



The W.A.S.P.



Volume 55 Issue 4

April 2023

The Warren Astronomical Society Publication



Eugene Merle Shoemaker
1928-1997

This month we celebrate the birth of Gene Shoemaker, on April 28, a true gift to astronomy and lunar exploration. He was one of the founders of the field of planetary science and was well-known for his studies of terrestrial craters. Shoemaker was the first to conclude that these craters were caused through meteoric impact, and spent much of his later years searching for previously undiscovered impact craters around the world.

He is also known as the co-discoverer of Comet Shoemaker-Levy, along with his wife Carolyn and David H. Levy.

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.

The Warren Astronomical Society Publication (WASP) is the official monthly publication of the Society.

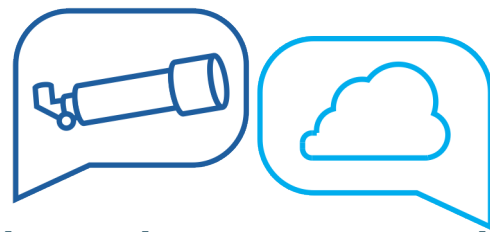
Articles for inclusion in the WASP are strongly encouraged and should be submitted to the editor on or before the end of each month. Any format of submission is accepted. Materials can either be transmitted in person, via US Mail, or by email (publications@warrenastro.org)

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.

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Discussion Group Meeting

Come on over, and talk astronomy, space news, and what-not!

March’s discussion group at Laura Wade’s was well attended and a good time had by all.

Discussion Group for Astrophotography

Hosted by Paul Goelz in Rochester Hills

Open to all experience levels, bringing photos on a thumb drive is encouraged so they can be displayed and discussed.

Tuesday April 25th 6:30pm

Email Paul at paul@pgoelz.com for direction and details.



Field of View

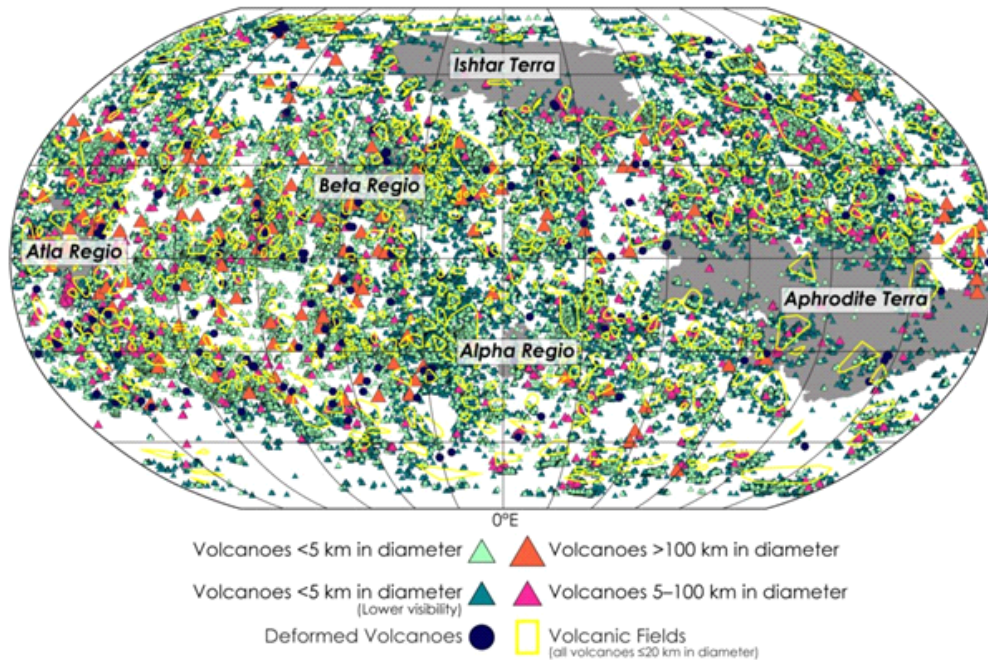


Image: Global survey of volcanic edifices and volcanic fields on Venus. Credit: Paul Byrne and Rebecca Hahn.

There are lots of things about astronomy I find fascinating; but a post on [Twitter](#) on March 29th had my jaw hanging slack:

“The most comprehensive catalogue of volcanoes ever compiled for Venus, and probably for any planet, anywhere.”

This was posted by [Paul Byrne](#) - Associate Professor of Earth and Planetary Science at Washington University in St. Louis, who credits [Rebecca M. Hahn](#), the study’s lead author and senior graduate student with years of research and hard work on this project.

A related [news post](#) on the Washington University in St. Louis website is titled:

“Scientists share ‘comprehensive’ map of volcanoes on Venus — all 85,000 of them.”

More than 85,000 individual volcanic landforms were mapped with decades-old radar imagery from NASA’s [Magellan mission](#) - about 99% of these edifices are <5 km in diameter; There appears to be a lack of edifices in the 20-100 km diameter range.

Rebecca used “an automated approach” to do the mapping - in the paper, she mentions using the freely available ‘hdbscan’ Python package to identify clusters of shield volcanoes as an automated approach to mapping volcanic fields.”

When asked “Which ones are active?”, Paul an-

swered “Pretty big question, which we can’t answer... yet.”

The authors have released the [database](#) to the public. Paul says “This new database will enable scientists to think about where else to search for evidence of recent geological activity,” No doubt it will be used to determine targets for investigation by future [Venus](#) missions.

In a [post](#) I wrote about this on the Vatican Observatory’s site, I mentioned this makes me wonder what other hidden treasures await discovery in historic space mission data archives?

The other reason this caught my eye was the [announcement](#) on March 15th about the discovery of active volcanism on Venus - which I also wrote a [post](#) about...

This discovery was also made by pouring over radar images from NASA’s Magellan mission - what appears to be new lava flows and an enlarged caldera appear in images taken eight months apart.

So, an exciting month for the planet Venus! I’m sure these findings will spark some burgeoning planetary astronomers to take a second look at Venus.

**-Bob Trembley,
President**



Image: Artist’s depiction of an active volcano on Venus. Credit: NASA/JPL-Caltech



For Sale

From Bob Berta: I am placing this ad for the wife of my good friend the late Lee Hartwell. These items are available as a package or individually although the LX-200 is a complete package and will not be broken up.

1. An 8" LX-200 Meade f10 SCT. This is the last model that had the EMC coatings. This is a fork mounted scope but the kit also includes the Meade Wedge so can be used in equatorial mode for photography. Includes the Meade tripod, 8x50 finder scope, scope diagonal, hand controller, 9 speed Smart Drive, with 63,340 object database, power supply, and connecting cords, etc. This scope had never been out of his house! His home had a second floor with one dedicated room that was an office and observatory with an opening in the roof that could be cranked open for viewing from inside the house.
2. A Sky Watcher 6" achromatic refractor, f8. Has Vixen dovetail and dual rings, finder scope, and a hard shell case. There is a Celestron equatorial mount available for it if you want it, however, the electronics are most likely dead and unknown if parts are available from Celestron or aftermarket.

The scope focuser was modified so it can be used with a bino-viewer without a relay lens. Without the bino-viewer it must be used with a 2" diagonal or if a 1 1/4" diagonal, with a short extension tube

Note that the scope tube is signed by David Levy. I owned that scope before Lee and it has VERY good optics.

Various available optics include:

- Burgess Bak4 FBBMC Optical binocular viewer complete with two-20mm wide angle matched eyepieces.
- 1 1/4" AutoTech mirror diagonal
- Tele Vue 12mm Nagler Type 4
- Meade Series 4000 - 8.8mm Ultra Wide Angle
- Burgess Optical WA 20mm 65 degree AFOV
- Meade Super Plossl 26mm
- Orion Metal Medium Deluxe accessory case 18"x13"x6".
- A large assortment of excellent astronomy books, astronomy course DVDs, etc.

All of these items are at his wife's home in Romeo. You can contact Peggy Hartwell to arrange to see the items and discuss pricing. Her phone number is 586-752-4962 or email her at PHARTWELL@COMCAST.NET

From Ursula Froehlich:

Orion Skyquest XT10 Dobsonian

9x50 Finder scope

Assorted accessories as pictured.

Minor blemish/dent that doesn't affect use of the scope.

Asking \$375

Contact: 248-613-4624

uhapibear@gmail.com





PRICE REDUCTION

MEADE 8" LX90 ACF F/10 SCT

For sale is a Meade 8" LX90 ACF f/10 SCT with tripod. Included in this package:

- Audio Star Hand Control
- 8 x 50 Rear Focus Finder Scope
- Accessory Case w/keys
- 90 degree Star Diagonal
- 2x Barlow
- Six 1.25" eyepieces (32, 26, 15, 9, 6, 4mm)
- Color Filters (#12, 21, 25, 56, 58A, 80A)
- Meade LXPS7 Power Supply
- Celestron Sky Scout - Comes with original shipping container for OTA/Fork Mount

Retails for \$3099 – asking \$1500 – proceeds of sale will go to granddaughter in Florida (Ft. Myers) to help with costs from Hurricane Ian damage to her home.

Contact Cindy Babisz: cab8260@gmail.com or text/call 810-748-7080



Rosette Nebula



Bob Berta writes:

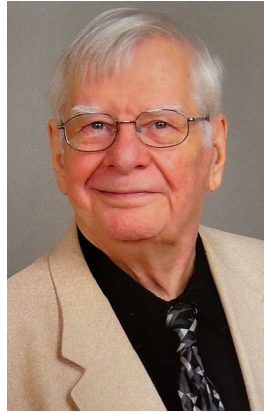
I took this photo of the Rosette Nebula last night (3/27/2023) from my backyard in Macomb. This was a stack of only 6-5 minute long photos through a once shot color camera. The telescope was my trusty 80mm APO Officina Stellare with a TV .8 focal reducer. I used a Triad narrow band filter to fight the light pollution at my house.

The mount is a ZWO AM5 and auto-guided through a 60mm guide scope and small camera. Cameras and auto-focuser is also ZWO. Polar alignment, image capture, auto-focusing, plate solve, stacking, and alignment is all handled by an ASI AIR Plus. This small device takes the place of a computer and several pieces of software that would normally be required. This makes for an extremely light weight and easy to transport and setup remote imaging platform. Final tweaking was done in Photo Shop.

The nebula is listed under NGC 2237. At its center is a gravitationally bound open star cluster thought to be about 4 million years old. These stars emit streams of charged particles known as stellar winds, carving out the gas and dust at the center of the nebula giving its distinctive Rosette nickname.

The nebula spans a distance of about 100 light years across and is located 5,000 light years from Earth in the Monoceros constellation.

In Memoriam



Dr. Philip Douglas Martin

1942 – 2023

Sadly, We mark the passing of our friend and colleague, Dr. Phil Martin, on March 23, 2023. A WAS member since 2002, he also served as treasurer 2006-2007.

He began his professional career at Northern Michigan University where he earned a BS degree in chemistry and biology in 1967, and received an MA in chemistry in 1970. In the following years, Dr. Martin earned his PhD in biochemistry from Wayne State University and continued his post doctoral studies at Michigan State University until 1981. He then completed two years of pharmacy at Ferris State College.

Dr. Martin joined Wayne State University in 1999 where he established himself as a crystallographer and research scientist, maintain a long affiliation with the American Crystallographic Association. He was privileged to travel world-wide and serve on many research projects and has been honored for his ground breaking research in determining the structure of Thrombin. He was also recognized for his paper on molecular dynamics and quantum mechanics, written in collaboration with a renowned quantum mechanic at Wayne State University. In addition to his work at the university, he has contributed to over 60 referred publications. Dr. Martin retired from Wayne State in 2018.

Besides being an amateur astronomer, he was an established actor, and appeared in many local plays throughout his life, including the production of "Who's afraid of Virginia Woolf". He was well respected in the theatre community, and received the Best Actor of the Year award from the Ann Arbor Press Theatre Guide. He enjoyed hiking and backpacking, even venturing the terrain at Glacier and Yosemite National Parks. He loved to travel. Thanks to his daughter, visitors to his house were greeted with a sign announcing his proclamation as Lord Dr. Philip Martin, bestowed upon him by English Royalty.

In lieu of flowers, the family requests memorials to St. Jude Children's Research Hospital, of which Dr. Martin had lent his expertise. There is a link to do so on his [obituary page](#).



Image: Jon Blum



Image: Jon Blum



More on Phil Martin

Letter from Dave D'Onofrio:

Yes it is very sad to hear of the passing of Dr. Phil Martin. I, like the rest of you have some very fond memories of Phil. I must say some of my best memories occurred at the Bill Beer's star parties. Anyone who has met Phil has met an individual with incredible energy, thirst for knowledge and his Yooper sense of humor. Phil had an insatiable desire to explore the universe, whether through astronomy, chemistry, quantum mechanics, or in his profession as a scientist specializing in determining cellular protein structures using X-ray crystallography and electron microscopy.

