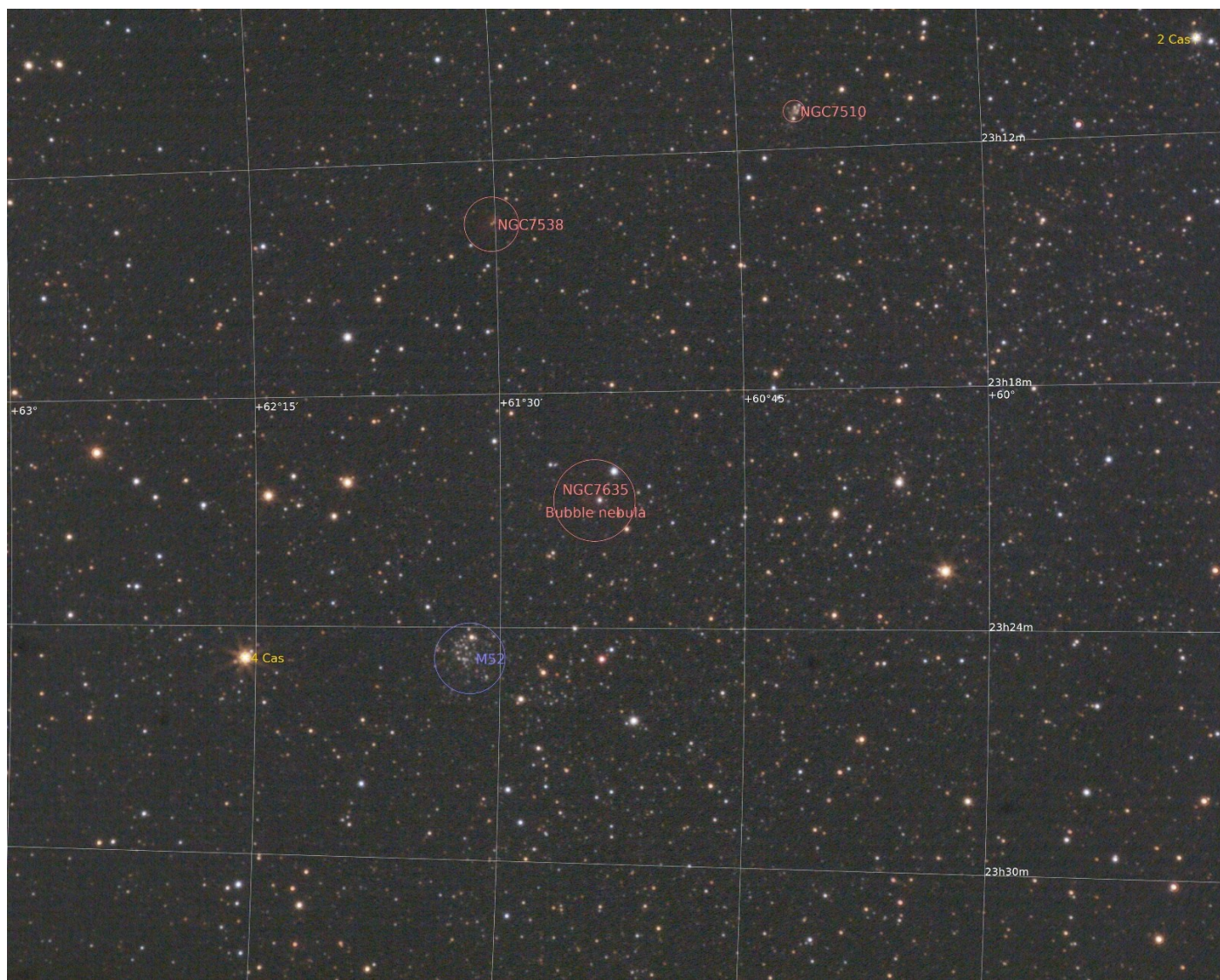
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NGC 7538, near the more famous Bubble Nebula, is located in the constellation Cepheus. It is located about 9,100 light-years from Earth. It is home to the biggest yet discovered protostar which is about 300 times the size of the Solar System.

NGC 7510 is an open cluster of stars located around 11,400 light years away in the constellation Cepheus, near the border with Cassiopeia. At this distance, the light from the cluster has undergone extinction from interstellar gas and dust

Messier 52 or M52, also known as NGC 7654, is an open cluster of stars in the northern constellation of Cassiopeia. It was discovered by Charles Messier on 1774. It can be seen from Earth under a good night sky with binoculars.



Data Acquisition: Canon 300mm f/4 lens, ZWO asi071MC PRO, 48 x 300 second light frames, temp 0C, gain 90.

-Doug Bock

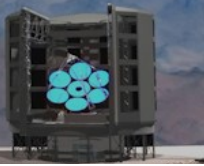
Presentations

Monday, September 13, 2021

Virtual Presentations

Main Talk:

The Giant Magellan Telescope



By Jim Shedlowsky

Since Galileo first pointed his one and a half inch refractor to the heavens and discovered lunar mountains, the phases of Venus and Jupiter's moons,...he and other astronomers sought to observe celestial objects that were fainter and to see them more clearly. These two parameters,...sensitivity and resolution are primarily related to the size of the telescope involved. Thus, as time went on, telescopes grew larger and larger. By the end of the 20th century, with the assistance of modern technology and fast computers,... telescopes had reached the staggering sizes of 330 inches for a monolithic mirror or nearly 400 inches for segmented mirrors.

The Giant Magellan Telescope is one of a trio of large ground based telescope projects that will provide the next giant leap forward in telescope size to nearly 1000 inches (24.5 meters) enabling it to view objects more than 10 times more clearly than Hubble and see objects 5 times fainter than Keck (today's largest telescope). It is unique in this "next generation" trio in that it uses seven 8.4 meter light weight honey comb mirrors to synthesize its primary mirror,as opposed to its competitors which use 500 to 800 much smaller segments to accomplish this task. The presentation will discuss its design, its advanced Adaptive Optics system and its science goals.

About the speaker

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 and his wife winter in Mesa, Arizona (a great place for observing), and he participates in activities of the East Valley Astronomy Club.



(Continued on page 13)

Thursday, September 16, 2021

Virtual Presentation

The Hamburg Meteor

Descriptive

By Tony Licata

- The Hamburg Meteor - Introduction
- That Fateful Day - Recalling the events of the day of the fall
- Triangulating a Meteor - How we pinpointed where to search
- Serendipity - A culmination of perfect circumstances for meteorite hunting
- The Search Continues - Ongoing efforts after the first finds.
- A Freak Twist of Fate - Meeting up with Brian Barnibo and his missing meteorite.
- Curious Holes - Magnet fishing through the ice.
- New Ideas - Sweepers, Diving, Drone work
- Technical report and strewn field maps

About the Speaker

Tony Licata is a retired automotive sculptor in the Detroit area with a passion for astronomy. He enjoys rock hunting, nature and astrophotography.
Contact:
tglicata@gmail.com



