



The W.A.S.P.



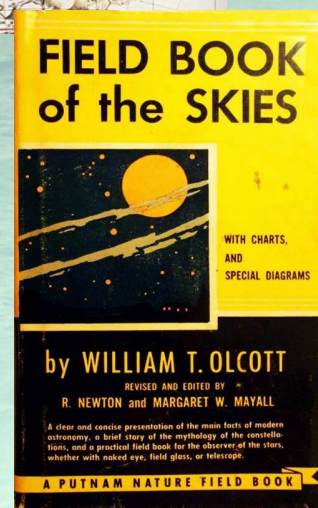
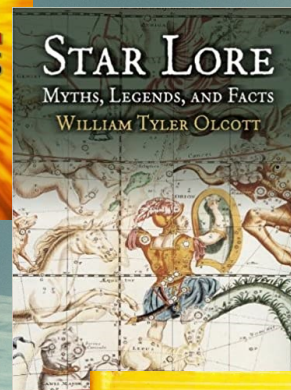
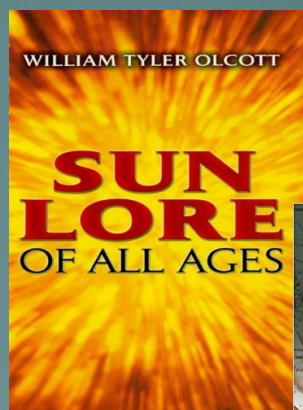
Vol. 52, no. 7

July 2020

The Warren Astronomical Society Paper

WILLIAM TYLER OLCOTT

January 11, 1873–July 6, 1936



After attending a lecture by Edward Charles Pickering, William T. Olcott developed an interest in observing variable stars. In 1911, he founded the American Association of Variable Star Observers (AAVSO). He also published several books to popularize the field of amateur astronomy. One, the *Field Book of the Skies* served as a primary source for publication in the WASP over the years.

Background image: View of the Olcott Crater. Taken during the Apollo 16 mission.

The WASP



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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 Paper (WASP) is the official monthly publication of the Society.

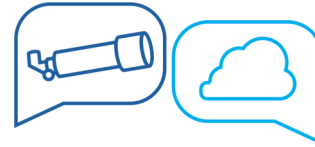
Articles for inclusion in the WASP are strongly encouraged and should be submitted to the editor on or before the end of each month. Any format of submission is accepted. Materials can either be transmitted in person, via US Mail, or by email (publications@warrenastro.org)

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

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

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



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President's Field of View

My first telescope came in the kiddie meal of a restaurant chain of very little renown. It was, I believe, 1986, and I was visiting Memphis, Tennessee in order to be the flower girl in my aunt's wedding. Danvers had a salad bar with crunchy "bacon" bits and faux-Tiffany lamps above every booth, which pleased my five-year-old palate and eyes, but in place of a collectible plush or knockoff Transformer, the establishment presented me with a tiny collapsible telescope of hunter-green plastic. This was, after all, the year of Halley's Comet.

I thought that my toy telescope actually worked. At least it worked as well as the toilet-paper tube telescopes I'd played with before receiving this plastic trinket. I'm sure there was some "averted imagination" at work, but in any event I was delighted with this, my very first telescope.

Two decades later, Jonathan and I got ourselves a telescope to ring out 2006. We bought an Orion XT8— no go-to, no push-to, all manual— and it saw first light in Alcona County in the winter of 2007, after we hauled it over a snowbank to get a look at the Trapezium. Telescope fever being what it is, the XT8 was joined in short order by a 4.5" Starblast, a 66mm refractor, a Coronado Personal Solar Telescope, a second-hand 10" reflector with magnificent optics and a terrible focuser, and then finally an XT10 that could do everything that XT8 could do, but better. The XT8 went from being our pride to an exile, plonked in the garage Up North while the XT10 became our outreach workhorse and personal instrument of choice.

Well, as it happens, on a new-moon weekend in June the XT10 was suffering from some persistent collimation issues and I was Up North by myself. I picked up that XT8— I can haul the tube and base in one go, which is NOT true of the XT10— and set it down a few paces outside the garage, where I'd have some adequate distance from the trash pandas raiding our bird feeders. The XT8, decked out in glow tape bought at WAS meetings from another decade, felt like an old companion. Everything was just to my scale, and if M57 didn't quite have the same quality it does in a 10" mirror, it made a fine showing against the true dark skies of Alcona Township. M27 looked better than I'd seen it in years; it's not a favorite of mine, but that night I forgave it for some terrible Astronomy at the Beach experiences. Globular clusters M3 and M13 dazzled, and though the clouds rolled in even as I searched for M92 and cut the evening short, I was curiously satisfied by those forty-odd minutes of observing.

Sure, the 10" scopes can do what that XT8 can't, just as the PST and the 66mm have been to desert and mountaintop while the XT8 remained by one Great Lake or another, but I love that XT8... perhaps in the way I loved my first car. It cannot, it fact, take me everywhere I want to go in the universe, any more than my '95 Escort could go above 65 mph without feeling like it was going to come apart at the frame. But it still gives me a fun ride through the skies, and it just feels like my trusty old 'scope in a way the XT10 never has.