Back at the star party, Phil would lead a group of us to delve into telescopic imaging rather than using an eyepiece. We would have many playful and funny arguments between Phil, myself, Bill and Joe Ruggirello with Gary Ross, John Lyons, and others with Doug Bock sometimes being the referee. I never could figure out who won. Then there was the dinner at the local restaurant that Phil liked to call "The Gagger" It wouldn't be a star party dinner without plenty of talk about astronomy, politics and life itself with Phil insisting that we have apple pie with a scoop of ice cream for dessert.

Then again, what kind of Bill Beer's star party would it be without Phil flying his drones and test firing a real jet engine in the street in front of Bill's cabin. Most of all, I remember many late night discussions with Phil about our families, science and his faith in Jesus Christ. I will surely miss my friend Phil.

Sincerely,
David D'Onofrio



Image: Ken Bertin



Image: Bill Beers

Phil Martin action shots: left, checking his set up. Below, explaining how telescopes work to Bob Berta and Bill Beers.



Image: Bill Beers

Below: Flying one of his drones.



Image: Bill Beers



Left: Ken Bertin, Bob Trembley and Phil Martin

Image: Ken Bertin

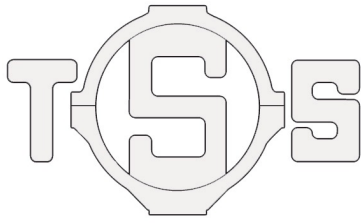
Phil at the "The Gagger" (?)



Image: Ken Bertin



Image: Ken Bertin



Telescope Support Systems



FAAC Astronomy Conference & Swap Meet

Saturday, April 1, 2023 9:00 am - 3:00 pm

General Astronomy

- 9:30 am: **Imaging A Rocket Launch** - John McGill
- 10:45 am: **Astronomy for Everyone** - Don Klaser
- 12 N: **3D Printing for Astronomy** - Liam Finn
- 1:30 pm: **Interstellar Comets & Asteroids** - Jonathan Kade

Technical Talks

- 9:30 am: **Starlink Internet +** - Jeff Thrush
- 10:45 am: **James Webb Telescope** - Tim Campbell
- 12 N: **Portable or Permanent** - Sean Pickard
- 1:30 pm: **Jantar Mantar** - Jim Frisbie

Planetarium Shows

10:00am, 11:30am & 1:00pm FAAC Members

Swap Meet

All Day...Earn Cash by Selling Those Items Sitting Around Collecting Dust!
Telescopes, Eyepieces, Cameras, Binoculars, Mounts, Software, Books, and Accessories, etc.

Admission: \$5.00 (children 15 and younger – Free / must be accompanied by an adult)

Sales Table: \$15 in advance, or \$20 at the door as available, (one admission ticket included).

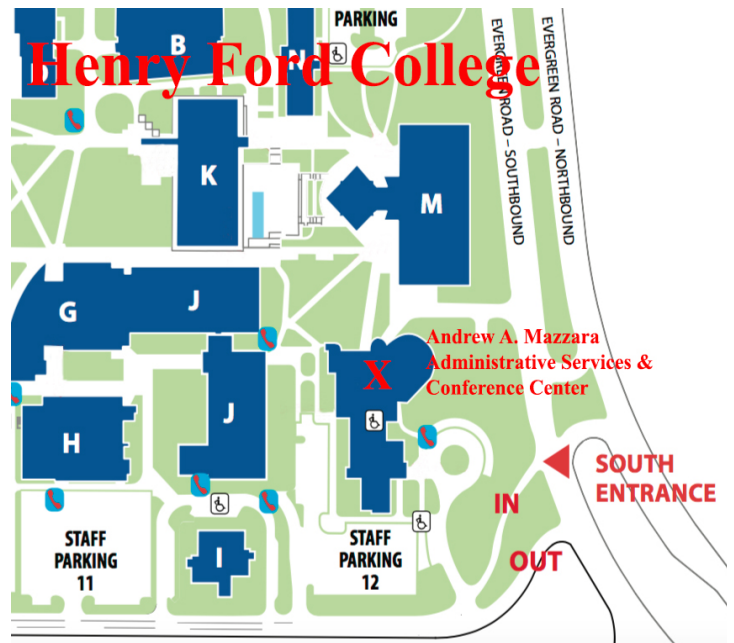
Advanced Table Registration ends Mar 15, 2023

Doors Open: 8:00am for setup.

Make Checks Payable: to **FAAC** for advance table registration.

Send payment to: Ford Amateur Astronomy Club, P.O. Box 7527, Dearborn, MI 48121-7527

Location: Henry Ford College, 5101 Evergreen Rd, Dearborn, MI 48128 (Andrew A. Mazzara Admin. & Conference Center... See **X** on map, Staff Parking Lots 11 & 12 will be open)



For More Information: Contact Jim via email: w8tu@comcast.net or call (734) 751-6280



Observation Reports

1-2 March

Planetary conjunction. Venus-Jupiter event best such in years. Obs'd ~ 01.15 U.T. but official event was at 11 Universal Time. 30 arc-min separation. A "cat's eyes" horizontal alignment with Venus at right, far brighter than Jupiter. Given altitude and warm front, Venus was ivory.

Transparency poor, Moon + air turbidity.

Per naked eye.

.....
COMMENTARY: 1) The closer to horizon as well as planetary distance Jupiter-Saturn event of December, 2020 required some optical aid. 2) The *instant* conjunction neared horizon as the gibbous Moon stood at transit in central Gemini. Her northerly Declination that night, the greatest for March, 27 deg. 35'. Ancient and mediaeval astrologers might have made much of these relationships. (See Ross and Carey, "In Defense of Astrology" [2022]).

Post scriptum in extenso

Addendum.

A trip down memory lane is in order. This commentator's first encounter with the Beers Doctrine was when the formulator was barely out of the playpen, so it was not known as such.

1966, when Johnson and Pearson walked the Earth. National Convention of the Astronomical League. One of the speakers was from the University of Georgia. As science professor, he had noticed the most articulate experts on the Theory of Relativity were "high school seniors". Decades on, one notices that our Grand Rapids Association's presentations on cosmology can fill a chamber, especially at Schuler's Books & Music, but Real Astronomy engenders a more muted response.

Whyfor? Because *Nova* and *Quirks and Quarks* have vast educated audiences on television, excellent shows. The likes of Rik Hill and David Levy have highly targeted (i.e. small) audiences. More systemic: In the intellectual life of the last fifty years, field science/ nature study has fallen well behind the "lab bench" scaled 'way up to C.E.R.N. -- and the Big Issues. The Audubon "Christmas" count can not compete with assaults on the Standard Model, especially because the former can mean a day of cold rain. I speak with authority there.

G.M.R. -- one of the last of the old line variable observers.

5 March

The Sun. Five groups, sparse, all but one in N. hemisphere. Promising large sun-spot just on E. limb. Near or on central meridian a solitary spot so close to equator, might be remnant of the Old Cycle, 24.

Transparency good.,

Instrumentation as before.

7 March

The Sun. Very active with six groups, all be it most *de minimis*. Aforementioned "new" group smaller than expected, probably Waldmeier "C", bifurcated umbrae with tight gathering of much smaller members in tow. Of interest is lone, small object in N. hemisphere at high latitude, probably New Cycle.

Transparency good, seeing good.

Instrumentation as before.

8 March

The Sun. Very active photosphere in quantity, but modest in quality. 6 widely scattered groups. Most prominent group is classic Waldmeier "H" in N. hemis. with modestly large primate spot + a tight swarm of *minutiae*. Additionally, good representatives of class "B" and "C", unremarkable arrays along a line of latitude. 2 representatives of lone and small Waldmeier "A" (as best can be determined).

Transparency poor from stratus, seeing fair.

Instrumentation as before.

14 March

The Sun. 5 groups, 4 *de minimis*. 2 difficult to notice from seeing. Lone Waldmeier "J" approaching exit limb, so fore-shortened. Well developed umbra/ penumbra. One "A" so small & isolated, nearly missed. Two groups of Waldmeier "B". Quiet Sun, given recent maturation of Cycle 25.

Transparency good, seeing fair.

Instrumentation as before.

14-15 March

X Corvi. 9.8. Obs'n difficult, low, and possibly shifting transparency.

TZ Leonis. 11.25.

Ceres. Near transit. Minor planet ~ week before opposition. In Realm of the Galaxies very near M-88. White, and possible disc, but likely seeing artifact.

Transparency poor, seeing good-fair.

4" refractor, 16" Borr II (185x) @ Veen Obs'y

19 March

The Sun. Two groups emerging from E. limb, one N. other S. Former shows only one large spot due (likley) to fore-shortening. Southern array seems very large, type specimen Waldmeier "E". Best can be made out: 7 spots with large leader.

Transparency excellent, seeing fair (wind)

Instrumentation as before.

19-20 March

Variable stars in Scorpius & Cygnus. Indifferent obs'ns of Long Period Variables below visibility.

Transparency fair, seeing fair, wind. Early twilight.

16" f /10 "Mighty Borr" @245X

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COMMENTARY: Supplemental to previous. Handsome Joe McBride points out 1/2 deg. refractive "lift" brought Gamma Vel in to reasonable range, which Observer had forgotten.

19-20 March

Gamma Velorum. Mag. 1.8, Class O7.5 (eruptive Wolf-Rayet) Obs'd from S.E. Kent Co. @ Lat. approx. 42 deg. 55 min. Star's Declination -47 deg. 42 min. Gamma is double star in dense southern Galaxy. Two "field" stars vis., but northerly one prob. two unresolved 6th magnitude.*

Transparency good, seeing poor: elev. and wind gusts.

5-cm. f /11 refractor @ 20X

.....
COMMENTARY: *depicted on *Pocket Sky Atlas* (Jumbo). Upper culmination obs'd ~ 01.57 to 02.01 U.T. Meridian crossings generated by Handsome Joe McBride w/ planetarium soft-ware.

Gamma Velorum (supplemental)

A.K.A. "Delta" 65 from J. Dunlop. Practically a "swarm". Depicted double on *Pocket Sky Atlas*, probably using same source or actual classic *Atlas Coeli*. Hirshfeld and Sinnott, vol 2 is far more complete with 4 line items. Stars A, B, C, D, E., newest/ oldest data 1951/ 1826. Principal pair the A= mag. 1.9, B=4.2 (above report). 2nd rank pair A and C=8.2. Greatest separ. AD = 94 arc-sec., very wide. No Position Angle changed, hence extremely slow or no obs'ns. A young star system with all early spectral classes, *see supra*. To reconcile Observer obs'n with scholarship not easy: Gamma was at transit, so no confusion by displacement E. or W. of meridian. Three stars in the field. D and E too faint and far from principal A. Estimates of Position Angles for B and C pairs off the published. Horizon line not horizontal? With vernal evening twilight, further examination likely to wait months + larger telescope.

Gamma Velorum (more)

By calculating the field of view @ 20X plus atmospheric extinction by inspection, none of the stars observed around Gamma were members of the multiple's system. The sky was turbid with wind gusts. The other stars too faint/ too close to "A".

20 March

The Sun. 2 groups, one a large, well developed Waldmeier "E", still fore-shortened near E. limb. Could subtend 20 deg. of longitude. At ~ same longitude in N. hemisphere is single large spot. Rest of surface featureless in white light.

Transparency good, seeing good despite wind. (Laminar flow?)

5-cm. f /11 refractor, Mylar filter.

.....
COMMENTARY: probably co-occurrence, two considerable features at approx. same longitude, but given featureless disc, one is entitled to speculate cross-hemisphere link.

27 March

The Sun. Active with 5 or 6 groups in both hemispheres, two major features in each hemisphere not easy to distinguish per Waldmeier classifications. Two very small, obviously "A". One "J". Problem distinguishing whether large arrays are one group or two closely spaced. One widely spread Waldmeier "D" probable.

Transparency good, seeing good.

Instrumentation as before.

27 - 28 March.

GO Comae Borealis. U Gem class eruptive with very deep "resting" mag. ~ 20. Diligent inspection of field using two sets of comparison charts yielded nada, as reasonable. 'Scope penetration entered as 15.

Transparency fair, seeing good.

16-in. f /10 Borr Telescope, Veen Obs'y.

30 March

The Sun. Three groups. 2 groups of Waldmeier "J", since small umbrae could just be detected in compressed penumbrae. Very near W. limb: severely fore-shortened very extensive, probably "D". Longitude spread impossible to estimate. Photosphere soon to be largely blank again.

Transparency excellent, seeing fair.

5-cm. refractor @ 55X using Mylar aperture filter.

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!