A Hamburg Meteorite - found by Tony Licata

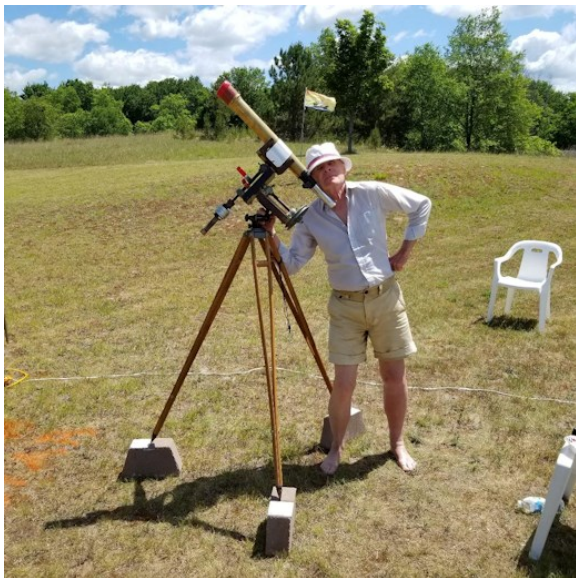
(Continued from page 12)

Short Talk:



Presented by Gary Ross

"Blue Lake Fine Arts Broadcasting" is heard in Grand Rapids via WBLU, and on week-day evenings are broadcasts of American symphony orchestras, each organisation in the same day slot. Deftly narrated by Alec Baldwin, the New York Philharmonic is a regular. An evening in late spring, one of us (Ross), exhausted by a day of doing practically no thing was about to pull the plug, literally, after the first selection. But the patent leather voice of the presenter said Gustav Holst's *The Planets* would be next. How could one hit the sack? Wherefor -- watching the Sun set through the new leaves out the kitchen window, he gave *hommage* whilst leaning on the cook stove to stay awake. It was worth the effort, as expected. Holst done, he again reached for the plug when Baldwin came through the curtain to announce a special treat: the interval



lecture delivered at a November, 1945 radio broadcast of *The Planets*, by no less than Professor Edwin Hubble. With a death grip on the stove, for the first time he heard the voice of His Eminence.

Clayton V. Carey was enlisted to see if he could secure Hubble for the Warren Society, having pulled many a rabbit out of a hat as "Master of the Cloud", "Man of a Hundred Hard Drives". He found the proper official address for the Philharmonic, and a LETTER was dispatched. The rest, as they say, is "history".

About the Presenter(s):

Did not observe the solar eclipse of 1954 in the Upper Peninsula. Failed to see the opposition of Mars in 1956, but read about it in LIFE. Had no concept of a reflecting telescope before precocious cousin Mike -- eventually graduating from Cass Tech -- showed a mirror grinding kit in 1958. Started the celebrated Jerry Persha in the optics business when in 1966, became disgusted with a 5" plate glass mirror polishing, so consigned it to Persha with a ten dollar bill. In recent years, no interest in dark matter, dark energy, "missing" mass, or the Big Bang, and has never cared about "hot pixels". As part of the Rea expedition, observed the solar eclipse of 2017 at Russellville, Kentucky with the below.

Clayton V. ("The Brain") Carey: Man of a Hundred Hard Drives. Did not observe the solar eclipse of 1963 in New England. Showed no interest in the solar minimum of 1964. In recent years, has no use for dark matter, dark energy, "missing" mass, or the Big Bang, and has never pondered hot pixels. Given a choice of being an astronomer or ornithologist, would choose the latter. As part of the Bullerman expedition, observed the solar eclipse of 2017 with the above.

Finally, Dale Thieme, the producer of the video slideshow in this presentation, did catch the 2017 eclipse off exit 2 on I-65 in Kentucky, and, alternates his time between caring for the award-winning WASP and reading (usually getting inspiration for the "Armchair Astronomer column").

WAS PRESENTATIONS

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

firstvp@warrenastro.org

Towards a Model of the Solar System

By Brad Young

There is a fundraising effort to build a roadside model of the Solar System in Broken Arrow, Oklahoma, a populous suburb of Tulsa. The scale reduces our vast family of planets to a half mile long, walkable attraction. The model would be free and open to the public.

This set me to looking at models of the solar system that are planned or that I have seen before. There is a fascinating one on the road to the Australian National Observatory in Coonabarabran, New South Wales, Australia. I've included a link to [pictures](#) of it by Lachlan MacDonald.

Next, I looked at a larger scale to see the kind of distances involved. Imagine driving to the Okie-Tex Star Party (OTSP) in Kenton, OK from Tulsa. For this thought experiment, you are a light particle from the sun. Now pretend that you are traveling not at the speed limit of the road, but instead at the speed of light. You would travel an average of 77 mph in this experiment (I would not suggest doing this in Slapout or Lahoma).

In other words, it takes sunlight 5.5 hours to reach Pluto, and it takes about 5.5 hours for lead foots like me to drive from Tulsa to Kenton. On this basis, it works out that Pluto is about as far from Tulsa as the Okie-Tex Star Party in light hours of distance (a light hour is defined as the distance light travels in a vacuum like space in one hour). Intrigued, I designed a larger model based on a drive that some of us will be making soon, and others may remember.

A summary of the model results is below. I'd be happy to provide all the details if you email me, allenb_young@yahoo.com.

	MODEL MILES	MODEL FEET	DIAM. (FT)	INCH	OBJECT	LOCATION
SUN	0.0		528		BOK TOWER	CENTER OF UNIVERSE
MERCURY	4.2			22	TRASH CAN LID	KEYSTONE EXPY CONST
VENUS	7.8			55	LID OF SUV	SH99 EXIT SAND SPRINGS
EARTH	10.7			58	BACK OF SUV	SHELL CREEK OVERLOOK
MOON		143		16	BEACH BALL	143 FT AWAY
MARS	16.4			31	SPARE TIRE	LAKE KEYSTONE
CERES	30.4			4	MINI SOCCER BALL	SEE NOTE
JUPITER	55.9		54		LARGE HOUSE	EXIT TO STILLWATER
CALLISTO		713		22	BEACH BALL	
SATURN	102.9		46		AVERAGE HOUSE	FERTILIZER PLANT ENID
RINGS			107		VERY THIN DECK?	
URANUS	206.1		19		GAS PUMP RACK	LEAVING WOODWARD
NEPTUNE	322.5		19		GAS PUMP RACK	ENTER GUYMON OK
PLUTO	423.8			11	PIZZA	GATE OF CAMP

CERES AND OTHER MAIN BELT ASTEROIDS ARE LOCATED BETWEEN START OF CIMMARON TURNPIKE AND HALLETT EXIT.

I did make some simplifying assumptions along the way:

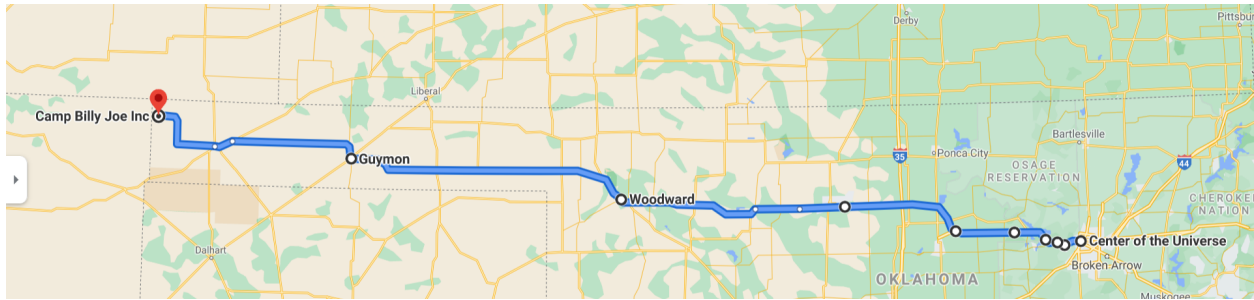
- Pluto is included. Deal.
- Ceres represents the asteroids
- I used the average distance from the sun of each object
- The planets are lined up, as in most models
- The Sun is at the center of the universe

No, I'm not converting to an Aristotelian. I located the Sun at the landmark in downtown Tulsa called [Center of the Universe](#)

(Continued on page 15)

(Continued from page 14)

An overview map is provided below; I'm pretty sure most of the Tulsa folks follow this route to the Star Party for most of the journey.