U.S. Borax is hosting the "Challenge Under the Stars" which aims to encourage families to learn about astronomy by participating in fun and educational challenges. The contest, open to all, will take place from July 2 through the end of August, across the United States. The challenges will call upon the star gazers' skills by asking them to draw a picture, solve a puzzle or test their memory by answering questions. Participants have a chance to win over \$5,000 in prizes, including telescopes and binoculars to further their new passion.

Prizes *(U.S. only)*

- 5 CELESTRON TELESCOPES
- 5 CELESTRON STARGAZING BINOCULARS
- 5 FAMILY MEMBERSHIPS TO THE ANTELOPE VALLEY ASTRONOMY CLUB
- 5 FAMILY MEMBERSHIPS TO THE KERN COUNTY ASTRONOMY CLUB
- 5 FAMILY MEMBERSHIPS TO THE SAN BERNARDINO ASTRONOMERS CLUBS
- 5 FAMILY MEMBERSHIPS TO THE LOS ANGELES ASTRONOMICAL SOCIETY
- 10 - \$50 GIFT VOUCHERS AT THE NASA SPACE STORE
- 20 SPACECRAFT LEGO KITS
- 40 SOLAR SYSTEM CANVAS PRINTS

<https://www.borax.com/borax-operations/stars-challenge>.



Letters

The Strange Light Curve Saga continues-

Gary Ross forwarded an email with this comment:

The SECOND picture.

- a) Female charms come naturellement to some.
- b) The other can not believe definitive Jupiter observations can be made by such an instrument.

-----Original Message-----

From: Joe McBride

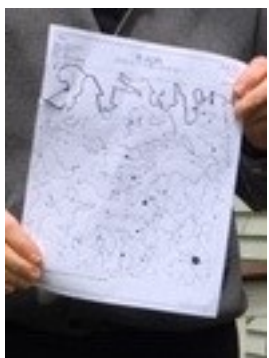
To: beezoll@aol.com

Cc: Gary Ross

Date: Saturday, May 30, 2020

Subject: The silly light curve of R AUR

The gathering of great minds and great imagination at Kissing Rock Farm...gathering of Ford and Edison or E.E. Barnard and Einstein...but much more casual. Miss M and GM Ross discuss the light curve She has submitted of R AUR. Later in the day She and Mr B. posed with the mighty Ross reflector...deployed on the front lawn of the Veen awaiting nightfall. Mr B's it appears is trying to preserve his dark adaption...lol



June Number of WASP

Once again I have concluded the Warren newsletter is the finest in a 50 light-year radius. The only feature truly missing is Kalinowski's "Astro-Chatter".

HALL: I noticed in her north country observing report, with mild annoyance, "Michigan" appeared three times. In recent years the lament "it's Michigan" has started to wear. Oh? Try Ontario, and probably Wisconsin. As a (former) member of the learned class, it is a high commission to point out, yes, Mid-Latitude Cyclone Belt is a mouthful, but more on point.

THE PLAID MAN. When he does any thing it is full stop! First, his literary/ editorial pursuits, now lunar science. Rik Hill w/o a fancy rig.

LEVY, Master of the Universe. Those who discover sky things by stumbling upon them are a source of envy. "Fortune favours the prepared mind", but dammit do you lot have to be so successful? (Even if beaten to the punch.) I recall from 1962 an airline pilot, Capt. Lines, discovering Comet Seki-Lines. Compare to my spasm of psychosis ten years later at the Veen Observatory, when I thought a star in the "foot" of Gemini had completely disappeared. I caused a furore at the Marrons' house below, a sin for which I paid for years. Denouement: What possessed me was fatigue, plus the 2nd Trudeau government was my "days of wine and roses", but I was better looking than Jack Lemmon.

JONATHAN, former friend. When some cheap lout asks what one "get[s] out of" joining the Society, the proper reply is John P. Morgan's when asked how much it cost to operate his yacht: If you have to ask, you can't afford it.

G. M. ROSS,
undeniably the Greatest Observer in Michigan.





GM Ross Waiting For Night-Fall

Photo: Bill Beers

The View From C.W. Sirius Observatory

Happy 4th of July

NGC 6946 (also known as the Fireworks Galaxy) is a face-on intermediate spiral galaxy with a small bright nucleus, whose location in the sky straddles the boundary between the constellations of Cepheus and Cygnus, and is part of the Virgo Supercluster of galaxies. Its distance from Earth is about 25.2 million light-years. Discovered by William Herschel on September 9, 1798, this well-studied galaxy has a diameter of approximately 40,000 light-years, about one-third of the Milky Way's size, and it contains roughly half the number of stars as the Milky Way.

What makes this galaxy so interesting is that ten supernovae have been observed in NGC 6946 in the last century: SN 1917A, SN 1939C, SN 1948B, SN 1968D, SN 1969P, SN 1980K, SN 2002hh, SN 2004et, SN 2008S, and SN 2017eaw. For this reason NGC 6946 in 2005 was nicknamed the "Fireworks Galaxy".