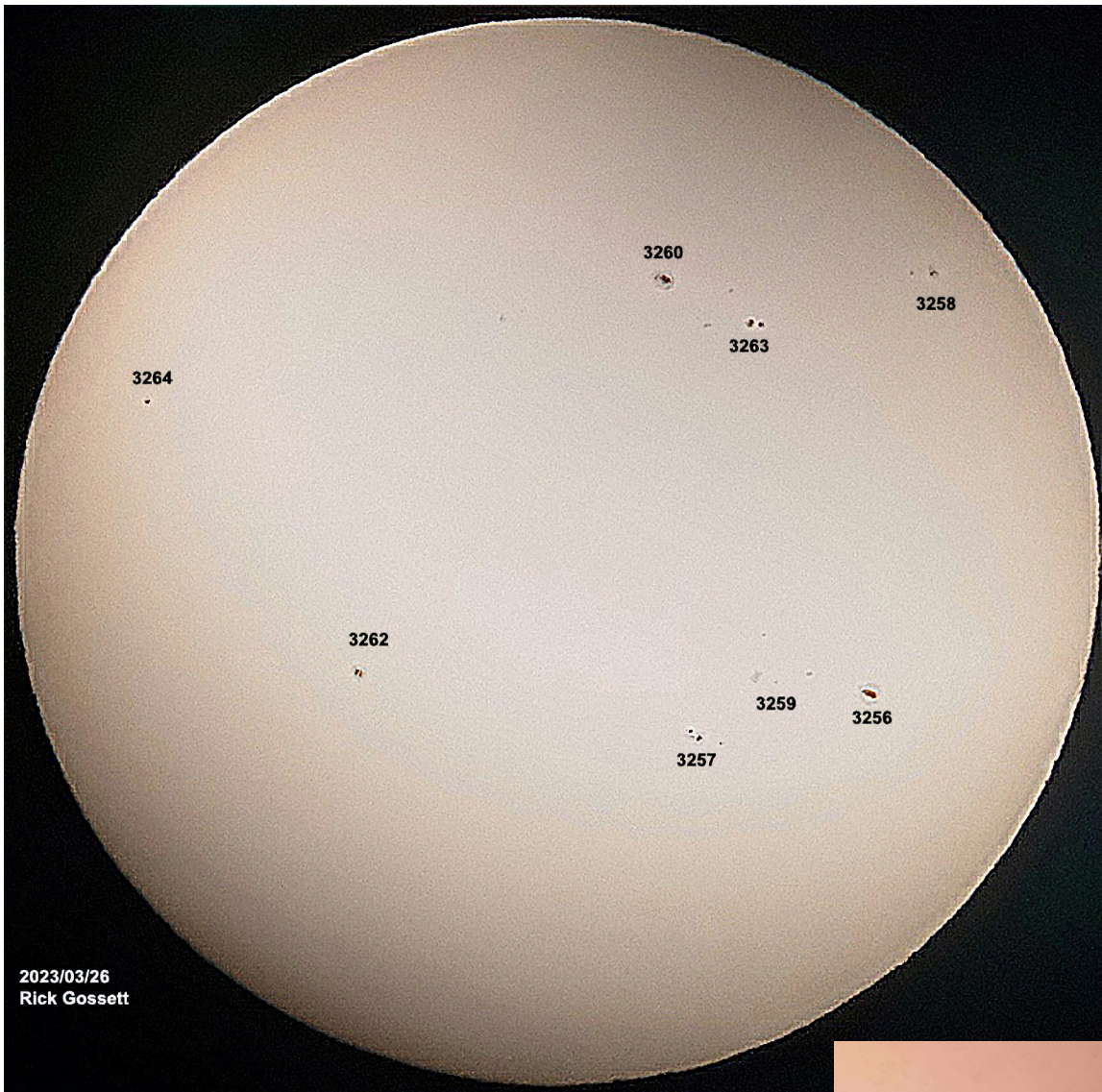
Send items to: publications@warrenastro.org

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.

An Active Sun

Rick Gossett reports:

The Sun has had a couple of relatively quiet days this month, but activity is stepping up as we head toward Solar Maximum.



8 in. Sct with f6.3 focal reducer
Orion full aperture glass filter
25 and 40 mm eyepieces
14 megapixel android phone





WAS Astrophotos

Conjunction Junction



Image: Bill Beers

Left

Bill Beers writes, "Photos from last night (March 1st) taken down in Florida using my Samsung A52 cell phone. We had a nice sunset which helped."

Here we have a fine twilight shot, next page shows a sequence Bill took over several days.

Right

From Bob Berta, "Took this fast photo of the Jupiter/Venus Conjunction tonight over the neighbors roof tops. Nice that there are some things you don't need to be in a dark sky spot nor have an astro-photo setup. This was taken with my Nikon DSLR on a tripod. Jupiter is on the left. Taken March 1st, 2023."



Image: Bob Berta

The View From C.W. Sirius Observatory

Doing Astronomy from Florida

Since the winter months have been brutal for astronomy in Michigan, the wife and I were lucky enough to vacation in sunny Florida for a bit over 3 weeks. We started our vacation in West Palm Beach, and then finished up in Ft Myers. These photos were taken using my Samsung cell phone at different locations around the area. The Palm trees and marinas make for a nice background for scenic landscape astro-photography in Florida.

The main goal was to capture the Jupiter-Venus conjunction at different time frames. I got lucky when the final photo from Mar 1, captured the palm tree splitting the conjunction perfectly. All of the Mar 1 photos were taken from our hotel balcony. The photo showing Orion over the Palm tree was taken down at the swimming pool area where the red pool lights lite up the Palms. Added note: all of the swimming pools and hot tubs along the beach have red lights in them so as to not interfere with the turtle migration between March and October. Also, it was interesting to see how much higher things are in the sky due to the lower latitude. It was fun doing some astronomy/astrophotography down in Florida. And, we had a great vacation, because as Jimmy Buffett says, "changes in latitude, changes in attitude"!

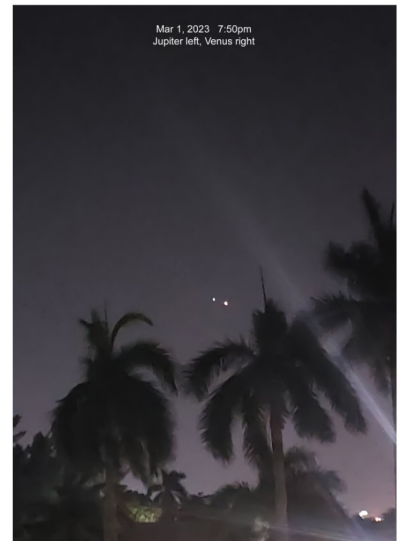
All photos on this and next page by Bill Beers



Feb 28, 2023
Jupiter top, Venus bottom



Mar 1, 2023 7:25pm
Jupiter left, Venus right



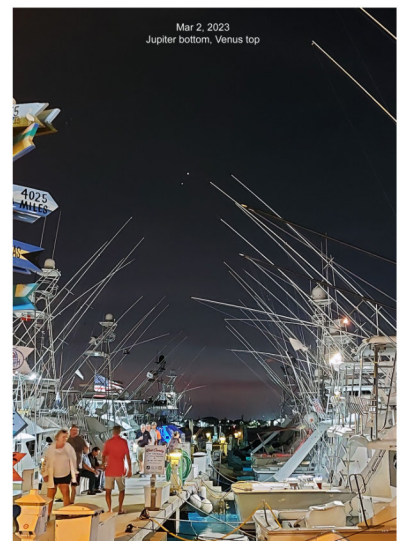
Mar 1, 2023 7:50pm
Jupiter left, Venus right



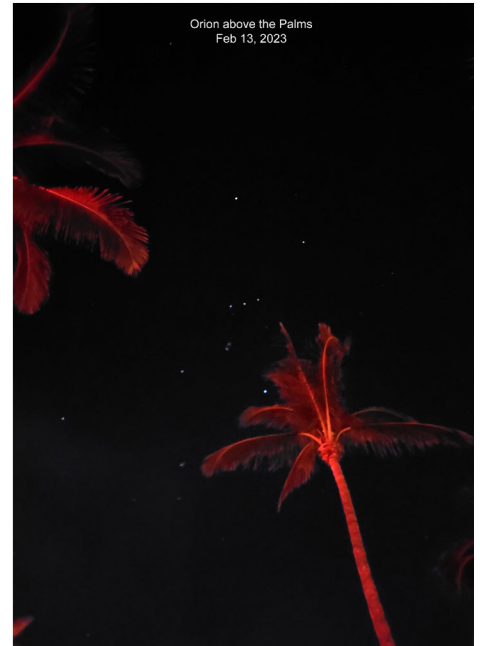
Mar 1, 2023 8:00pm
Jupiter left, Venus right



Mar 1, 2023 8:15pm
Jupiter left, Venus right



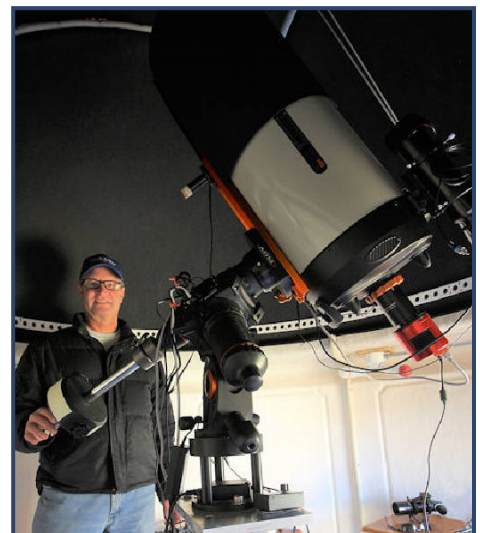
Mar 2, 2023
Jupiter bottom, Venus top



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 Bill's 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: BEEZOL-L@AOL.COM



From the Desk of the Northern Cross Observatory



March 27-28, 2023

I collected data centered around M 100 to capture Ceres as it moved during this night.

Messier 100 is a grand design intermediate spiral galaxy in the southern part of the mildly northern Coma Berenices. It is one of the brightest and largest galaxies in the Virgo Cluster and is approximately 55 million light-years from our galaxy, its diameter being 107,000 light years, and being about 60% as large.

Ceres is a dwarf planet in the asteroid belt between the orbits of Mars and Jupiter. It was the first asteroid discovered, on 1 January 1801, by Giuseppe Piazzi at Palermo Astronomical Observatory in Sicily and announced as a new planet.

Ceres is not a planet because it does not dominate its orbit, sharing it as it does with the thousands of other asteroids in the asteroid belt and constituting only about 40% of the belt's total mass.



*This is 68 x 120 second light frames, 24 dark frames, 64 flat frames
William optics 105mm f/7 APO refractor, ZWO asi2600mc pro camera, Losmandy G11 mount
Processed and plate solved in PixInsight.*

-Doug Bock

Presentations

Cranbrook April 3, 2023

Main Talk

Starry Eyes for Chile Skies: #ACEAP2018

By **Nicolle Zellner**

In June 2018, a team of nine individuals embarked on a 10-day expedition for behind-the-scenes visits to key astronomy research sites in Chile as part of the prestigious NSF-funded Astronomy in Chile Educator Ambassadors Program (ACEAP). In a talk that will make you ask "Why Chile?" and "How can I get there?", Nicolle Zellner will share with you her experiences in ACEAP and show you some of her "good" and her teammates' great astrophotographs of the southern sky.

About the Speaker

Nicolle Zellner is an associate professor of physics at Albion College in Albion, MI, where she teaches astronomy and physics. Nicolle's research interests focus on understanding the impact history of the Earth/Moon system and how those impacts affected the conditions for life on Earth. She studies lunar impact glasses to interpret the bombardment history of the Moon (and Earth), and a second project focuses on understanding how the chemistry of simple molecules is affected by impacts. In past years she was a member of a team that searched for meteorites in Antarctica. Nicolle was also a member of the scientific ground crew during NASA's STS-67 Astro-2 mission in 1995. She has been a NASA Solar System Ambassador for over 20 years, communicating to over 2 million people through public talks, media interviews, and written articles.



Short Talk

How to Enjoy the Hobby of Astronomy Without Injuring Yourself or Others

By **Bob Berta**

There are some unique dangers astronomers are exposed to while enjoying the hobby of astronomy. We will discuss these and safety best practices to hopefully prevent injuries and illness to ourselves as well as the public.

About the Speaker

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

Bob is both a Michigan Representative for the Astronomical Society of the Pacific's Night Sky Network, as well as a Solar System Ambassador for the Jet Propulsion Laboratory (JPL). Bob designed the astronomy observatory at the DbarA Scout Camp in Dryden/Metamora and is currently the manager of that observatory. As part of his Scout duties, he is a Merit Badge Counselor for Astronomy, Cycling, and Fly Fishing.