Anyway, on to the results. In this model the Sun would be very close to the BOK Tower, and at this scale, would be about as big as the tower in diameter.

Moving on to Mercury, we would find it located just about where the new interchange for the Gilcrease Expressway extension is being constructed on the Keystone Expressway. It would be a ball 22 inches in diameter, the size of our city supplied trash can lids.

Venus would be located right where the interchange with State Highway 97 (Wilson Ave) is in downtown Sand Springs. For a landmark, I guess you could use the Walmart there. Venus would be larger, 55 in in diameter or about the size of the trunk lid on the back of an SUV.

Earth is further on at the Shell Creek overlook of the Arkansas River west of Sand Springs. It would be a ball again about the size of the whole back end of an SUV. The Moon will be located 143 ft away and would be the size of a beach ball.

Mars would be about the size of a spare car tire and would be located along the road right before you cross Lake Keystone on the long bridge, over on the shoulder where you change your flat with said spare. It's interesting to think that this is probably the last stop where we could still see the sun's disc without binoculars, if we were on the actual Mars. Unfortunately, due to the curvature of the Earth, I certainly can't see the BOK Tower from Lake Keystone.

Ceres and the Main Belt minor planets would be the size of a mini soccer ball down to ants (and smaller) strewn along the way from the start of the Cimmaron Turnpike to the Hallett exit. And if you consider that distance in 3D, you'll see there's plenty of room for the asteroids out there.

You would get to Jupiter at the exit to Stillwater. Jupiter would be the size of one of the oil mansions in Maple Ridge back in Tulsa. I didn't look at all 79 moons, but Callisto would be a beach ball located more than two football fields away.

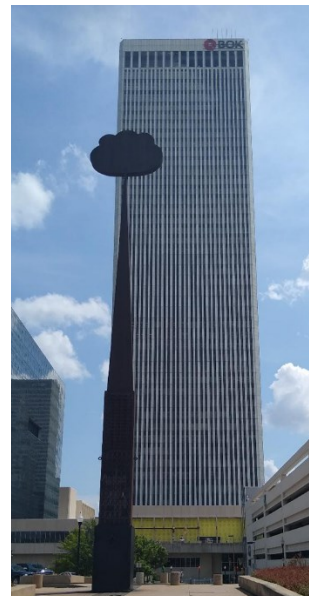
It takes a while to get to Saturn; you would be at the right spot when you pass the fertilizer plant as you come into Enid Oklahoma. Saturn would be about the size of an average house. I don't know how to describe the rings other than maybe a very thin plywood deck surrounding the house extending more than 50 feet out from the sides.

After you make your pit stop at the Hutch store, leaving Woodward Oklahoma, you'd be out at Uranus's distance. With a diameter of over 19 ft, you could think of it as being as wide as the gas pump rack that you just used to fill up. Neptune would be a similar size, a little smaller than 19 ft in diameter, but you wouldn't see it until you were just coming into Guymon!

Finally, as you pull in the gate of Camp Billy Joe, you would be out at Pluto's average distance. Here you would find a planet about as big as a pizza. So, at this scale, you cross nearly the width of Oklahoma from Tulsa to the state line of the Panhandle if you imagine your car at light speed, a skyscraper as the Sun, and Pluto as a pizza. Mind bogging.

I hope to see some of you at Pluto in October (bring pizza).

(this would make a fascinating "thought experiment" for I-94 Detroit-Chicago or Adrian's drive up the thumb if anyone wants to try. Brad came up with a spreadsheet to calculate sizes/distances. You can request it from publications@warrenaastro.org—Ed.)



Bok Tower



Astronline.

During the last almost two years I have been busier than ever, meeting many new people, giving lectures, quoting poetry, and advocating observing the night sky.

And Wendee and I have barely left home.

Obviously, I have not been able to give lectures in person since the Covid 19 pandemic began. On the home front for me, our local Tucson Amateur Astronomy Association meets the first Friday of every month online over the Zoom cloud (see www.tucsonastronomy.org). But almost every day, I reconnect with friends in astronomy clubs around the world. On Tuesdays, I am a part of Scott Roberts' weekly Global Star Party. (For more about this, visit <https://explorescientificusa.com/products/explore-alliance-global-star-party>) Scott has now had more than 60 of these wonderful events, and I enjoy each one. On Wednesdays and Saturdays, I am part of the Montreal Centre of the Royal Astronomical Society of Canada, where I meet people I've known for years, especially Carl, one of my best friends since we were teenagers in 1964. As a graduate student at Queen's University in the 1970s, I also was active with the RASC's Kingston Centre. I have also reconnected with the Denver Astronomical Society, a group I joined in 1963 when I was a patient at the Jewish National Home for Asthmatic Children. That experience was precious back then, and it is even more delightful now!

One of the groups, the Warren Astronomical Society in Michigan, does not use Zoom. Instead, they have WebEx, which is just as simple to use. I have even participated in sessions sponsored by Kansas City's

Linda Hall Library, one of the largest science libraries in the world.

Not all of the online sessions are related to astronomy. Our local synagogue has a weekly Torah study session, and Wendee and I are regulars there. They also graciously listen to my poetry quotations, which range from Shakespeare to Chaucer, to this ancient one (from 1556) from Robert Recorde's *The Castle of Knowledge*:

*If Reasons reach transcend the Skie,
Why should it then to earth be bound?
The wit is wronged and led awrie,
If mind be married to the ground.*

When the sessions drag on, as they sometimes do, I can get fatigued since I am not as young as I was in 1963 or 1979. But it is worth the effort, and I sincerely hope that the Zoom/WebEx experience will outlive the pandemic when it finally ends. Seeing friends so often like this is wonderful. And on some occasions, I have joined online meetings from a remote site in southeastern Arizona.

Sometimes, my quote tradition is something from scripture, like this gem from the Book of Isaiah:

*Thou stretchest out the heavens as a curtain,
And spreadeth them out as a tent to dwell in.*

My goodness—I never realized how a few words from the Bible could affect me as much as these do. They describe my experience perfectly—outside, I am peering at the curtain of the night sky. Moreover, the observatory out of which I look at the sky, or the observing pad upon which I stand, is the cosmic tent in which I dwell.

Doveed, and his laptop named Ridley, at the Shaar building of Jarnac Observatory.