Supernova SN2017eaw was discovered on May 14, 2017 by Patrick Wiggins (USA), and at that time it was magnitude 12.8. I took this photo on June 10, 2018, over a year after it was first discovered, when it had dimmed down to a 17.6 magnitude. So you can see that SN2017eaw was a very powerful supernova that was visible for over 600 days! Added note: the letter designations of supernova are calculated using a Base 26 naming convention system, where the first discovery of a given year for exam-



ple would be 1=A, then 2=B,... 26=Z, 27=aa,...etc. So that means SN2017eaw was the 3429 supernova to be discovered in 2017.

NGC6946 is best observed in the summer months when it is highest in the sky. With a magnitude of 9.6, using a medium to large size telescope should reveal a good portion of the galaxy, using a wide field eyepiece. But in darker sky locations and using a 12" or larger telescope, you should be able to see plenty of spiral structure. Happy hunting and Happy 4th of July!

-Bill Beers



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: BEZZOLL@AOL.COM





June 24, 2020

Collecting data on Abell galaxy clusters usually means running a few nights to accumulate enough data that some of the tiny structures start to come forth. Galaxy clusters are one of my pet projects I like to do. Each year I try to improve on what I've done before, and/or add data to previous data to go deeper in magnitude and details. This rendering does not encompass all of the Hercules Cluster, due to the small field of view of the system being used.

The Hercules Cluster (Abell 2151) is a cluster of about 200 galaxies some 500 million light-years distant in the constellation Hercules. It is rich in spiral galaxies and shows many interacting galaxies. The cluster is part of the larger Hercules Supercluster, which is itself part of the much larger Great Wall super-structure. The cluster's brightest member is the giant elliptical galaxy NGC 6041.

- 10" f/8 RC
- ZWO asi071mc PRO camera @ 0C and gain of 240
- 92 x 300 second light frames (7 hours, 40 minutes)
- 24 x 300 second dark frames
- 50 flats
- FOV: 33.1 x 24.3 arcmin



The data was stacked in DeepSkyStacker and processed in PixInsight.

(Continued on page 8)

(Continued from page 7)

This annotation of galaxies within this image was generated using the PixInsight ImageSolver, and Annotation functions. The Red items are NGC (New General Catalog) objects, while the Blue are PGC (Catalog of Principle Galaxies) objects. The yellow items are Tycho designations on the stars.



-Doug Bock

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.

Presentations

Monday, July 6, 2020 Cranbrook Presentation



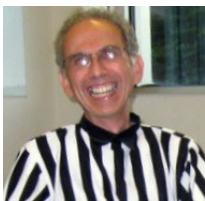
“Mars Debate”

Should we send people to Mars by 2070?

Refereed by Jon Blum Streaming a raging debate on the internet, what could go wrong? Join the fun via Webex and YouTube as Jim Shedlowsky and Dale Partin present the “let’s go” view while Ken Bertin and Bob Trembley object vociferously. Dale mentioned he could argue both sides, we’re not sure how well that will set with Jim.

Moderator

Since his retirement as a dermatologist in 2001, Jon Blum has owned two telescopes, started two astronomy clubs, belonged to ten astronomy clubs, and enjoyed great times with the smart, friendly and helpful people he has met through this wonderful hobby. Among the best of those times was when he moderated WAS debates in 2010 and 2011, so he is excited to be moderating this debate in 2020.



Pro

After a career in automotive engineering, WAS mainstay and rockabilly legend Jim Shedlowsky turned his energy back to music, astronomy, and historical research. Jim has been dreaming of travel to Mars since he was in high school, reading Heinlein, Bradbury, & Asimov, and hopes to see it happen before his centennial birthday in 2037. He treasures the Space Age can-do mentality and would like to see a new Mars mission rekindle it.

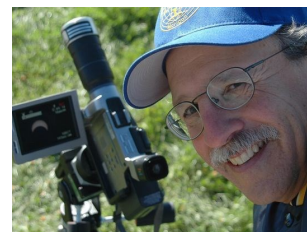


WAS First VP Dale Partin retired from a long and busy career in applied physics and engineering and mysteriously became even busier, teaching at Macomb Community College, becoming a student at Oakland University and rejoining the W.A.S. board. He could argue both sides of this debate and mean it, but he does firmly believe there is a good case for trying to go sooner rather than later.



Con

Ken Bertin is a hobbyist astronomer for over 65 years, Past President and VEEP of WAS, Solar System Ambassador, 10 Total Solar Eclipses, 4 Annular eclipses, 6 Transits of Mercury, 2 transits of Venus. 15 Lunar eclipses. He doesn't particularly want to see humans ever go to Mars.



Outreach Director Bob Trembley works for the for the Vatican Observatory Foundation doing website development and writing about astronomy and space science. Bob says the job title “factotum” best describes the numerous things he does. Bob is an avid computer gamer, and has been spending hours playing No Man’s Sky and Kerbal Space Program - so Bob’s involved with astronomy



(Continued on page 10)

(Continued from page 9)

and space science almost every moment of every day. He's arguing against going to Mars now because he's seen enough of his Kerbanauts die, and he doesn't want to see any NASA astronauts follow suit; on Mars, there's no reloading from the last save.