Macomb April 20, 2023

Feature Presentation

The Mercury 13

By **Connie Trembley**

The Mercury 13 were thirteen American women who took part in a privately funded program aiming to test and screen women for spaceflight. Participants successfully underwent the same physiological screening tests as had the astronauts selected by NASA on April 9, 1959, for Project Mercury. Connie Trembley shares their story with us.

About the Speaker

Constance Martin-Trembley has a Bachelor's of Science degree in Elementary Education and a Master's of Education Degree in teaching Science Education. She has been a middle school science teacher for the past 22 years, 21 of those for the New Haven School District, where she has twice earned teacher of the year. Connie grew up in Detroit in the 1960's during the space race between the US and Russia. This time in history sparked a life long interest in space for many young children including Connie. Connie has had the privilege of having an asteroid named after her, (117852) Constance, for the promotion of space education among children. She is married to WAS president Robert Trembley, they are both NASA JPL volunteer Solar System Ambassadors, and promote space education at public venues, giving lectures about various space related topics. Connie has a particular fascination about the 1960's space race and those involved.



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.



A magic beagle and the stars

It is my honor to introduce you, dear readers, this month to my latest book, "Clipper, Cosmos, and Children: Finding the Eureka moment." It is a book specially designed to inspire young people to enjoy the night sky. Whether you are physically young, or even just young at heart, this new book is meant to inspire you to reach for the stars.

This book's genesis was one day a few years ago. As I strolled into the office in the east wing of our home, I saw Wendee engrossed in the reading of an old book entitled Clipper. "When did you write this book?" she inquired.

"I wrote it when I was ten. Around 1958." Not a word about the stars in it.

"David, this is the best book I have ever read of yours. In fact," she laughed, "all your other books have gone downhill since this one." She asked me that day to rewrite Clipper as an astronomy book. I did, and the book is now published by RJI publishing in 2022 and is available from Amazon for about \$20.

As I wrote and revised the book during these recent years, my mind frequently wandered back to the simple, carefree time of my youth. The original Clipper was a Bar Mitzvah present for my older brother, Richard. Perhaps my fondest memory of this little beagle dates back to the cloudy evening of December 17, 1965. That was the night I had planned to begin my search for comets. At around 11 pm I took Clipper for a walk up the hill near our house. As I ambled up the streets nearby, I began to notice a small clearing to the west. I quickly decided to hurry home. Clipper had other ideas. As I headed south, Clipper tried to go north. Our tug-of-war lasted a few unforgettable seconds until a quick jerk on the leash persuaded him who was boss. (He was, but he turned around anyway.) At 11:50 that evening, I began my comet search program through a break

in the clouds that lasted less than ten minutes. Now, 58 years later, I am still searching for comets.

Each chapter of my book begins with a passage from the original Clipper. In the story, a young boy named Stephen (the original name, now termed for my grandson Matthew Stephen) goes on a nightly adventure with a magic beagle who, with an equally enchanted telescope, takes him on a frolic through the cosmos, seeing the planets, comets, and asteroids, then the stars of our galaxy, and finally to the massive filaments of galaxies that mark the edges of our known universe. Stephen is soon joined by Kaia, a young girl student named in honor of my granddaughter Summer Kaia.

There is also a strange extraterrestrial girl named Tania who lives on the Moon. Tania comes from a dream I enjoyed decades ago, at the height of the appearance of my brightest comet in 1990, when I encountered a creature shaped like a box, with four feet and four hands and a small head. "I do not have the power to send comets your way," Tania told me, "but I can change their orbits just a bit so there is a greater chance that you might find them." There is even a chapter about nothing, in which Clipper takes the children on a tour across the great voids, bereft of galaxies, that are an integral part of our cosmos.

You are likely all familiar with Peter, Paul, and Mary's wonderful song about a magic dragon, and how it describes how "a dragon lives forever, but not so girls and boys." The book's closing chapter explores what happens when the children grow up and pursue their lives.

The book might be fun, but actually, every telescope, from the tiniest department store telescope to the Webb Space Telescope, is charmed. All it takes is a single, thoughtful gaze that launches you on your own life's journey across the endless wonder of space and time.



Left to right; Clifford as a puppy, Moon Chapter with multiple beagles, and an older Clifford.



Book Reviews

By Ed Bas

Taxi From Another Planet

Conversations with Drivers about Life in the Universe

Written by Charles S. Cockell, a professor of astrobiology in University of Edinburgh and NASA's projects. It was a new book, published in 2022 by the Harvard University Press. It is a mixed bag about astronomy, from the moon to the universe. I really liked Taxi in the sitcom and Taxi Driver in the movie. Hey, it is an idea to write a book with the planets and stars. The author is funny without slapstick humor. He wrote amusingly but not even a pie on the face.

Though the author playfully wrote the aliens called them Zinglebrod, Xoggle, Babblezig- that's the purpose of different "alien" scientific methods. "I, for one, would be fascinated to learn the alien word for 'science.'"

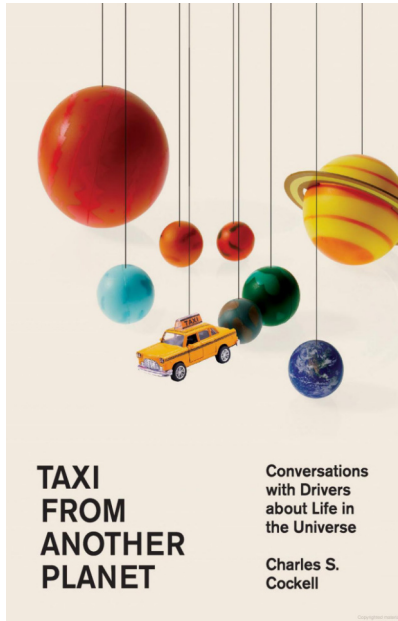
And he mentioned several times about Star Trek. I think it is logical.

It is written in pop science, not only for amateur astronomers but general readership. It was not complicated at all and it's a breezy book. One subject was worth it to me. Comets! "The finest technology may fail to detect or deflect an asteroid on a collision course. And we haven't even talked about comets... they travel much faster than asteroids, one of them could fly in with little warning and end our party before we know it." If you are interested in the subject, read older books like Sagan's *Comet* and Lev's *Comet: Creators and Destroyers*.

Reading a couple of last chapters bogs for me. RNA/DNA about amino acids in outer space, I have to read it closely. Biology is his bag.

It is good to see a compact and practical term for absolute magnitude for lay people, like me.

Cockell's mixed salad could be a meal, not a side. Interesting and a compact 266 pages is worth reading. One bugs me. It's not the author's fault, but the captions are on a dark gray screen, the text is black, smaller than a regular font. And the first page of the other chapters is on the similar gray screen and black text also. I have senior citizen eyes but... almost illegible- why?

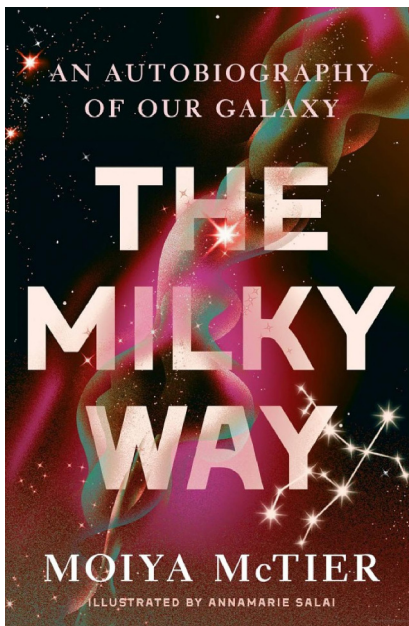


The Milky Way

An Autobiography of Our Galaxy.

Written by Moiya McTier, a recent book published in 2022. This author wrote it for a general readership, pop science or popular works. She is an astrophysicist and studied mythology. She is called a folklorist. She weaved science and science fiction; astrology to mythology. I have to shudder about astrology though. Astrology means anti-science, right?

Interesting enough to read this book BUT you have to understand and like her wry humor and her so-silly comedy. "In my center is my galactic bulge- no, not that way, you anthropocentric sicko." She meant the latest body of hers: the Milky Way. Give her a break, I thought. I almost skipped the book after a few pages. She renamed the galaxies, for example Scutum-Centaurus to Scoot. Macy renamed MGC, Sammy to Small Magellanic Cloud, Larry to... you get it now?



It's not a textbook (skip the goofy black-and-white ink illustrations) but it is a good read for WASP readers. If you want to read about dark matter or dark energy, this is one. Page about 80, "... galaxy's most valuable tool. Well, since dark matter is made up of a material that interacts gravitationally but not electromagnetically, it's like a secret weapon!"

Another noteworthy chapter is called Crush. Andromeda trumps, especially gravity: "... I have no desire to dominate or control Andromeda." Mass is part of the equation. It "has twice as many stars, around a trillion compared to my few hundred billion."

Her index danced alphabetically from absolute zero to Zwicky, Fritz. She wrote star formation to stellar age determination, and between mentions of Star Trek and Star Wars. Neat but not nerdy!

It is worth it to read the compact 216 pages, logical and fascinating, to a view of the author's eyes to see and grok our galaxies.



“Trainsitioning”

Adapting to the Spring Deep Sky

By Brad Young

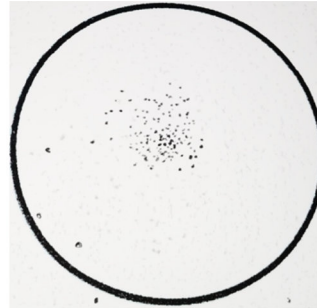
Spring is a time of transition, on Earth as well as in the sky. It may not be obvious at first but the type of objects we usually look at in the winter are galactic such as open clusters and reflection nebula. But as the year rolls on, we leave the Milky Way and look beyond it at other galaxies in the Virgo Cluster and the other clumps and associations throughout the spring sky. So, as we acclimate to warmer weather, we change our view to faint fuzzies millions of light years away. This requires not only transitioning in selecting magnification, filters, etc., but training our eyes to see faint, low contrast objects more effectively. Or the portmanteau trainsitioning.

It is not difficult to find, requiring only a short star hop 7 deg north from Castor. However, it is not as bright as the summer globular clusters and may require a 6-in telescope for a good view.

Winter Fence

If I am more fortunate than others, I need to build a longer table not a taller fence - Tamlyn Tomita

There is not a winter fence in the sky, but a traditional line of transition from winter to spring stars. This imaginary line runs from Camelopardalis in the far north, drops between Auriga and Lynx, then Cancer, Monoceros and down to the southern horizon in Pyxis and Puppis. These constellations are considered the most easterly and contain the “suburbs” of the Milky Way and its galactic objects. Groups to the east such as Leo and Hydra are more prevalent in springtime and bring with them the galaxies that will be many people’s targets on observing nights. Let’s look at the edge of the winter sky and the edge of the winter Milky Way.



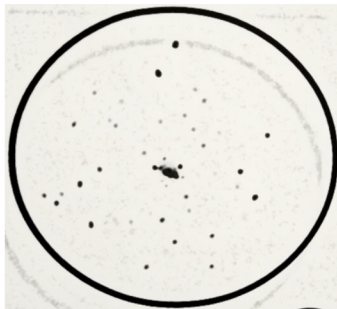
Messier 37



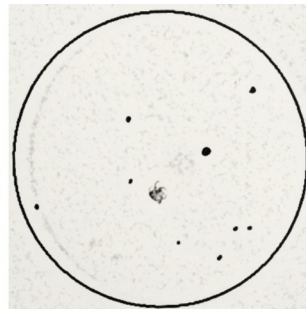
NGC 2387

The open clusters and nebula near Capella are captivating; M 37 is my favorite. Robert Burnham Jr. shared my opinion, writing in his *Celestial Handbook* “usually considered the finest of the three Messier open clusters in Auriga.” The sketch above was made for the Urban Club, using binoculars, and I wrote “awesome, especially with averted vision and patient viewing.”

Finding a galaxy in Auriga is tough, but there are a few, and I have seen NGC 2387. It is “small, medium size and magnitude and no detail.”



Caldwell 7 (NGC 2403)

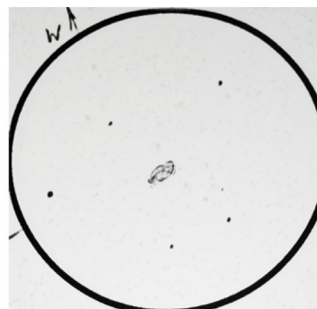


Caldwell 25 (NGC 2419)

Note: equipment used and other data at end of article

The northernmost object is a galaxy to set the mood for extra-galactic views. NGC 2403 (Caldwell 7) is a big spiral galaxy in Camelopardalis. If you star hop, begin with Muscida (omicron Ursa Majoris). Small scopes will see a large, even glow, but maybe not much detail. For moderate to large telescopes in dark skies, you’ll find a magnificent spiral, with knots strewn across the field. Though missed by Messier, Caldwell added it to his list of 109 deep sky wonders.