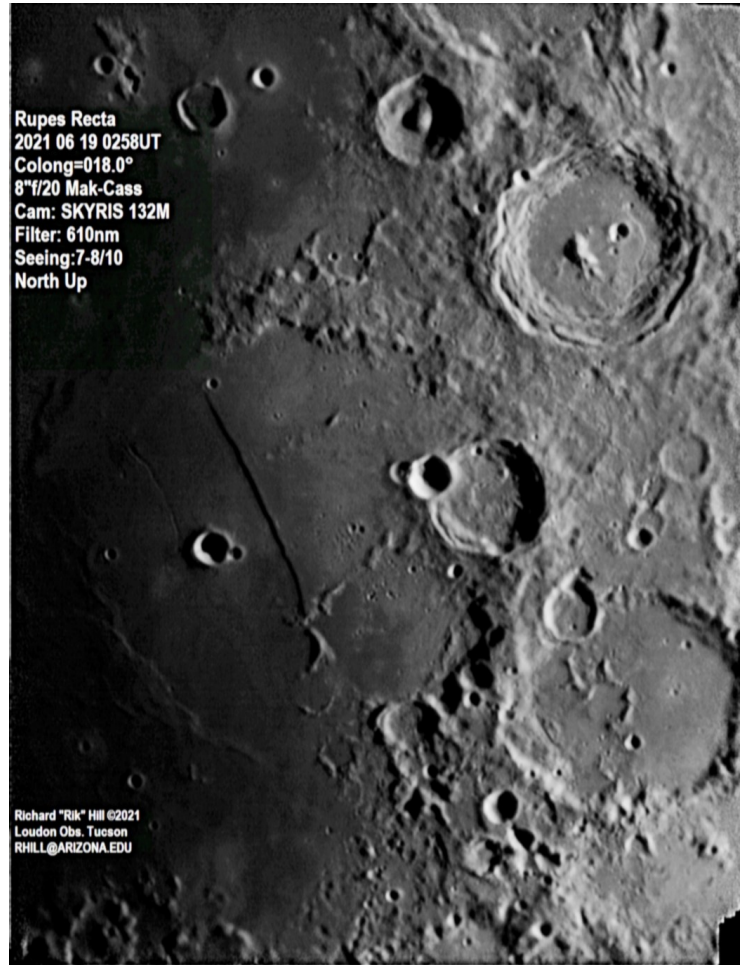
Photo: Wendee Wallach-Levy





Almost Straight

Our monsoon is in full swing now for the first time in 2 years after a record setting drought. We welcome the rain, but it means no sky!! This gives me a chance to catch up with all those images passed up in the earlier months this year. This is one of them of the wonderful Rupes Recta or as I knew it growing up, The Straight Wall. You can see here that it is not truly "straight" but raggedy and the more resolution applied the more raggedy it gets. On the south end we have a curious set of mountains, the Stag's Horn Mountains, made of from upper fragments of now buried craters and mountains. To the left (west) of the Wall is the crater Birt (17km) with Birt A (7km) on the eastern wall. Northwest of Birt is a rima that runs roughly parallel to the Wall, Rima Birt. On the other side of the Wall is a good sized crater, Thebit (60km) the small satellite crater on it's northwest wall, Thebit A (20km). Below this is what we used to call a "walled plain" crater, Purbach (121km). It has a curious central formation that appears to be an off center buried crater.

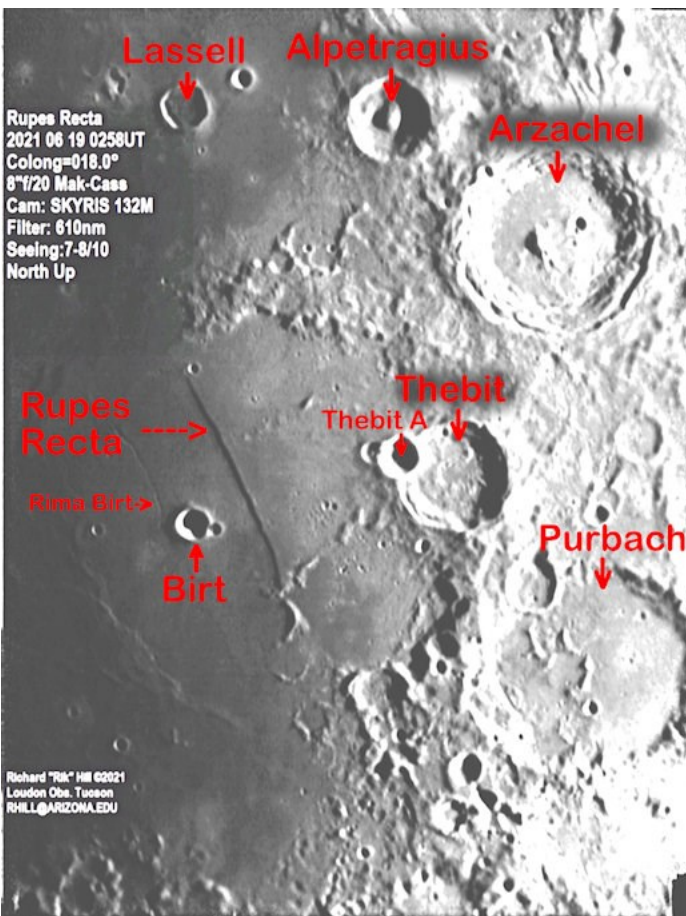


North of Thebit is the beautiful crater Arzachel (100km) with the nice Rima Arzachel to the east of it's off-center central peak, just inside the east wall of the crater. Look at the spectacular terracing of the crater walls! Northwest of Arzachel is the unusual crater Alpetragius (41km) with a central peak that has been likened to an egg-in-a-basket. Rounded and wide rising some 2km from the floor of the crater, it is thought that this crater was enlarged through volcanic activity. A last crater is to the west northwest of this. This is the shadow filled Lassell (24km) a shallow flat floored crater.

This image was made from a single 1800 frame AVI, stacked using AVIS-tack2 (IDL) and finish processed with GIMP and IrfanView.



Location maps by Ralph DeCew



History S.I.G.

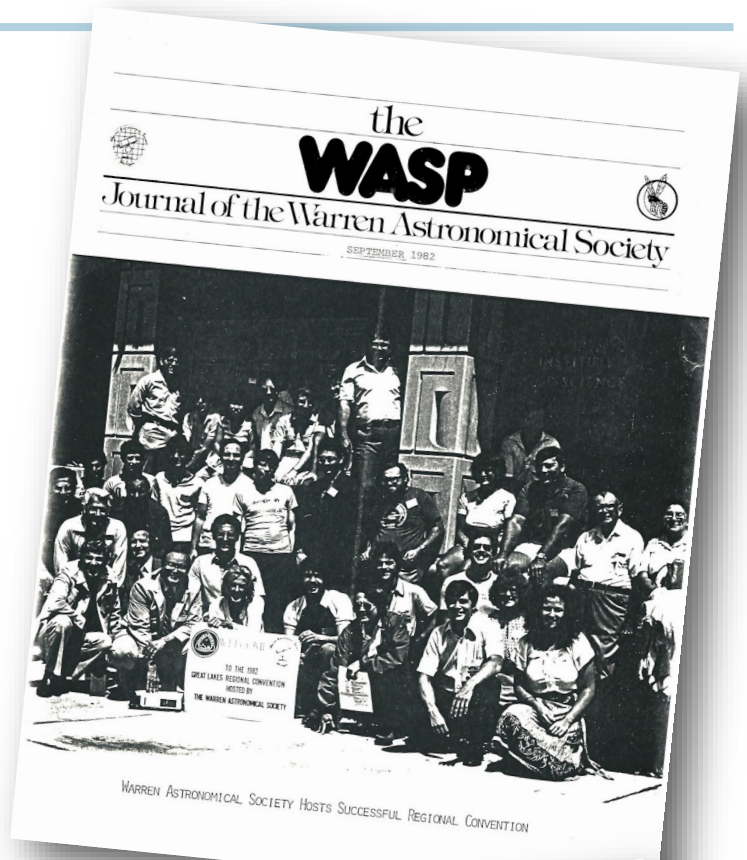
September 1982

The cover of this issue features the triumphant crew from the W.A.S. after hosting the A.L. Regional Convention. Inside, we find: "Here Comes a Brand New Comet" by Larry F. Kalinowski, about Comet Austin (1982g), Jonathan Badittoi recalls "The Great Aurora Display of July 13, 1982". Then a bit of computer programming: "A Lunar Ephemeris - Part I" by Ken Kelly.