Thursday, July 16, 2020

Virtual Presentation



Interstellar Objects

I Have (Sort of) Known

By Jonathan Kade

Every current member of the Warren Astronomical Society was born and grew up in a world that had never seen an interstellar object. Now we have seen four: two that humans launched and two that came from other solar systems. In my presentation, we'll talk about these interstellar objects and what we've learned about our solar system and about solar systems in general from studying them

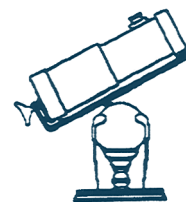
First, we'll quickly review the Voyager 1 and 2 probes, which launched four years before I was born but only became interstellar objects in 2012 and 2018 respectively. We'll talk about what we've learned so far from their journeys beyond the sun's heliosphere, and what we still hope to learn in their extended missions.

In 2017, Canadian astronomer Rob Weryk (who got his degrees at Western University in London, Ontar-

io) discovered a strange object between Earth and Mars. This object turned out to be the first known interstellar visitor to our solar system. Formally classified 1I/2017 U1 and named 'Oumuamua, Hawaiian for "scout", it has disappeared from our skies, but we continue to learn more about it from the observations we made while it was close. It has continued to surprise us and I'll talk about the latest developments in the strange story.

Amateur astronomers are part of the story too. In 2019, Crimean astronomer Gennady Borisov discovered a comet with an advanced sky survey telescope he built, a comet that turned out to be the first true interstellar comet to be discovered. It's much like the comets from our own solar system, a far cry from the bizarreness of 'Oumuamua, but it still has a lot to teach us about other solar systems and about our own.

Publications Director Jonathan Kade's life has been extremely improbable, although not all that interesting. He has served on the W.A.S. board in most years since 2008. As a part-time resident of Black River, Michigan since 1988, he is in love with Michigan's Sunrise Side and its still wonderful skies. He and W.A.S. President Diane Hall are in the process of starting Dark Skies Alcona, an organization aimed at promoting and protecting the skies of Alcona County and the Sunrise Side in general. He is a devotee of patience, serendipity, and stochastic processes, and as such is well-qualified to talk about these particular objects.



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.



Astronaut Wives Club

<https://abc.com/shows/the-astronaut-wives-club>

Episode 1: Launch

The penultimate episode of *From the Earth to the Moon* inspired me to check out the 2015 ABC series *The Astronaut Wives Club*, which focuses on the home-front drama of the Mercury Seven. It's available for free online right now, which is a pretty good deal.

First we get a teaser, which immediately establishes that Alan B. Shepard is a cheatin' dog beneath his clean-cut Navy whites and that Louise ([Dominique McElligott](#), a veteran of *Moon*) stands by him anyway. Snazzy credits serve in place of exposition, setting up American's woeful second place in the Space Race at the time the Mercury Seven make their debut at a press conference. It's fun but the guy playing Gus Grissom is too damned tall.

A party scene establishes that Louise hates bridge and hanging out with other military wives, that Gordo Cooper and his wife Trudy ([Odette Annable](#)) are engaged in a sham of a relationship, and that some bald guy from NASA thinks that astronaut wives being celebrities will be a key part of winning the Cold War. Wally Schirra deploys two tired practical jokes in the space of 30 seconds of screen time, but even his Jo ([Zoe Boyle](#)) doesn't find Jolly Wally amusing so I guess that was supposed to be stupid. Anyway, Louise and Trudy immediately get to catty fighting about whose husband is the better pilot and bring the other wives into it. Rene Carpenter ([Yvonne Strahovski](#)) is explaining to the other wives that she has a college degree, thank you, and has more in her life than being Scotty's mindless cheering squad, but then the dude from *Life* magazine shows up to explain the deal: half a million dollars split seven ways for exclusive access to the "astro wives" and their thoughts. For America... and for the advancement of their husbands' careers. Of course.



By the time the Astro Wives have their first photo shoot we learn Rene refuses to obey the dress code and Trudy harbors dreams of being an astronaut herself one day; the former is treated as a more serious transgression than the latter. Of course, there are perks— Astro Wives all get a standard-issue sedan with a "Moonglow" paint job while the men get customized hot rods, the better to pick up beach bunnies. More personality quirks emerge; Rene is always late to the party, Betty Grissom ([JoAnna Garcia Swisher](#)) has sharp edges, and Annie Glenn ([Azure Parsons](#)) seems on the fringes of the developing Astro Wife scene. As for Marge Slayton ([Erin Cummings](#)), secrets about her past begin leaking out one hint at a time— explosive by the standards of NASA in 1961, perhaps, but utterly tame by today's standards.

Anyway, Trudy realizes that Gordo and the other men are, predictably, messin' around down in Florida while the Wives maintain a perfect image in Houston, so she convinces the NASA Guy (I don't know who he's supposed to be and don't care at the moment) that it'd be a great day for America if the Wives showed up unannounced for the first (unmanned) launch of the Mercury-Redstone combo. So, the Wives bust in on a scene of water, booze, beach bunnies,

and some rather naughty astronauts. Cue a cold, cold glare from Alan Shepard as he takes sight of Louise.