Sir Patrick Moore also added an example of a galactic object that also has a little “intergalactic wanderer” to it - our next target in Lynx. In fact, that is the nickname of NGC 2419, as it is the globular cluster furthest from the galactic center.



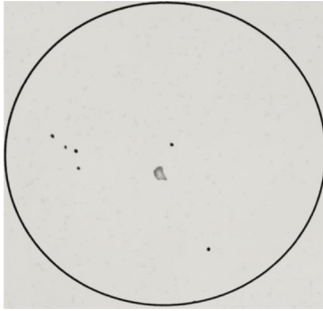
Caldwell 48 (NGC 2775)



Messier 44

You might think Cancer would be another constellation that would be difficult to find a galaxy in and you would be right. NGC 2775 (Caldwell 48) is in the southeast corner and is easier to star hop to from the head of Hydra. This is a moderate target at magnitude 10. I saw it as slightly elongated with some mottling on the edges in my ETX-125 @153x. David Levy listed it as a “round galaxy” in his *Deep Sky Objects*.

I would suggest M44 (the Beehive or Praesepe), to represent a galactic (winter) object. This showpiece will give your eyes a rest from the hard work ahead this spring with dim galaxies. With dark skies, you may see it naked eye.



Caldwell 46 (NGC 2261)

Moving south, Hydra is bordered on the west by both Canis Minor and Monoceros. Canis Minor is singularly lacking in available deep sky objects for small telescopes. So, I'll use Monoceros and the complex field surrounding the variable star S Mon, which lights Hubble's Variable Nebula NGC 2261. The nebula has a "sweeping fan" that becomes faint north of S Mon, and "curves away gently as if fanned by a light breeze." I noted a "comet like glow"; this reiterates that the surfaces of different objects can have a unique look and feel or resemble other kinds. Use as high power as conditions allow for C 46. Before leaving, switch to a low power field, and sweep nearby to visit the Christmas Tree Cluster and the Cone Nebula nearby for more amazing sights.

Finally, look at the Winter Milky Way, whatever dim glow remains for you to see. How is observing our own galaxy different than observing other galaxies? For this part, pick a portion that does not have any discrete objects, just star fields. The Milky Way is a galaxy, but we see it so much closer and from such a different vantage point that we must see it in another way. That's good - I give you the Orion Nebula and Pleiades as proof that being close to stunning objects is best.

New Ways Will Bear Fruit

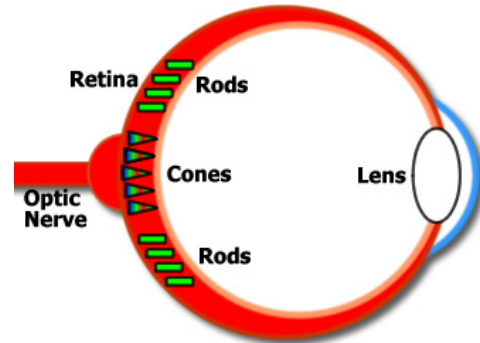
Everything that's cold and gray is gone - John Denver

That should be enough list; as you observe a few, you may start to see that as we begin looking at galaxies, our method of observing may change in subtle ways. Galactic objects like those we see in the winter Milky Way on this list tend to be clusters and nebula. Clusters, whether open or globular can often be resolved to stars. Except for monster telescopes, no amateur resolves galaxies into their individual stars. Occasionally, a supernova will erupt in one. Galactic nebula, such as reflection, emission, or planetary nebula, will not resolve but have a different type of appearance compared to a galaxy. With the subtle differences, comes different ways to observe.

Galactic clusters are often large and bright enough to use low power eyepieces. Unless they are involved in a nebula (e.g. the Pleiades), filters are rarely used. Depending on their size, bright nebula may require low or high power and

certain filters such as H- β may be helpful in teasing out the details. Planetary nebula often benefit from high power and some are easier to see using an OIII filter.

Usually, galaxies usually benefit from higher power to increase contrast. Because they are such low contrast objects, filters offer little help. Dark skies are much more essential, as is the aperture of your telescope. The reason why large Dobsonians (nicknamed light buckets) are popular is because they provide the most photons for the dollar.



Rods and Cones

Jerry, my rods and cones are all screwed up! - Kramer Cosmo

In addition to your equipment, your method of observing may change with different types of objects. Averted vision is often a must for dim galaxies. But it's usually unnecessary with an open cluster. With bright clusters or nebulae, we may stare directly at the scene, using the six million cones in our eyes, which are sensitive to color. But with dim galaxies and nebulae, we rely on our 120 million rods.

In short, rods are responsible for scotopic vision and cones are responsible for photopic vision. Scotopic vision is also colloquially referred to as night vision. This type of vision is performed with the rods in the eye. As these are mainly located in the peripheral areas of the retina, visual acuity is low. In contrast to cone-based photopic (bright) vision during the day, no colors are perceived. Think of averted vision in this way: go back to when you printed this article. If you think it is bright and colorful, you use high quality colorful ink and stand at the printer, staring as if to hurry it to come out. However, if you see this story, or the author, as dim, you print in greyscale and glance sideways to see if it's done printing.

It's time to transition from nebulae and clusters to galaxies. Exchange your hand warmers for bug spray, your Carhartt's for T-shirts and put away thermos bottles while you clean out the ice chests. Get ready for the hordes of galaxies in Leo, Ursa Major, Coma Berenices, not to mention Virgo. And get out and see Orion, or the Eskimo, or M35 one more time before the sun overwhelms them in the evening sky.

Objects Discussed

You can't have discussion without cussin'

OBJECT	CONSTELLATION	My Sketch	TYPE	AL PROGRAM	MIN EQUIP
NGC 2419 (C25)	Lynx	ETX-125 153x	Glob Cluster	Glob Clusters	4 in scope
NGC 2403 (C7)	Camelopardalis	ETX-125 47x see note below	Galaxy	Caldwell Silver	4 in scope
Messier 37	Auriga	ETX-125 47x	Open Cluster	Urban Club	8x40 binoculars
NGC 2387	Auriga	22" Dob 240x	Galaxy	Herschel Society	10 in scope
NGC 2775	Cancer	ETX-125 153x	Galaxy	Herschel 1	4 in scope
Messier 44	Cancer	8x25 finder scope	Open Cluster	Urban Club	Eye
Milky Way	Many	Eye	Galaxy	?	Eye
NGC 2261	Monoceros	ETX-125 153x	Bright Nebula	Caldwell Silver	10 in scope

Note: NGC 2403 (C7) best seen that night in ETX-125 at 153x, w/o filter

Unless noted, all images and sketches are by the Author

Bibliography

Burnham's Celestial Handbook, Vol. 1-3, Robert Burnham Jr.

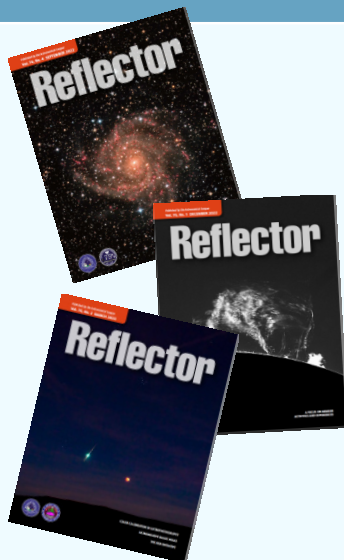
Webb Society Deep-Sky Observer's Handbook, Vol. 2, 3, 4, edited by Kenneth Glyn Jones

Celestial Objects for Common Telescopes, Vol. 2: The Stars, Rev. T. W. Webb

Deep Sky Objects, David Levy

Deep Sky Companions: The Caldwell Objects, Stephen James O'Meara

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Over the Moon

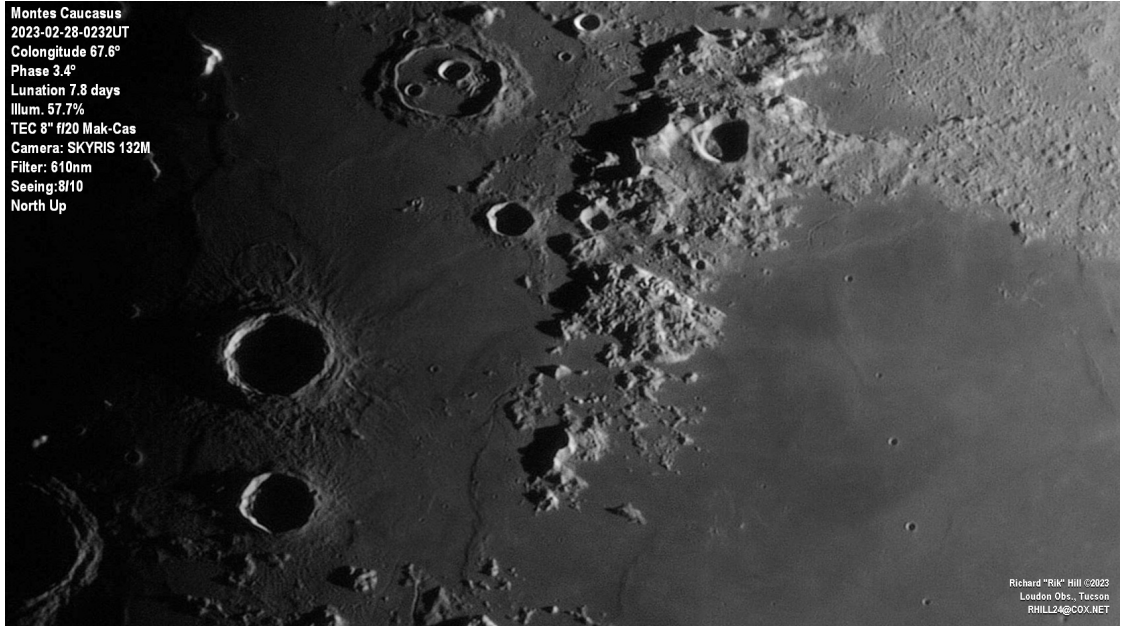


with Rik Hill

Dividing Mountains

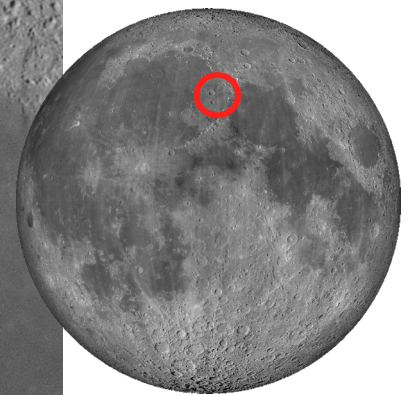
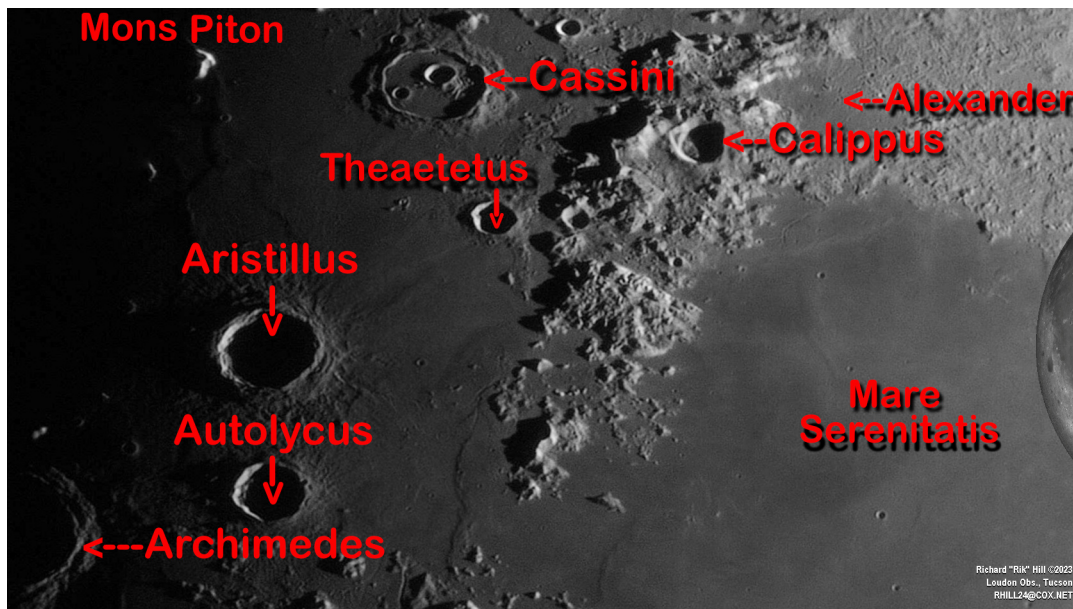
Dividing Mare Imbrium from Mare Serenitatis, is the triangular mass of peaks, the Montes Caucasus, my favorites of all the lunar mountains, running down the middle of this image. On the left side of this image we see two large craters still in shadow, Aristillus (56km dia.) above and Autolycus (41km) below. Note the splash pattern of the ejecta about the larger crater and the tighter crosshatch pattern around Autolycus. To the right (east) of Aristillus up against the Montes Caucasus, is a mild swelling that is the dome Ari1 about 54x35km in area and 85m (± 10 m) high. Rima Thaetetus can be seen on the eastern side of this dome. Then east of Autolycus is a large low circular swelling that is another dome, Au1 some 28km diameter (± 0.5 m) and only 75m (± 10 m) in height.