September 1992

While this issue leans heavily on material from NASA's Spacelink, Marty Kunz does regale us with his adventures with "Stellafane - And I Was There". Then it's on to NASAville: 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



From the Scanning Room

On August 19, at the virtual Astronomical League's Convention, I was recognized with the Mabel Stearns Newsletter Award. Here I am with the plaque.

Dale Thieme,
Chief scanner



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

SEPTEMBER 2021

Notable Sky Happenings

Sep. 1 - 7

Three planets are visible in the evening sky. Venus is in the WSW but will have set by chart time; Jupiter and Saturn are in the SSE. The Moon is below Pollux in Gemini on the 3rd; Castor, the "twin" star, is above Pollux (E predawn).

Sep. 8 - 14

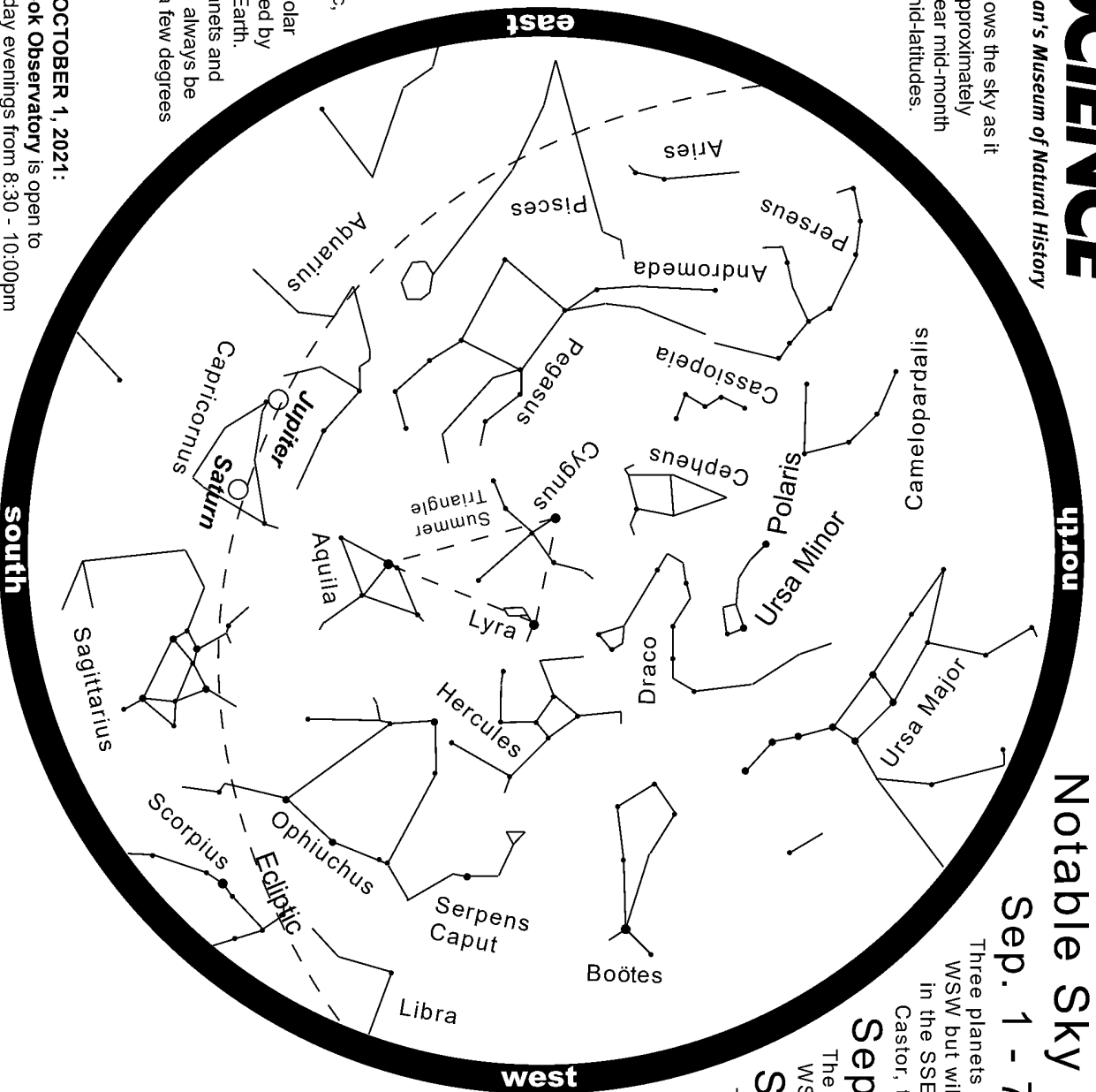
The bright "star" at the lower left of the Moon in the WSW evening twilight on the 9th is Venus.

Sep. 15 - 21

The Moon is below Saturn on the 16th and at the lower right of Jupiter on the 17th (SSE eve.).

Sep. 22 - 30

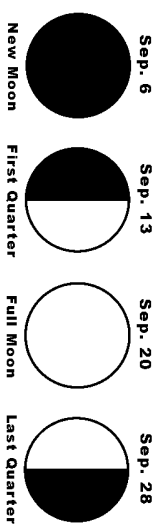
September (Autumnal) Equinox is at 3:21pm EDT on the 22nd. Moon is at the upper right of Aldebaran on the 26th (S predawn) and at the lower right of Pollux on the 30th (E predawn).



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.

RESUMING OCTOBER 1, 2021:

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



Now Showing

Please visit science.cranbrook.edu/explore/acheson-planetarium for program updates.





Mike Young - Almost a Full Moon

September 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6 Labor Day New Moon	7	8	9 Great Lakes Star Gaze (tentative)	10 Great Lakes Star Gaze (tentative)	11 Great Lakes Star Gaze (tentative)
12 Great Lakes Star Gaze (tentative)	13 Mercury at Greatest Elong: 26.8°E Cranbrook Virtual Meeting	14 Neptune at Opposi- tion	15	16 Yom Kippur Macomb Virtual Meeting	17	18
19	20 Full Moon	21	22 Autumnal Equinox	23	24 Virtual Astronomy at the Beach (tentative)	25 Virtual Astronomy at the Beach (tentative) Virtual Stargate
26	27	28	29	30		

For Sale

TWO (2) CORONADO PST H ALPHA TELESCOPES WITH CASES - PRICE REDUCTION

I have available for purchase two (2) Coronado PST H Alpha Solar Telescopes. Both telescopes have newly installed 656nm ITF filters for excellent H Alpha views (the PST was known to have “rusting” issues with the ITF filters – both telescopes have new 656nm ITF filters installed from Maier Photonics with sealed epoxied edges to eliminate “rusting” as with earlier production models). Included with each scope is an eyepiece – one has a 20mm Kellner and the other has an 18mm Coronado eyepiece, and each scope has a dovetail mounting wedge attached to install on tripods that have that mount. If not needed, the mounting wedge can be removed and then the scope can be placed on a standard photo tripod with 1/4-20 thread.

Each scope will come with a case I provided after purchase for no extra cost. One case (on left) has a defective latch – the other works fine. The other case has both latches in good working order.