Will Louise torpedo Al's career on account of his "Cape Cookie"? Of course not. Will Rene save poor stuttering Annie from abuse at the hands of an authorized journalist? Yes, actually. The second half of the episode has some twists and turns— one of them literally explosive— but this episode doesn't entirely pass the test of a good drama. Contemporary media culture has become obsessed with the ills of the "spoiler," but of course to a *classic* the ending itself doesn't matter, it's the means by which one *gets* to a catharsis. *Astronaut Wives Club* isn't quite able to pull that off, at least not in this episode, but it's enjoyable enough and ends on a very sweet note. We'll keep watching, so stay tuned for next month.

Four Moons out of five because I'm feeling generous tonight





Join Your Local Astronomy Club.

By a long shot, the best way to get into and enjoy astronomy is to become affiliated with your local astronomy club. Not only do you get access to a ton of knowledge about how to find constellations, and to choose and use your first telescope, but also you get a firsthand look at what is happening at the sky from the people who love it the most.



The RASC Montreal Centre Observatory, later named after Isabel K. Williamson. My best friend Carl Jorgensen and his daughter Christine are posing in front of it

When I was a young teenager, one had to be sixteen years of age to join the society in Montreal. (Thank goodness, that rule no longer applies.) But younger people could indeed attend most of the meetings, and on October 8, 1960, I attended my first meeting. Isabel K. Williamson was in charge, and she gave me my first assignment, to create a map of the Moon based on my own observations. Even though I couldn't be a member yet, I embarked on a project that took me 3 years to complete. (The map is pictured in figure 1.) In Canada, most of the astronomy clubs are under the single banner of the Royal Astronomical Society of Canada. There are "centers" within most major Canadian cities. In the United States, the local clubs are independent, and I have a member of the Tucson Amateur Astronomy Association (TAAA) since 1979, and served as its President from 1980 to 1983.

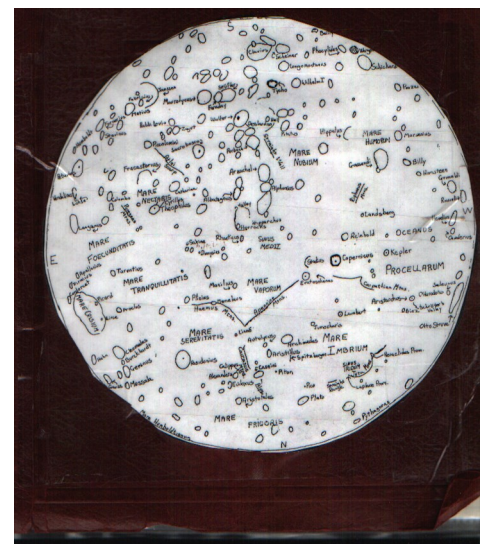
The observatory that Wendee and I operate from our home is called Jarnac Observatory. Unlike almost everything NASA does, Jarnac is not an acronym. But if it were, Jarnac could be short for Join A Really Neat Astronomy Club.

In recent months, astronomy clubs have stopped having in-person meetings because of the Coronavirus pandemic. But that hasn't stopped them from indulging in online events. Using platforms like Zoom cloud, Cisco Webex, or Facebook, online meetings have had an explosion in popularity. I've been attending one meeting or another almost every night this week. They have been so successful that when the pandemic is over, they may continue in some manner.

The most important thing you can get out of an astronomy club is friends. Almost all of my friends are members of one astronomy club or another. They enrich my life and increase my own enjoyment of the night sky a millionfold. I cherish their always welcome insights. In fact, Tim Hunter, one of my closest friends, recently made an independent discovery of a supernova, or exploding star, in the faraway galaxy labelled UGC 10509 and which is hundreds of millions of light years away from us. He may not have been the first to spot it, but his observation has added important new information about the Universe. That star blew up a very long time ago. Its light travelled across space and time until it landed as a speck on one of his pictures, and it is now called Supernova 2020 LQL. This is one of the best things about astronomy. It is an area of study where amateur astronomers can add to our understanding of how the Universe works. Nice work, my friend.

When you next go outside to look at the night sky, enjoy your eyeful of stars. The time after that, try it with your local astronomy club. You couldn't give yourself a better gift.

This is a drawing of the Moon that I did between 1960 and the Summer of 1964. It is based on my own observations of the Moon using my first telescope, Echo, at that time.