A small piece of the great crater Archimedes (85 km) can be seen in the lower left corner. In the upper left is the bright Mons Piton rising abruptly 2250m above the surrounding plain of Mare Imbrium. What a sight that must be! Just right of that rampart is the very identifiable crater Cassini with Cassini A (15km) and the smaller Cassini B (9km) contained



within its low walls. The ejecta blanket surrounding this crater is best seen on the right (east) side. Below Cassini is the odd shaped crater Thaetetus (24km) and in the north of the Caucasus is another non-round crater Calippus (32km). These two craters point north to a "U" shaped feature that is Alexander (85km). Some references list this at 95km but it's hard to see a circular feature here at all!

This image was made from two 1800 frame AVIs stacked with AVIStack2 (IDL) and finish processed with GIMP and IfanView.



Location Maps by Ralph DeCew

History S.I.G.



April 1988

No credit is taken for the illustration of the front cover, but this editor thinks they may have missed a bet by not coordinating with Ken Kelly for the selection.

Inside the issue we find something that will warm the cockles of any editor's heart: an article by a new member, "List of Bright Stars" by Dale Flamand, where, as a beginner, he outlines a method he uses for visual observing. New members can contribute to the WASP (hint, hint).

Special Interest Groups can also participate in the WASP (I'm looking at you, Solar and Double Stars) as we see here with the "W.A.S. Lunar And Planetary Group Spring and Summer Observing Events" from Alan Rothenberg, chairman of that SIG. We continue on with "Another Book Review -1000+: The Amateur Astronomer's Field Guide to Deep Sky Observing" by Tom MacLaney.

Next up are some serial articles, "Getting Started in Astrophotography" by Larry F. Kalinowski (Part V - The Prime Focus Method) and "Interesting Minor Planets" by Ken Kelly (Part VIII)

(944) Hidalgo
(2060) Chiron

We finish the issue with "Minor Planets for Mar.- Apr." (Calculated by Ken Kelly)

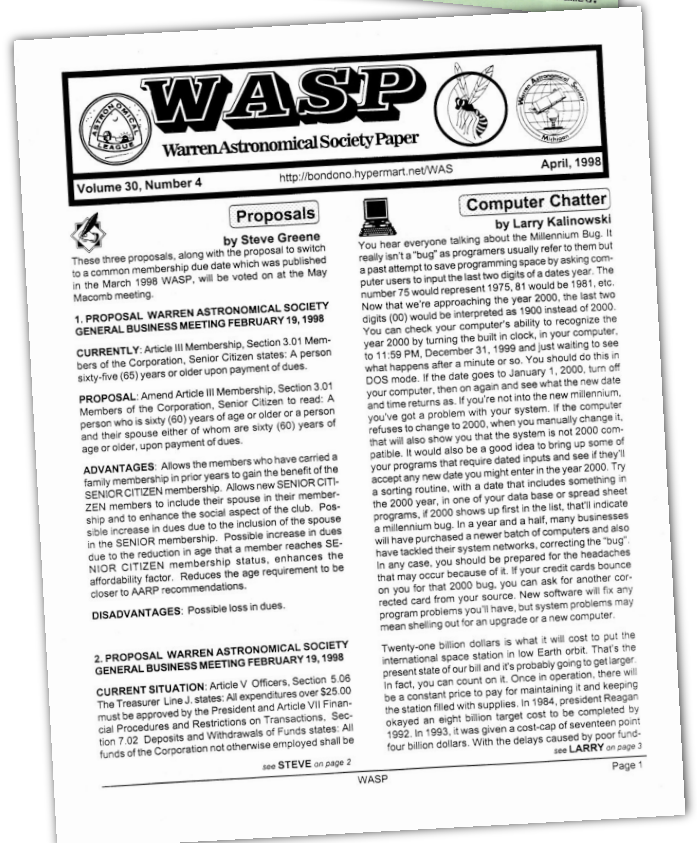
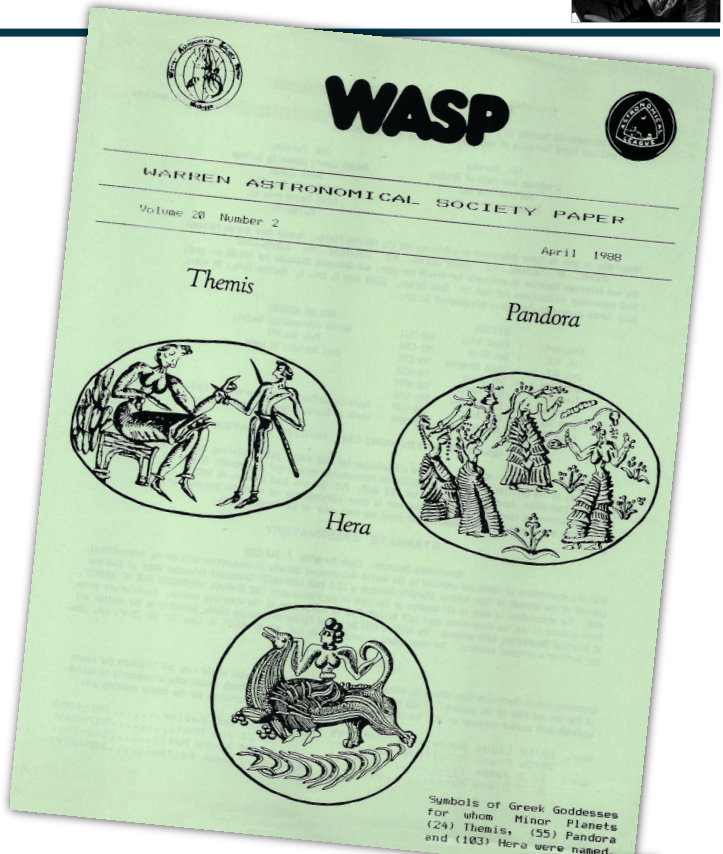
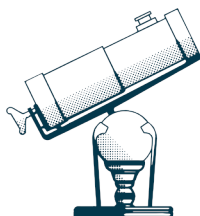
(4) Vesta
(14) Irene
(11) Parthenope
(9) Metis

With none of these minor planets showing up on the cover of this issue (and the editor was Ken Kelly—What!?)

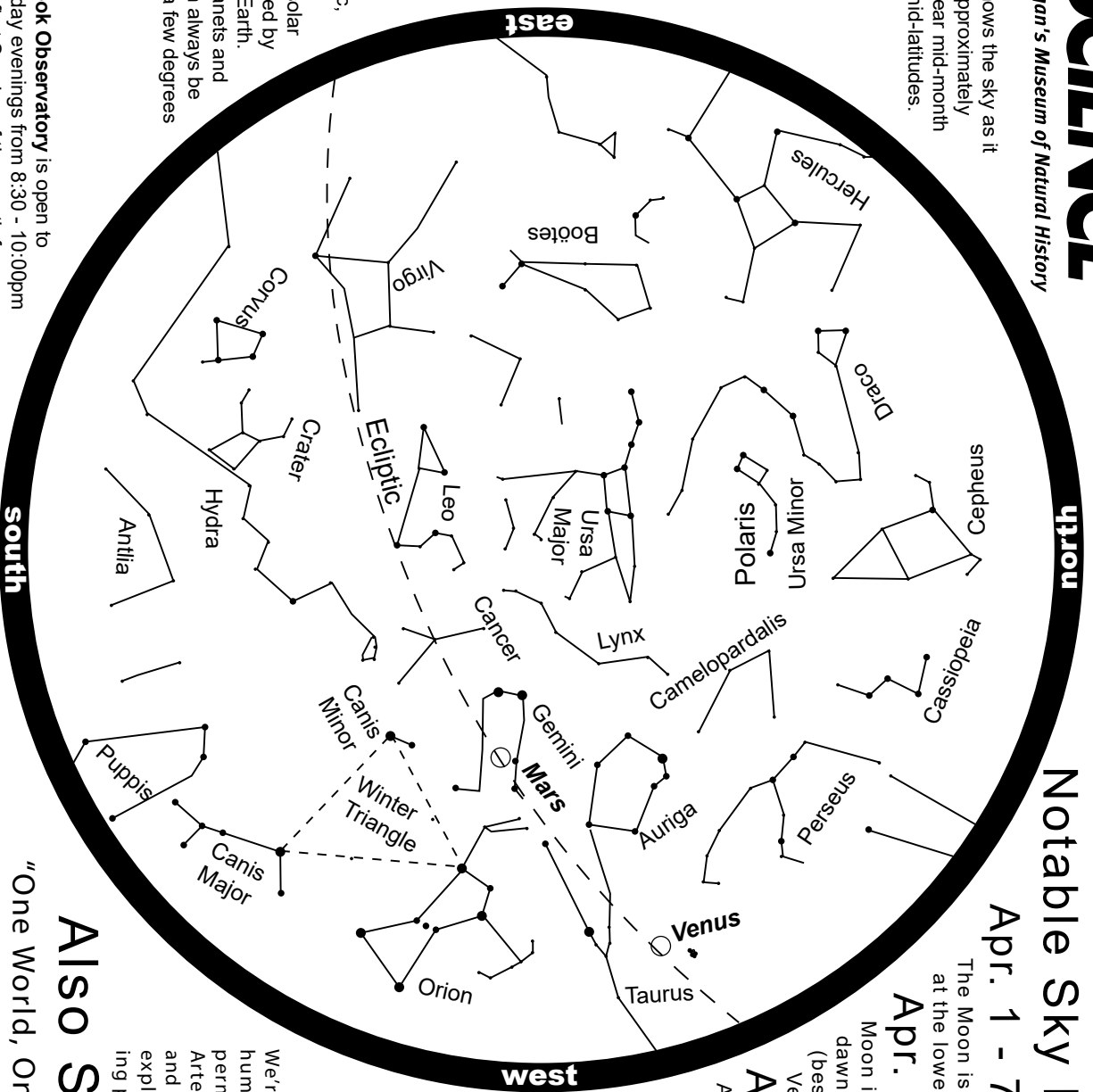
April 1998

In this web-based/printed issue we have three financial related proposals by the treasurer, Steve Greene, along with "Computer Chatter" by Larry Kalinowski, and "Minutes of Meetings" by Bob Watt, Secretary, where we learn, for instance, that David Levy would be coming to Kensington in May. "Astro Facts" supplied by Greg Milewski rounds out the issue.

**Dale Thieme,
Chief scanner**



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 evenings from 8:30 - 10:00pm EDT, and the first Sunday of the month from 1:00 - 4:00pm for solar viewing.

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

APRIL 2023

Notable Sky Happenings

Apr. 1 - 7

The Moon is above Regulus on the 1st (SSE evening) and at the lower left of Spica on the 6th (ESE evening).

Apr. 8 - 14

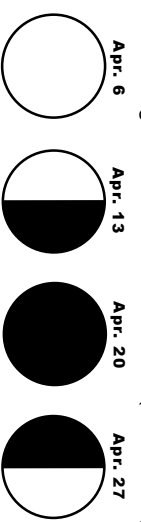
Moon is to the left of Antares on the 10th (SSW pre-dawn). Mercury is at Greatest E. Elong. on the 11th (best view for year in W ½-hour after sunset) and Venus is to the left of the Pleiades (W evening).

Apr. 15 - 21

A "hybrid" solar eclipse on the 19th is not visible from our hemisphere.

Apr. 22 - 30

Moon is to the lower right of Venus on the 22nd (WNW evening) and the Lyrid meteor shower peaks (expect 15-20 meteors/hour). Moon is upper left of Venus on the 23rd and to the right of Mars on the 25th (W evening).



Now Showing

"Forward to the Moon"

We're ready to start a new chapter in the history of human exploration and take our first steps towards a permanent presence on the Moon. NASA's 21st century Artemis program, named after the Greek Moon Goddess and twin of Apollo, is the next step in our mission to explore the universe. A Moon base will be the launching pad for the next target: the planet Mars.