I am willing to sell each scope individually for **\$475** (currently a new PST retails for \$699) , **BUT**, if you have the urge to build yourself a bino H Alpha set-up with two matching eyepieces (Howie Glatter used to make PST Bino mounts for this purpose – one may be able to find one online or know of someone who can fabricate such a mount) I will be willing to sell the pair for the firm price of **\$875**. If this is what you are looking for, please email Mark at: bazona952@hotmail.com with CoronadoPST in subject line, or text me at: 586-246-8288.





Stargate Observatory

Special Notice

Due to the measures taken during the Covid-19 pandemic On-site Star Parties and group events are cancelled.

During this time, you are encouraged, when the skies co-operate, to join the livestream with Northern Cross Observatory on the open house schedule (4th Saturday of the month)

Past livestream are available on the Warren Astronomical Society's YouTube channel:

<https://www.youtube.com/channel/UC12jUX4Gmweg6fTtUuqa8CQ>

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 586-909-2052.
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 (secondvp@warrenastro.org).
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.

Advisory: Concerns are circulating in the amateur astronomy community about COVID-19 being passed from one person to another via contact of different persons' eyes with a telescope eyepiece. While we are not medical experts, we thought we should pass on this concern. Sharing telescopes may be considered by some to be high-risk due to the possibility of eyes touching eyepieces.

Stargate Report

Stargate observatory and the Dob shed along with all equipment are in good condition as of August 14, 2021.

In person observing sessions are canceled due to the continuation and increase in COVID-19 cases. There will be no open house in September.

Virtual observing or discussion may be possible from Northern Cross Observatory (NCO) depending on weather and if Doug Bock is available to host it. A notice will be sent out and you can use the same WebEx link from last meeting to join online on September 25.

-Riyad I. Matti

2021 WAS 2nd VP, Observatory Chairperson

Treasurer's Report

As of August 27, 2021, we have 181 current members.

Accounts:

Main Account: \$22,391.90
 GLAAC Account: \$3,279.84
 PayPal: \$792.82

August Expenses:

Paul Strong Macomb Scholarship Contribution: \$500
 Monthly Cisco Webex Payment: \$15.85
Total Expenses: \$515.85

August Income:

Total from new or renewal membership payments: \$133.00
 Amazon Smile: \$27.32
Total Income: \$160.32

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

Astronomical Events for September 2021

Add one hour for Daylight Savings Time
 Source:

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

Day	EST (h:m)	Event
02	23:04	Pollux 3.0°N of Moon
05	09:32	Venus 1.4°N of Spica
05	19:00	Mercury at Aphelion
06	19:52	NEW MOON
09	21:09	Venus 4.1°S of Moon
11	05:05	Moon at Perigee: 368464 km
12	11:35	Moon at Descending Node
12	18:59	Antares 4.2°S of Moon
13	15:39	FIRST QUARTER MOON
13	23:00	Mercury at Greatest Elong: 26.8°E
14	03:00	Neptune at Opposition
16	21:37	Saturn 3.8°N of Moon
18	01:50	Jupiter 4.0°N of Moon
20	18:55	FULL MOON
20	21:00	Mercury 1.2°S of Spica
22	14:21	Autumnal Equinox
26	02:33	Moon at Ascending Node
26	16:44	Moon at Apogee: 404641 km
28	20:57	LAST QUARTER MOON
30	07:44	Pollux 2.8°N of Moon



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.

Meeting Minutes

WARREN ASTRONOMICAL SOCIETY MINUTES OF (VIRTUAL) BOARD MEETING AUGUST 2, 2021 @ 6:30PM

Meeting was called to order at 6:30 PM by President Diane Hall. Board Officers in attendance: Dale Partin, Riyad Matti, Mark Kedzior, Adrian Bradley, Bob Trembley & Dale Thieme (quorum present).

President Diane Hall commented on status of returning to meetings at both Cranbrook and Macomb – still waiting for guidance from these institutions.

1st VP Dale Partin reported that we are good on lecturers for rest of year – still looking for lecturers for 2022 – discussed January 2022 main presentation of “What Are Your Early Memories of What Got You into Astronomy” – soliciting a collaboration of members who can contribute to this presentation with a brief recollection of the topic to be presented to the membership.

2nd VP Riyad Matti reported the Stargate Observatory and Dob Shed are in good order and discussed his rationale on cancelling the WAS Picnic due to uptick in new COVID cases.

Secretary Mark Kedzior reported the minutes of both July meetings are in the August edition of the WASP.

Treasurer Adrian Bradley reported the balances of the WAS, GLAAC and PayPal accounts (see Treasurer’s Report in August edition of WASP for totals).

Outreach Chair Bob Trembley reported contacting libraries for outreach events.

Publications Chair Dale Thieme reported the August edition of the WASP is online and has received the plaque for the AL Mabel Sterns Newsletter Award for our WASP publication. A formal virtual event will take place online on Thursday August 19th at 5:30PM to recognize Dale’s achievement.

OLD BUSINESS

Discussion on our WebEx/YouTube protocols took place. Picnic Decision: Discussion took place in regard to cancelling the WAS Picnic due to uptick in COVID data – Adrian presented his review of the data. Motion by Dr. Dale Partin, supported by Riyad Matti to postpone(cancel) this year’s WAS Picnic – vote was 6 – 0 to postpone(cancel) WAS Picnic – one abstained from vote.

NEW BUSINESS

Bob Trembley discussed Outreach events. Discussion on upcoming elections for 2022 WAS Board. Dr. Dale Partin received an invoice from Macomb

in regard to the \$500 Paul Strong Scholarship. Dr. Dale Partin led discussion on possible Stargate renovations (roll-off roof) – Metroparks requires professional blueprints to review and consider any upgrades/renovations to buildings. An Election Nomination Committee will be formed at the September Board meeting to solicit and recruit possible candidates to run for board positions for the November elections.

Motion by Dr. Dale Partin, supported by Adrian Bradley to adjourn tonight’s board meeting – motion passed. Meeting ended at 7:28 PM.

Respectfully submitted,
Mark Kedzior
Secretary

WARREN ASTRONOMICAL SOCIETY CRANBROOK (VIRTUAL) MEETING AUGUST 2, 2021 @ 7:30PM

The meeting was called to order at 7:30PM and a welcome to all by President Diane Hall. She then reviewed the ground rules, meeting format and etiquette of this virtual meeting and presentation so as to be enjoyed by all in attendance.

(Attendance on WebEx (16) and YouTube (14) at 8:30PM).

IN THE NEWS (presented by Diane Hall) 1) Rough Sailing for ISS – glitch caused ISS to spin out of its normal orientation to connect with Russian Nauka Module Lab. 2) Relativity Work – Light from behind black hole detected with x-ray flares from galaxy 18,000 million light years away.

IN THE SKY – Saturn is at opposition – conditions to view are favorable – in constellation of Capricorn. It’s Perseid Time! Many places in Michigan to view this meteor shower at selected dark sky sites.

OFFICER REPORTS:

President Diane Hall reports with the Delta COVID variant on the rise, there has been no official return dates for in person meetings at Cranbrook, Macomb and Stargate Observatory. She also reported that the board unanimously voted to postpone(cancel) the annual WAS Picnic. September meeting dates will be Monday September 13th and Thursday September 17th due to Labor Day falling on the first Monday of month.