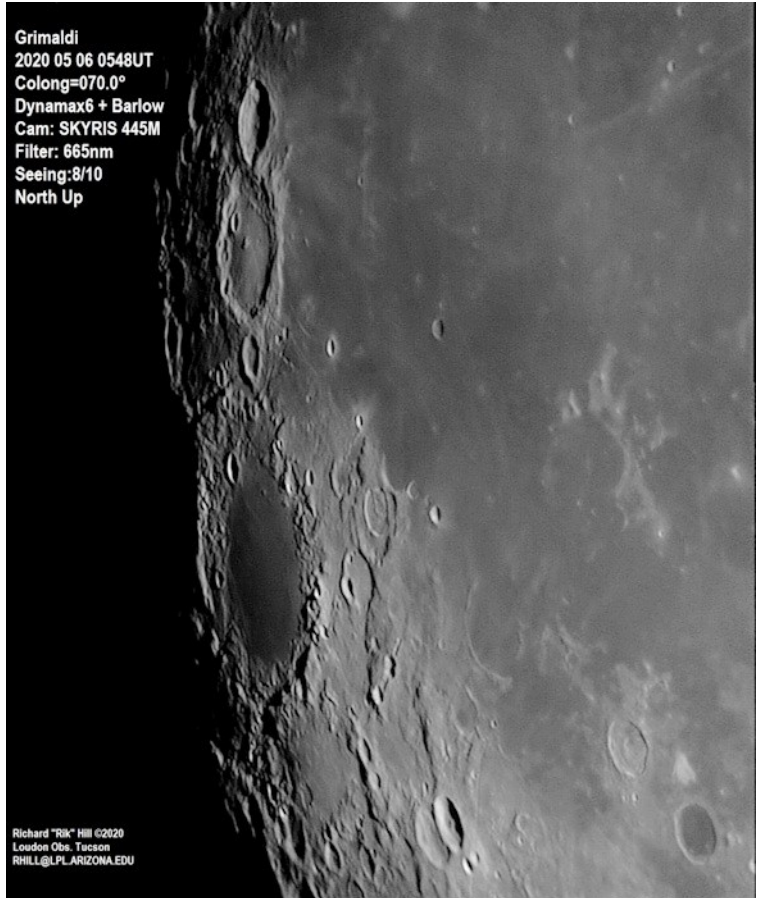
Almost Full

About a day before full moon you can see this amazing landscape in the center of the terminator. The large dark crater just left of center is Grimaldi (228km diameter) one of the stepping stones to Mare Orientale when the libration is right. There's a cluster of craters east (right) of Grimaldi. The easternmost one is Damoiseau (37km). South of this is a well defined crater near the bottom of the image, Sirsalis (43km). In the lower right corner is the dark crater Billy (48km) distinctive for it's dark floor, darker than the surrounding Oceanus Procellarum making it stick out visually.

Above Grimaldi is another large crater Hevelius (109km) with the small crater Lohrmann (32km) just below. Above Hevelius is a deeper crater, Cavalierius (60km). Notice the apparent gash between Hevelius and Grimaldi. There is a shallow valley here, seen on the LROC Quick Map, and a couple of small craters that add to the effect, but it looks more dramatic than the true topography at this lighting. On both sides of Lohrmann note the unnamed system of rimae. I'm quite surprised they are not named. Another curious gash is below to

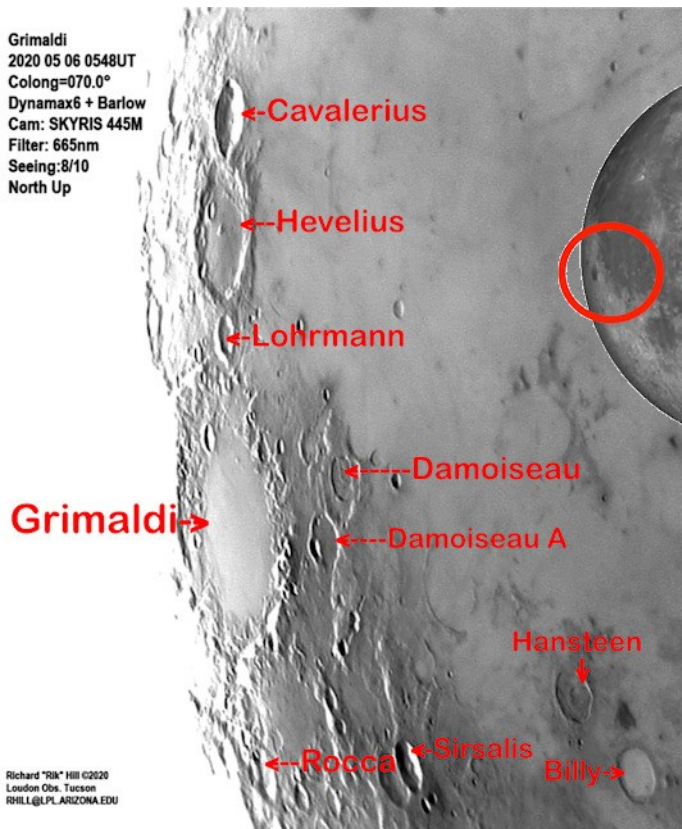


Grimaldi
2020 05 06 0548UT
Colong=070.0°
Dynamax6 + Barlow
Cam: SKYRIS 445M
Filter: 665nm
Seeing: 8/10
North Up



Richard "Rik" Hill ©2020
Loudon Obs. Tucson
RHILL@LPL.ARIZONA.EDU

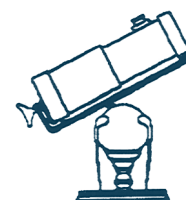
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Cam: SKYRIS 445M
Filter: 665nm
Seeing: 8/10
North Up



Richard "Rik" Hill ©2020
Loudon Obs. Tucson
RHILL@LPL.ARIZONA.EDU

the right of Grimaldi. It appears to pass through two craters but in fact is a linear alignment of around 10 eroded craters. Then south of Grimaldi are more rimae. These are named Rimae Grimaldi. They lead out into a flat area further to the south that is Rocca W (102km). As big as Hevelius but, alas, only a satellite crater to Rocca. This is definitely a region worthy of careful examination...just when you thought the moon was almost full and there was nothing left to see!