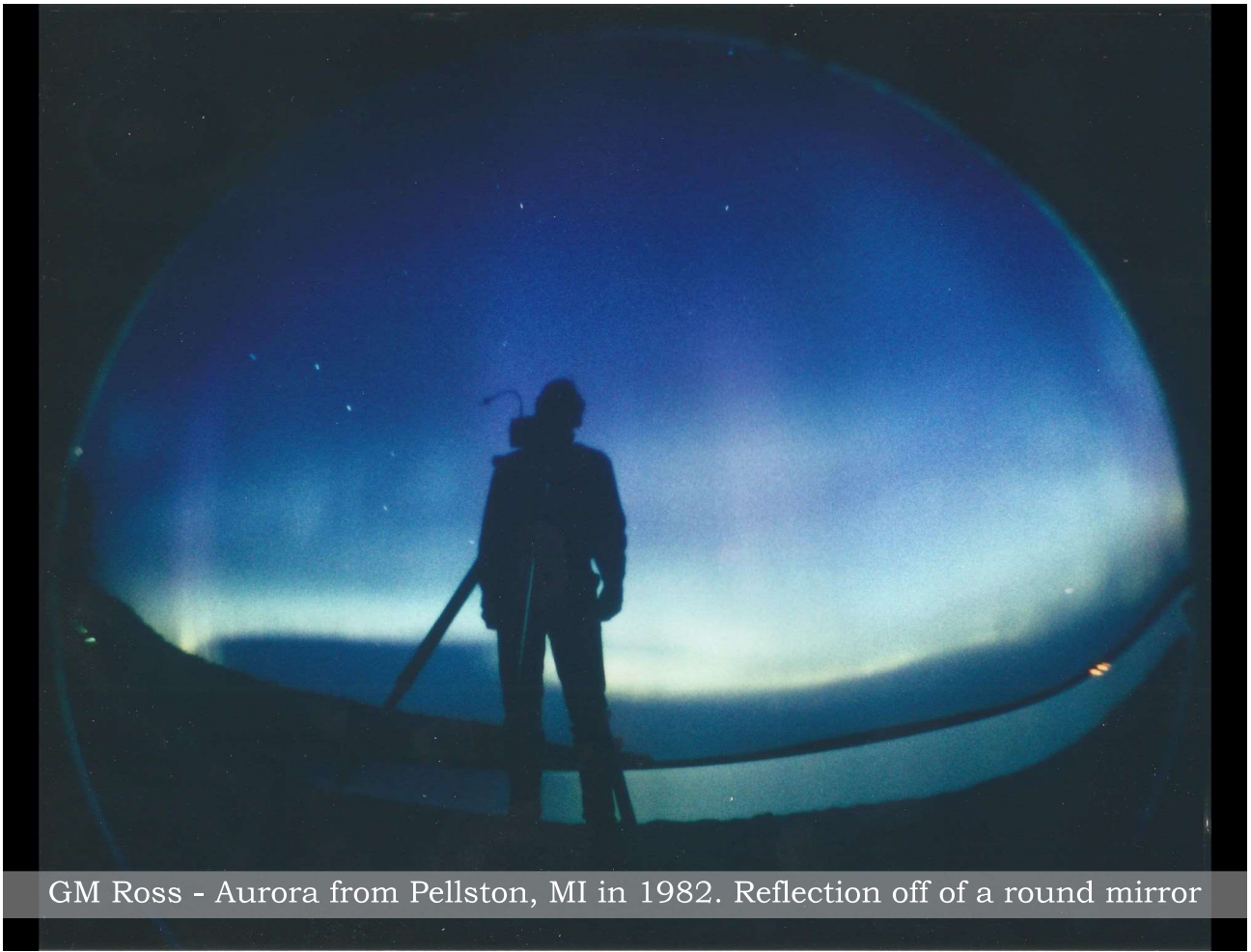
Also Showing

"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>





GM Ross - Aurora from Pellston, MI in 1982. Reflection off of a round mirror

April 2023


Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 April Fool's Day
2	3 Cranbrook	4	5 FULL MOON	6 Passover	7 Good Friday	8 Statewide Astronomy Night (tent.)
9 Easter	10	11	12	13	14	15 Moon at Perigee: 367967 km
16	17	18 Tax Day	19 NEW MOON	20 Macomb	21	22 Stargate Open House Lyrid Meteor Shower Eid al-Fitr, Earth Day
23	24	25	26	27	28 Moon at Apogee: 404300 km	29 Astronomy Day (Spring)
30						

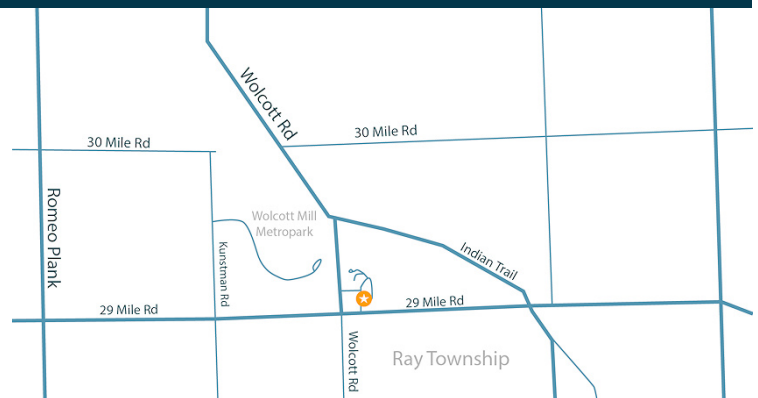


Stargate Observatory

Monthly Free Astronomy Open House and Star Party 6:00 PM, 4th Saturday of the Month Wolcott Mill Park - Camp Rotary Entrance

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

- Sky tours.
- See different telescope types in operation.
- Get help with your telescope.
- We can schedule special presentations and outings for scouts, student or community groups.
- Contact: outreach@warrenastro.org
- Find us on Meetup.com 



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

Observatory Rules:

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

Stargate Report

March, 25, 2023

Turned out to be fairly cold and very windy on Saturday. With temps in the mid 40s, light rain/snow and very strong gusts of wind, the observatory was opened by myself and Riyad around 6:30. We noted a small leak in the ring just under the dome and discussed a fix. I measured some components of the Big DOB for some improvements we are planning and we closed up shop just after 7pm.

The Open House for April is planned for Saturday the 22nd. This is not only Earth Day but the peak of the Lyrid meteor shower. So we are trying to schedule some dark, clear skies that night.

We would love to have more volunteers at Stargate, it is an absolute joy to operate those telescopes for people or for private viewings of your own. The scopes are here for club members so take advantage of them. If you are interested in learning more and helping out at stargate, please reach out to me.

Jeff MacLeod
2nd VP, Observatory Chair

Treasury Report

Treasurer's Report for March 31, 2023

BOA account:

Balance: _____ \$29,696.06

Deposits: _____ 235.00

Expense _____ 1,355.81

(Laptop for streaming meetings, Meetup and Webex fees, PO box rent.)

PayPal Account:

Balance: _____ \$449.22

Received: _____ 54.41

Paid _____ 39.43

(Snacks)

We welcome Sue Martin to our membership.

Total Paid Memberships _____ 89

Notes from the Treasury:

Is it time to renew your membership? Every New Year, many memberships expire. Please let me know via email at treasurer@warrenastro.org to verify your membership status. When you receive your membership flyer in the mail, fill it out and send it to: Warren Astronomical Society, P.O. Box 1505, Warren, Michigan 48090-1505. We strongly recommend using PayPal for faster service, but we also accept checks and cash at the meetings."

Astronomical Events For April 2023

Add one hour for Daylight Saving Time

Source:

<http://astropixels.com/almanac/almanac21/almanac2023est.html>

Date	Time (h:m)	Event
5	23:35	FULL MOON
6	11:45	Spica 3.3°S of Moon
7	8:51	Moon at Descending Node
10	0:50	Antares 1.5°S of Moon
10	23:42	Venus 2.5°S of Pleiades
11	16:00	Jupiter in Conjunction with Sun
11	17:00	Mercury at Greatest Elong: 19.5°E
13	4:11	LAST QUARTER MOON
15	21:22	Moon at Perigee: 367967 km
15	22:47	Saturn 3.5°N of Moon
17	11:00	Venus at Perihelion
19	23:12	NEW MOON
19	23:17	Hybrid Solar Eclipse; mag=1.013
20	6:32	Moon at Ascending Node
22	4:14	Pleiades 1.9°N of Moon
22	20:00	Lyrid Meteor Shower
23	8:03	Venus 1.3°S of Moon
25	21:18	Mars 3.2°S of Moon
26	12:26	Pollux 1.5°N of Moon
27	16:20	FIRST QUARTER MOON
28	1:43	Moon at Apogee: 404300 km

The process for ordering a physical copy of Sky & Telescope has changed, and prices have gone up above \$40 per year for a member of an astronomy club. Please let me know via email at treasurer@warrenastro.org if you would like more information.

Adrian Bradley,
Treasurer

Meeting Minutes

WARREN ASTRONOMICAL SOCIETY

MINUTES OF BOARD MEETING

MARCH 6, 2023 @ 6:30PM

Meeting called to order @ 6:30PM. Officers in attendance: President Bob Trembley, 1st VP Dale Partin, Secretary Mark Kedzior – VIRTUAL – Treasurer Adrian Bradley, Outreach Chair Kevin McLaughlin, Publications Chair Dale Thieme – quorum present.

OFFICER REPORTS:

President Bob Trembley discussed meetings with Metroparks regarding outreach activities regarding waivers - WAS members are covered by WAS insurance policy, AND no need to sign waiver to volunteer for outreach events at Metroparks. AV Tech – Vatsalya Dandibhotla has contacted the board and has volunteered to coordinate as AV Tech at our Cranbrook meetings.

1st VP Dale Partin reports in person meetings will resume on the third Thursday (March 18) at Macomb – ‘E’ Building, Room 208, and continues to look for presenters for upcoming meetings.

2nd VP Jeff MacLeod not present – placed February Stargate Open House Report in March WASP.

Secretary Mark Kedzior reports there are six calendars left for sale.

Outreach Chair Kevin McLaughlin reported that Mark Kedzior did outreach presentation at Warren Civic Center Library on March 1st. 20 children and 15 adults were present to look through two telescopes, observing Jupiter, Venus, 1st quarter moon and he Great Nebula M42 in Orion on a clear night. The library also received as part of a grant from NASA@MyLibrary program three Orion 76MM Fun-Scopes. He will assist the library in preparing protected carry cases so they can be placed in circulation.

Treasurer Adrian Bradley reported that the WAS account balances are published in the March WASP, and also reported on the purchase of a new club laptop for our virtual meeting equipment, which will debut at the Cranbrook meeting which follows the conclusion of this board meeting.

Publications Chair Dale Thieme reports the March WASP is online, and said the new WAS-owned website is up and running well.

OLD BUSINESS:

Paul Strong Scholarship – Dr. Dale Partin reported that the contact person between the WAS and Macomb needs to be resolved and will report next month. Member Riyad Matti reported that he was contacted by the executor of the estate of former WAS Officer Steven R. Franks as to the donation of astronomy books to the WAS. Discussion took place – board will decide on the disposition of the books at next board meeting.

NEW BUSINESS:

Discussion on additional purchase of duplicate(clone) laptop for observatory and backup for meetings. Motion

by Bob Trembley – second by Dale Partin to purchase identical laptop computer. Motion passed. WAS Tri-fold brochures – will look for printer and costs to provide brochure for WAS outreach and correspondence. 2024 Solar Eclipse – Discussion on uptick of inquiries regarding solar eclipse viewing events and trips of April 8, 2024. Discussion Groups - being hosted by Laura Wade in March.

Motion to adjourn by Dale Partin – second by Mark Kedzior. Meeting adjourned at 7:20PM.

Respectfully submitted,

Mark Kedzior
Secretary, WAS

WARREN ASTRONOMICAL SOCIETY

CRANBROOK (Hybrid) MEETING

MARCH 6, 2023 7:30PM

Meeting called to order for Cranbrook meeting at 7:30PM by President Bob Trembley. Persons in attendance – 21 - WebEx - 18 - YouTube attendance – 7@ 8:30PM).

OFFICER REPORTS:

President Bob Trembley reports that WAS members are covered by WAS insurance with no need to sign waiver at Metropark outreach volunteer activities.

1st VP Dale Partin reports in person meetings will resume March 16 (third Thursday of month) at Macomb, ‘E’ Building, Room 208. He also gave the upcoming presentation schedule and asked for volunteers to present at upcoming meetings.

2nd VP Jeff MacLeod not present but provided report in March WASP regarding February 25th Open House.

Treasurer Adrian Bradley not present but provided WAS Treasury Report in March WASP.

Outreach Chair Kevin McLaughlin reported on Warren Civic Center Outreach observing on March 1st by Mark Kedzior. He also reported on the Discovery Center contacting us for outreach event planning.

OBSERVING/SPECIAL INTEREST GROUPS REPORTS:

David Levy reported on solar observing of seven sunspot groups, and read a quotation from one of Wendy’s favorite poems. Solar – Marty Kunz reports increased solar activity with sunspots, flares, and auroras. Double Star Group – Riyad Matti reported no observing due to clouding, but will be observing at March 25th Open House if skies cooperate.