1st VP Dr. Dale Partin reports on the upcoming lectures: August 19th has Matt Dieterich of PlaneWave Instruments of Adrian, MI, describing the products they offer to the astronomical com-

(Continued on page 25)

(Continued from page 24)

munity worldwide. On September 13th, Jim (one of the Skee Brothers) Shedlowsky with his annual September presentation – this year’s presentation – “The Giant Magellan Telescope in Chile”, and preceded by Gary M. Ross with his short presentation of “Hubble and the Known Universe” – “We Will Hear From Hubble Himself”. Also, looking for speakers for January 2022 presentation on “What Got You into Astronomy”.

2nd VP Riyad Matti reported that the Stargate Observatory and Dob Shed were in good order, with observatory closed due to pandemic restrictions.

Secretary Mark Kedzior reported the July meeting minutes are in the August edition of the WASP.

Treasurer Adrian Bradley gave account balances of the WAS, GLAAC and PayPal accounts (see Treasurer’s Report in August edition of the WASP) - announced two new members – Clifford Lockhardt and Joseph DeStefanis – announces his candidacy for another term as Treasurer in the upcoming November election. Outreach Chair Bob Trembley reports sending letters to libraries for outreach presentations, and is term limited and cannot run for reelection to Outreach Chair.

Publications Chair Dale Thieme reports the August edition of the WASP is online.

SPECIAL INTEREST GROUPS – Solar: No report but Bob Trembley shared image of current sunspot and video of chromosphere and corona. Double Star Group: Virtual Open House with Doug Bock to observe selected double stars. Astrophotography: Adrian Bradley reports the smoke from the western wildfires show up in astro images. Astronomical League: Adrian Bradley reports on the upcoming AL Virtual Convention August 19-21, with David Levy as one of featured speakers – also, Dale Thieme will be receiving the AL Mabel Sterns Newsletter Award for his work on the WASP on August 19th. GLAAC: The next meeting will have discussion on the AATB event if it will be in person (with mask) or virtual.

OBSERVING REPORTS – David Levy reports clear skies in Arizona – observed ten prominences on sun and has been comet hunting – also read an 1836 essay by Ralph Waldo Emerson on “Nature”. Dale Thieme announced the arrival of the AL plaque for the Mabel Sterns Newsletter Award. Diane Hall reports observing (from a dark sky site) Saturn, Jupiter and moons, also our moon along the terminator. Mark Jakubisin reports on Saturn observing at opposition and the “Seeliger Effects” – the brightening of the rings at opposition.

SHORT PRESENTATION

1st VP Dr. Dale Partin introduced our Outreach Chair Bob Trembley, presenting “What Makes You Say WOW! When it comes to Astronomy”. In fifteen

minutes, Bob went through an extensive list of “WOW” objects in astronomy – at least 28 if not more – following presentation, kudos galore to this excellent presentation.

MAIN PRESENTATION

After break, President Diane Hall introduced Dr. Dale Partin, with his presentation “Exploring the Galilean Moons”. In this excellent presentation, Dr. Dale began with Galileo Galilei discovering the four moons of Jupiter back in 1610 with his first telescope, which gave support to the heliocentric model of the solar system, current moon count, data collected from numerous flyby/orbital missions (Pioneer 10 & 11, Voyager 1 & 2, Galileo, Juno) and future upcoming missions. Lots of information on each of the Galilean moons were presented from the data collected from these missions.

Questions and discussion followed Dr. Partin’s presentation.

To see both presentations in their entirety, please go to:

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

Meeting ended at 10:08 PM.

Respectfully submitted,
Mark Kedzior
Secretary

WARREN ASTRONOMICAL SOCIETY MACOMB (VIRTUAL) MEETING AUGUST 19, 2021 @ 7:30PM

Meeting was called to order at 7:30 PM and a welcome to all by 1st VP Dale Partin, presiding over this meeting for President Diane Hall. WAS Board members in attendance: 2nd VP Riyad Matti, Secretary Mark Kedzior, Outreach Chair Bob Trembley & Publications Chair Dale Thieme (Treasurer Adrian Bradley not in attendance). Attendance at 8:45PM: WebEx – 19 & You Tube - 8.

IN THE NEWS (presented by Dr. Dale Partin): 1) Inside Saturn – New Analysis of Cassini Data – inner rings acts like seismometer – responds to “quakes” or movement inside Saturn – quivers like “Jell-O” 2) New European Radio Telescope Array – comparison of standard (LOFA) antenna array and new array images were displayed 3) New technique developed to measure black holes 4) M57 – Ring Nebula – Newly released data in infrared shows nebula much larger as with previous imaging.

IN THE SKY (presented by Mark Jakubisin): 1) Weather Report – Satellite images of current jet streams, western forest wildfire smoke & clear sky report 2) Jupiter – Io’s shadow on planet – Europa emerging from Jupiter’s shadow 3) Jupiter and Saturn observable all month in evening

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skies after sunset 4) Rasalgethi in constellation of Hercules - a binary star 3.4 in magnitude - visually orange-red, and the other 5.4 in magnitude - visually greenish in appearance.

OFFICER REPORTS

President's report by 1st VP Dale Partin: Announced decision by WAS Board to cancel WAS Picnic on August 28 - an informal Swap Meet will be held same day from 4-6PM at the Pavilion at Wolcott Mill Metropark north of Stargate Observatory - masks and social distancing are encouraged - further information will be provided regarding this event. All meetings as of this time (Cranbrook, Macomb & Stargate Open House) will be virtual until guidance is received from host institutions where meetings are held.

1st VP Dale Partin reports that the next meeting will be held Monday, September 13th due to Labor Day falling on 1st Monday. Presenters for the Cranbrook meeting on September 13th are Gary M. Ross with "Hubble & Known Universe" followed by Jim Shedlowsky (yes - he's one of the "Skee Brothers") with "The Giant Magellan Telescope in Chile". The Macomb September 16th meeting has Tony Licata presenting "The Hamburg Meteor".

2nd VP Riyad Matti reports his regular inspection of Stargate and Dob Shed found everything in good order - also reports that a WAS member has borrowed an 8" Dob for observing.

Secretary Mark Kedzior reports that the Ferndale Public Library has purchased three Orion Star Blast 4.5" reflector table top telescopes to initiate a Library Telescope Program for their patrons, and have asked the WAS for their assistance in modifying these scopes. Mark will be arranging a meeting with the Ferndale Library staff to review and schedule the modifications and assist in launching the program. Jonathan Kade was contacted initially regarding this request and (hopefully) will assist in modifications and launch of program.

Outreach Chair Bob Trembley reports that at the recent GLAAC meeting a decision was made to cancel the in person AATB event and instead will look to find individuals who could live stream astronomical subjects for presentations at this event.

Publications Chair Dale Thieme was officially recognized today (virtually) by the Astronomical League for being the recipient of the 2021 Mabel Sterns Newsletter Award for editorial excellence regarding our venerable WASP publication. Work on the September issue of the WASP is underway and he asks that submissions be made in time to be included in this issue.

SPECIAL INTEREST GROUPS

Solar: No report but Bob Trembley shared latest solar images from SOHO and NASA. Double Star Group - Nothing to report. Astrophotography - Doug Bock shared image taken with new camera of NGC 7635 - the Bubble Nebula and compared it with images taken with previous camera to show the difference in detail. GLAAC - Bob Trembley reported on the rationale for the cancellation of the AATB event in September.

OBSERVING REPORTS

David Levy reports observing the sun and viewing lots of prominences and has been active observing the meteor shower taking place. Dale Hollenbaugh recently observed a fireball racing across the sky near Port Huron - he reported it and found that it occurred some 170 miles away - also shared his images of the Veil Nebula and Jupiter.