This montage was made from two images each stacked from a subset of frames from 1800 frame AVIs using AVIStack2 (IDL). Further processing was done with GIMP and IrfanView.



History S.I.G.

July 1982

The cover features another group photo of the club, ostensibly taken at a Cranbrook meeting (looks like the one from 1980 that we have in color).



The issue leads off with information regarding the 1982 A.L. Great Lakes Regional Convention hosted at Cranbrook, reprinted from the June issue.

We are then treated to “An Almanac for Computers Subroutine” by Ken Kelly and part 6 of “Some Astronomical Reflections” from John J. Wetzel. A calendar for the month of July graces the back cover in case the reader wonders what day of the week each date falls on. There is no other information offered.

July 1992

Cover features: Joel Wise opines about binoculars in “A Telescope Alternative” and “Journal Roundup” by Scott Jorgensen gets underway.

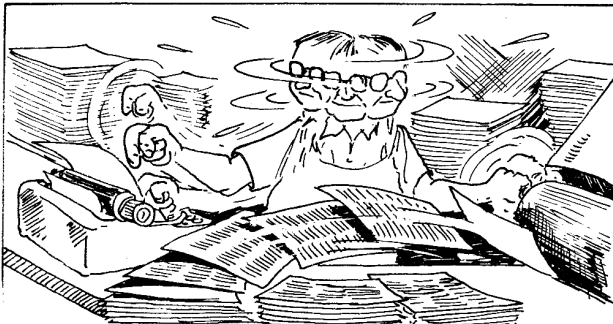
Included in this issue: Hubble Space Telescope Monthly Status Report—June 1992, Upcoming Astronomy Conventions by Marty Kunz (S.M.U.R.F.S. Convention, and Hidden Hollow '92/ the Astronomical League Great Lakes Regional Convention.)

NASA Space Link- “COBE Detects Structure of Early Universe” rounds out the articles and we finish the issue with an actually useful calendar for July.

From the Scanning Room

What have I wrought? Adventures in Armchair Astronomy wasn't meant to be a regular column, but comments filtering in suggest that this may have fed an expectation. This is an open invitation to write something for the column, be it a book review or your own mental rabbit holes, welcome to it. Just preface your message with “Armchair”.

Dale Thieme,
Chief scanner



Aw Shucks! There's really nothing to getting out a little monthly newspaper!



Left: Cartoon from the January 1967 issue of the D.A.S.— Scanner's getting busy.



Adventures in Armchair Astronomy

About this Month's Cover



July 6, 1936, marked the passing of William Tyler Olcott.

What does he have to do with the Warren Astronomical Society? After all, he was gone long before we got started. What is the link to the W.A.S. that gets him on our cover? To answer that, let me put on my chief scanner hat.

For many issues during the early years of the WASP, a consistently occurring article concerned the acquainting the readers with the various constella-



Founder William Tyler Olcott, William Henry, and Leon Campbell (left to right) posed at the AAVSO's spring meeting in 1923, back in the days when no self-respecting observer would look through a telescope without donning a necktie.

-Sky & Telescope

tions (Constellation of the Month.) Those who endured my presentation on the scanning process know that the results of the early issues were a mixed bag, especially the rendering of Greek letters (usually hand-drawn). I needed the source for the articles to fill in the gaps created by the OCR misses. The source of the information? Olcott's *Field Book of the Skies*. I found the *Field Book of the Stars* on Project Gutenberg and thought I had it. But the descriptions weren't as verbose the WASP articles indicated but close. Realizing the error in the book title, I located a copy of the *Skies* book and that proved to be the material source, and by material source, I mean material copied verbatim.

As to the man, himself, Tyler Olcott (apparently preferring to go by his middle name) was an amateur astronomer of the first order (a lawyer by profession). Never enjoying robust health, he wintered in warmer climes: Florida, where he "gave himself to the rehabilitation of the Southern Cross Astronomical Society" (where he published a little booklet called "The Southern Cross"); and out west, visiting Lowell, Steward, Mt. Wilson and Lick observatories. Tyler was notable for founding the American Association of Variable Star Observers (AAVSO), a direct result of inspiration at a lecture by Edward C. Pickering. Note to our outreach specialists, you never know when the seed of inspiration will sprout.

He authored several books on astronomy. We will let the writer of his obituary, David B. Pickering (no relation to Edward), enumerate them:

His interest in astronomy once awakened, he made an intensive study of the subject and in 1907 appeared the first edition of his now famous book "A Field Book of the Stars." This little volume, published by Putnam and Sons, has been several times revised and has probably achieved a wider distribution than any similar work of its kind. This was followed in time by "In Starland with a Three-inch Telescope," "Star Lore of All Ages," "Sun Lore of All Ages," "The Book of the Stars for Young People," and "Field Book of the Skies." The latter, published in 1931, gives promise of being the most successful of them all. There are members of certain groups of amateur astronomers who refer to this latter work as their "Bible."