SHORT PRESENTATION:

In person at Cranbrook, John Dumar presented “The LaPlace Resonance: Another Look” – questions and discussion followed this informative talk. To see his presentation in its entirety, go to:

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

MAIN PRESENTATION:

Adam Crowl (from Australia) presented "Nuclear Engine for NERVA, Orion and Now". To see his presentation in its entirety, go to: <https://www.youtube.com/warrenastro>

Meeting ended at 9:40.

Respectfully submitted,

Mark Kedzior
Secretary, WAS

WARREN ASTRONOMICAL SOCIETY

MACOMB MEETING

MARCH 16, 2023 7:30PM

Meeting called to order at 7:30 PM at Macomb Room E205 by President Bob Trembley. Attendance - 11 WebEx attendance - & YouTube - @ 8:15 PM).

OFFICER REPORTS:

President Bob Trembley reported on the "No waiver needs to be signed for astronomy volunteers at Metropark Outreach events". He also reported on uptick of 2024 Solar Eclipse inquiries, with no trips being planned by the WAS.

1st VP Dale Partin reported on upcoming presentation schedule and need for volunteers to present at future meetings.

2nd VP Jeff MacLeod gave Stargate report and upcoming March 25th Open House. He also reported on a "Learn Astrophotography" event sometime in April in the Rochester/Bloomfield Hills area for any skill level and will provide details as they become available.

Treasurer Adrian Bradley reported on the new purchase of a club laptop dedicated for our virtual streaming/hybrid events.

Secretary Mark Kedzior reports six calendars are still available for purchase. Publications Director Dale Thieme reports the WAS owned website is running smoothly, and also reported to membership he will be relocating from Pensacola, FL to Kalamazoo, MI in April.

OBSERVING REPORTS/SPECIAL INTEREST GROUPS:

David Levy reports observing large prominence during his regular solar observing regimen. He also read a poem from the works of amateur astronomer Alfred Lord Tennyson. Solar - recent images of solar activity shown. Double Star Group - Riyad Matti reports there will be double star observing pending clear skies at the March 25th Open House. Astrophotography - Dale Hollenbaugh shared his recent image of IC 410 "The Tadpole Nebula". Adrian Bradley shared recent images of his Milky Way images.

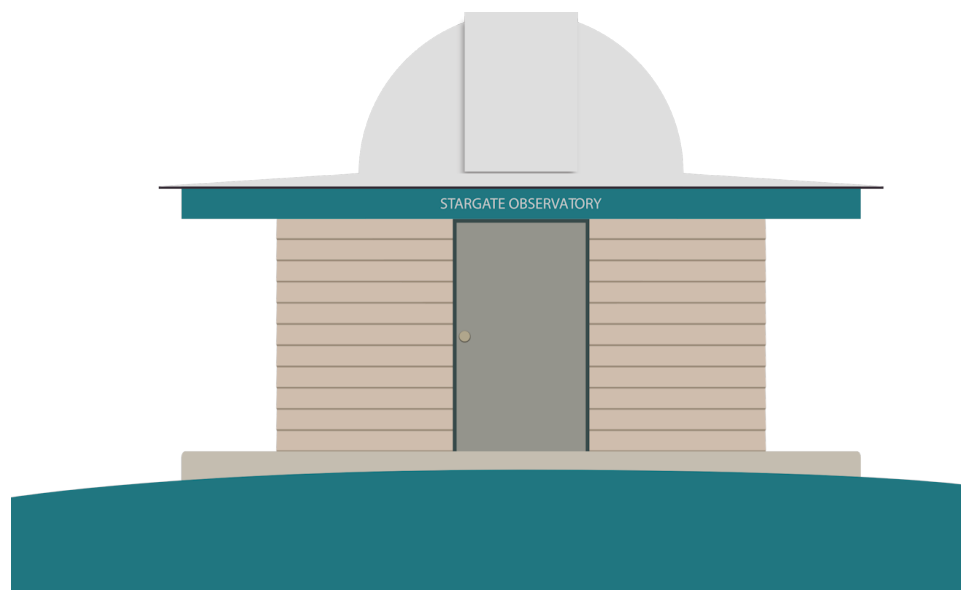
MAIN PRESENTATION:

Treasurer Adrian Bradley, Astro imager and amateur astronomer, presented "Landscape Astrophotography - Chasing Dark Skies". In his presentation, he explained looking for the best skies and locations to combine images of the Milky Way and landscape features in the same frame. He also explained (thank you!) the Bortle Dark Sky Scale (from John E. Bortle, February 2001 Sky and Telescope) and the use of the Sky Quality Meter/L, which measures the luminance of night skies (available from www.uni-hedron.com - around \$155). He also showed map and locations in US of light pollution to show areas of dark skies advantageous for astronomical viewing and imaging. Questions and discussion throughout this fine presentation. To see his presentation in its entirety, go to: <https://www.youtube.com/warrenastro>

Meeting ended at 9:40PM.

Respectfully submitted,

Mark Kedzior
Secretary, WAS



The Warren Astronomical Society is a proud member of the

Great Lakes Association of Astronomy Clubs

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.

Club Name and 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
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

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

Steven Aggas: <http://apache-sitgreaves.org/>

Jon Blum: [Astronomy at JonRosie](#)

Doug Bock:

Facebook: Northern Cross Observatory: <https://www.facebook.com/NorthernCrossObservatory>

Boon Hill and NCO Discussion <https://www.facebook.com/groups/369811479741758>

Flickr (astrophotography album): <https://www.flickr.com/photos/141833769@N05/>

YouTube channel: <https://www.youtube.com/channel/UC-gG8v41t39oc-bL0TgPS6w>

Bob Trembley:

<https://www.vaticanobservatory.org/profile/rtrembley>

[Vatican Observatory Foundation Blog](#)



This article is distributed by NASA's Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

Solar Eclipses Are Coming!

David Prosper

Have you ever witnessed a total solar eclipse? What about an annular solar eclipse? If not, then you are in luck if you live in North America: the next twelve months will see two solar eclipses darken the skies for observers in the continental United States, Mexico, and Canada!

Solar eclipse fans get a chance to witness an annular eclipse this fall. On Saturday, October 14, 2023, the Moon will move exactly in front of the Sun from the point of view of observers along a narrow strip of land stretching across the United States from Oregon to Texas and continuing on to Central and South America. Since the Moon will be at its furthest point in its orbit from Earth at that time (known as apogee), it won't completely block the Sun; instead, a dramatic "ring" effect will be seen as the bright edge of the Sun will be visible around the black silhouette of the Moon. The distinct appearance of this style of eclipse is why it's called an annular eclipse, as annular means ring-like. If you are standing under a tree or behind a screen you will see thousands of ring-like shadows projected everywhere during maximum eclipse, and the light may take on a wan note, but it won't actually get dark outside; it will be similar to the brightness of a cloudy day. This eclipse must only be observed with properly certified eclipse glasses, or other safe observation methods like pinhole projection or shielded solar telescopes. Even during the peak of the eclipse, the tiny bit of the Sun seen via the "ring" can damage your retinas and even blind you!

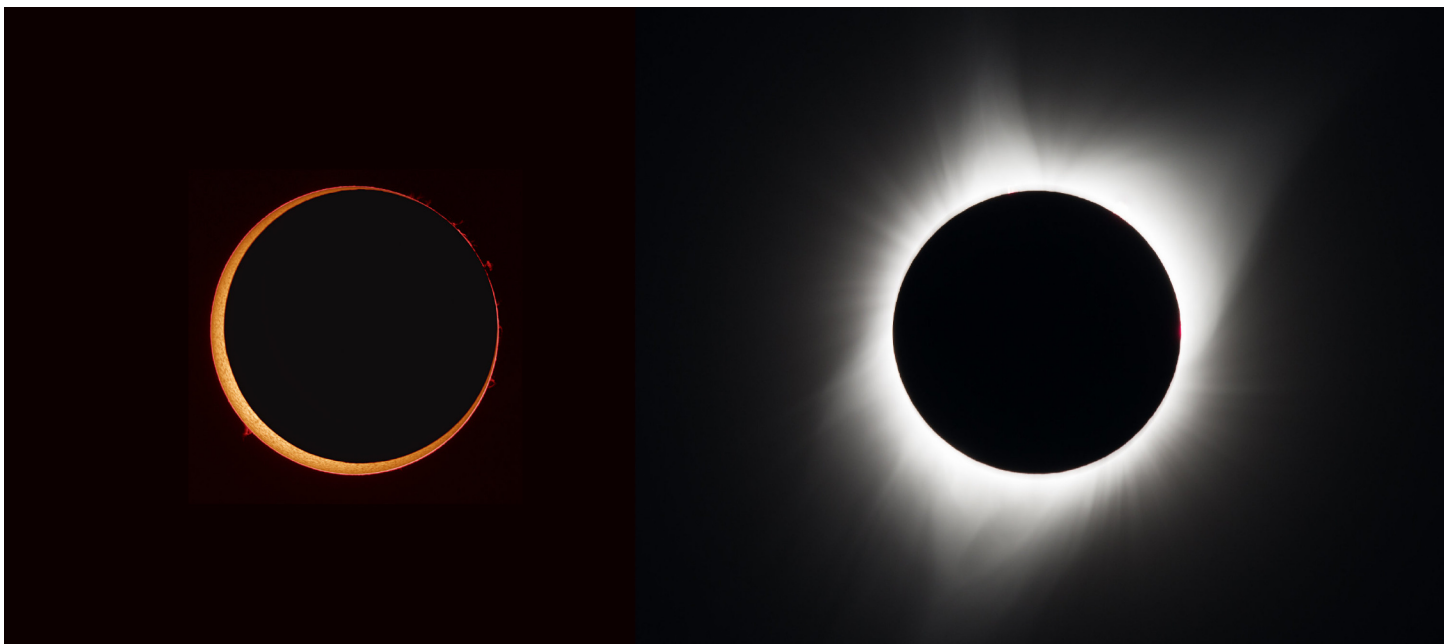
Just six months later, a dramatic total solar eclipse will darken the skies from Mexico to northeast Canada, casting its shadow across the USA in a strip approximately 124 miles (200 km) wide, on Monday, April 8, 2024. While protection must be worn to safely observe most of this eclipse, it's not needed to witness totality itself, the brief amount of

time when the Moon blocks the entire surface of the Sun from view. And if you try to view totality through your eclipse viewer, you won't actually be able to see anything! The Moon's shadow will dramatically darken the skies into something resembling early evening, confusing animals and delighting human observers. You will even be able to see bright stars and planets - provided you are able to take your eyes off the majesty of the total eclipse! While the darkness and accompanying chilly breeze will be a thrill, the most spectacular observation of all will be the Sun's magnificent corona! Totality is the only time you can observe the corona, which is actually the beautiful outer fringes of the Sun's atmosphere. For observers in the middle of the path, they will get to experience the deepest portion of the eclipse, which will last over four minutes - twice as long as 2017's total solar eclipse over North America.

While some folks may be lucky enough to witness both eclipses in full - especially the residents of San Antonio, Texas, whose city lies at the crossroads of both paths - everyone off the paths of maximum eclipse can still catch sight of beautiful partial eclipses if the skies are clear. The Eclipse Ambassadors program is recruiting volunteers across the USA to prepare communities off the central paths in advance of this amazing cosmic ballet. Find more information and apply to share the excitement at eclipseambassadors.org. NASA has published a fantastic Solar Eclipse Safety Guide which can help you plan your viewing at bit.ly/nasaeclipsesafety. And you can find a large collection of solar eclipse resources, activities, visualizations, photos, and more from NASA at solarsystem.nasa.gov/eclipses.



This detailed solar eclipse map shows the paths of where and when the Moon's shadow will cross the USA for the upcoming 2023 annular solar eclipse and 2024 total solar eclipse, made using data compiled from multiple NASA missions. Where will you be? This map is very detailed, so if you would like to download a larger copy of the image, you can do so and find out more about its features at: <https://svs.gsfc.nasa.gov/5073> Credits: NASA/Scientific Visualization Studio/Michala Garrison; eclipse calculations by Ernie Wright, NASA Goddard Space Flight Center.



Photos of an annular total solar eclipse (left) and a total solar eclipse (right). Note that the annular eclipse is shown with a dark background, as it is only safe to view with protection – you can see how a small portion of the Sun is still visible as the ring around the Moon. On the right, you can see the Sun's wispy corona, visible only during totality itself, when the Moon completely – or totally – hides the Sun from view. A total solar eclipse is only safe to view without protection during totality itself; it is absolutely necessary to protect your eyes throughout the rest of the eclipse! Credits: Left, Annular Eclipse: Stefan Seip (Oct 3, 2005). Right, Total Eclipse, NASA/Aubrey Gemignani (August 21, 2017)