Dr. Dale Partin brought back a popular item to this meeting - "Ask an Astronomer a Question" - a member asked about observing Pluto through telescope, and many contributed to this informative discussion.

Feature Talk

After break, Dr. Dale Partin introduced tonight's presenter (with bio) - Matt Dieterich of PlaneWave Instruments, with "Behind the Scenes with Astrophotographical Equipment from PlaneWave Instruments". Matt discussed the history of PlaneWave Instruments, who were previously headquartered in California, but manufacturing of their astronomical products were done here in Adrian, MI. After their product was manufactured, it was disassembled and sent to headquarters in California for final testing before delivering to customer, which added more cost to the manufacturing of the product. PlaneWave then relocated their headquarters to Adrian, MI and now all aspects of their operation are done in the state of Michigan for their products which are sold worldwide. Matt then went through all phases of their manufacturing operations, from mirror machining to software development and direct drive mounts and all the advantages of their product and their product line.

After Matt's presentation, questions and discussion followed this extremely informative presentation on what it takes to produce a research grade astronomical observing/imaging system.

The meeting ended at 9:50 PM.

Respectfully submitted,
Mark Kedzior
Secretary

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

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

GLAAC Club and Society Meeting Times

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

GLAAC Club and Society Newsletters

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

WAS Member Websites

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

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

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



This article is distributed by NASA Night Sky Network

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

Catch Andromeda Rising

David Prosper

If you're thinking of a galaxy, the image in your head is probably the Andromeda Galaxy! Studies of this massive neighboring galaxy, also called M31, have played an incredibly important role in shaping modern astronomy. As a bonus for stargazers, the Andromeda Galaxy is also a beautiful sight.

Have you heard that all the stars you see at night are part of our Milky Way galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, its trillion stars appearing to our eyes as a 3.4 magnitude patch of haze. Why so dim? Distance! It's outside our galaxy, around 2.5 million light years distant - so far away that the light you see left M31's stars when our earliest ancestors figured out stone tools. Binoculars show more detail: M31's bright core stands out, along with a bit of its wispy, saucer-shaped disc. Telescopes bring out greater detail but often can't view the entire galaxy at once. Depending on the quality of your skies and your magnification, you may be able to make out individual globular clusters, structure, and at least two of its orbiting dwarf galaxies: M110 and M32. Light pollution and thin clouds, smoke, or haze will severely hamper observing fainter detail, as they will for any "faint fuzzy." Surprisingly, persistent stargazers can still spot M31's core from areas of moderate light pollution as long as skies are otherwise clear.

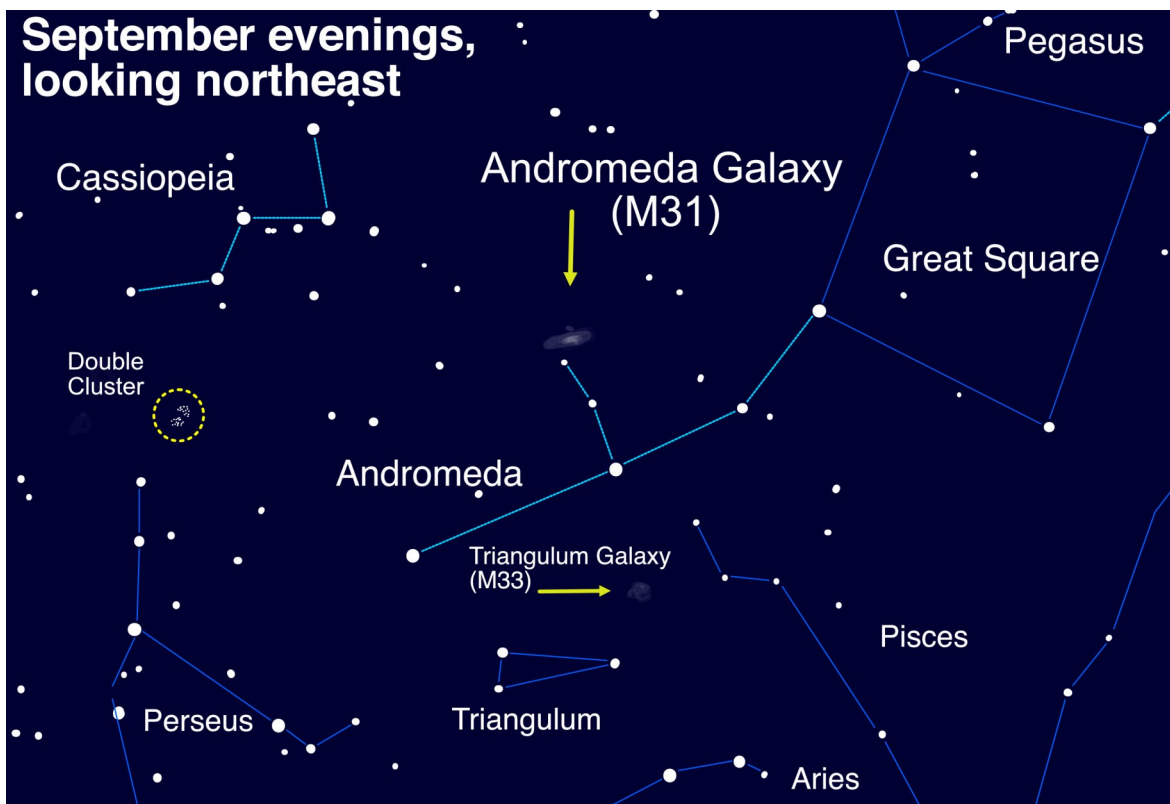
Modern astronomy was greatly shaped by studies of the Andromeda Galaxy. A hundred years ago, the idea that there were other galaxies beside our own was not widely accepted, and so M31 was called the "Andromeda Nebula." Increasingly detailed observations of M31 caused astronomers to question its place in our universe - was M31 its own "island universe," and not part of our Milky Way? Harlow Shapley and Heber Curtis engaged in the "Great Debate" of 1920 over its nature. Curtis argued forcefully from his observations of dimmer than expected nova, dust lanes, and other oddities that the "nebula" was in fact an entirely different galaxy from our own. A few years later, Edwin Hubble, building on Henrietta Leavitt's work on Cepheid variable stars as a "standard candle" for distance measurement, concluded that M31 was indeed another galaxy after he observed Cepheids in photos of Andromeda, and estimated M31's distance as far outside our galaxy's boundaries. And so, the Andromeda Nebula became known as the Andromeda Galaxy.

These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope's longest-running observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT): bit.ly/m31phat. Dig into NASA's latest discoveries about the Andromeda Galaxy, and the cosmos at large, at nasa.gov.

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Spot the Andromeda Galaxy! M31's more common name comes from its parent constellation, which becomes prominent as autumn arrives in the Northern Hemisphere. Surprising amounts of detail can be observed with unaided eyes from dark sky sites. Hints of it can even be made out from light polluted areas. Image created with assistance from Stellarium



While M31's disc appears larger than you might expect (about 3 Moon widths wide), its "galactic halo" is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already mingle with our Milky Way's own halo, which makes sense since our galaxies are expected to merge sometime in the next few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant galaxies powered by black holes at their center. The Hubble team studied the composition of M31's halo by measuring how the quasars' light was absorbed by the halo's material. Credits: NASA, ESA, and E. Wheatley (STScI) Source: <https://bit.ly/m31halo>