(Continued on page 16)

(Continued from page 15)

Tyler had a crater on the moon named for him. It is on the far side of the moon, though, so put that scope away and finish this article. He also got bonus satellite craters, E, L, and M.

In his years with the AAVSO, he helped develop the AAVSO star charts and had an award named after him, the William Tyler Olcott Distinguished Service Award (est. in 2000, David Levy was first recipient.)

Returning to David Pickering's accounting of the life of W.T. Olcott, we finish with these words:

William Tyler Olcott was a gentleman of the old school-a man of gentle birth and breeding. Not strong of body, but strong of soul and purpose. A man to be respected and admired. A staunch and loyal friend. His life will long continue to be an example of steadfast adherence to principle.

Sources:

Popular Astronomy, October 1936:
(<http://articles.adsabs.harvard.edu//full/1936PA.....44..409P/0000409P001.html>)

AAVSO:
"In Starland with a three-inch telescope" by M. Saladyga, 12/01/2010
<https://www.aavso.org/starland-three-inch-telescope>

Sky & Telescope:
<https://skyandtelescope.org/astronomy-news/new-director-aavso-110414/>

AAVSO award:
<https://www.aavso.org/william-tyler-olcott-distinguished-service-award>

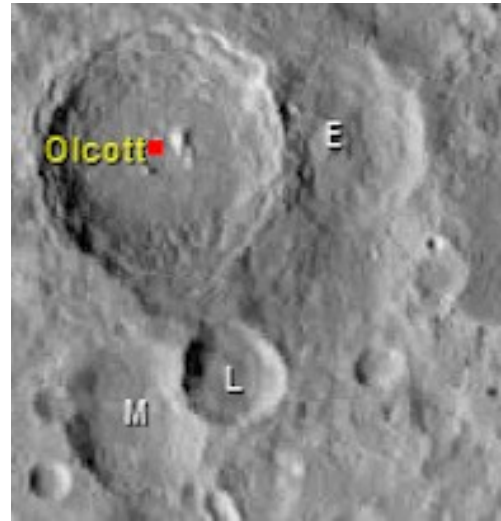


Image of Olcott derived from a screenshot taken from the Virtual Lunar Atlas program.

Crater	Latitude	Longitude	Diameter
Olcott	20.6° N	117.8° E	81 km
Olcott E	20.9° N	119.8° E	59 km
Olcott L	18.3° N	118.6° E	36 km
Olcott M	17.9° N	117.6° E	46 km

History of AAVSO star charts-Part 1, 1880s to 1950s:

<https://www.aavso.org/sites/default/files/images/81.pdf>

-Dale Thieme,
Chief scanner and chair warmer

Join the Astronomical League!



The mission of the Astronomical League is to promote the science of Astronomy. The major benefit of belonging to this organization is receiving the quarterly newsletter, The Reflector, which keeps you in touch with amateur activities all over the country.

Also:

- Participate in the Observing Program
- Avail yourself of the League Store
- Astronomy Books at a discount
- Attend Astronomical League Conventions



Only \$7.50 annually,
(Membership starts July 1)

alcor@warrenastro.org

Model: Hubble Space Telescope

Manufacturer: Metal Earth

Cost: \$6.95

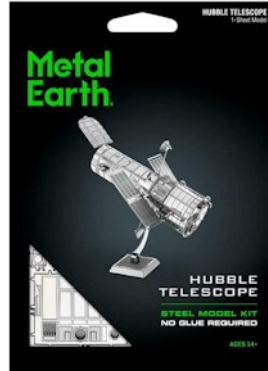
Value: 5/5

Challenge level: 3.5/5

Visual Appeal: 5/5

Durability: 3.5/5

Overall Rating: 4.5/5

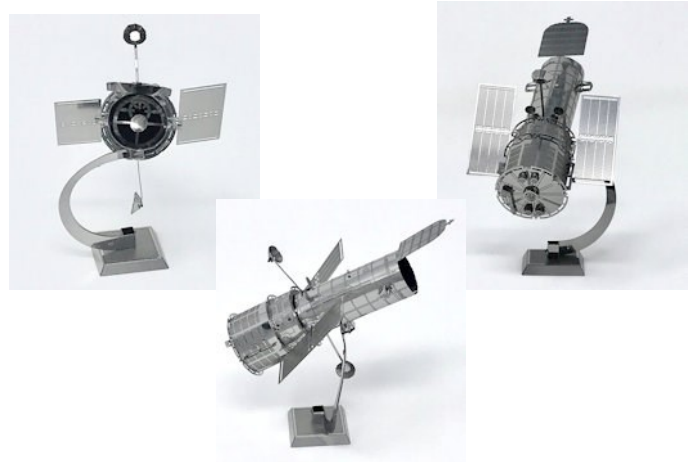


Buy it here: <https://smile.amazon.com/Metal-Earth-Fascinations-MMS093-502513-Construction/dp/B010SJZN2W> (make sure to select the W.A.S. as your charity of choice!)

Over the years, I've accumulated a stack of Metal Earth metal models of various spacecraft. After talking about building space-related models with Parker Huellmantel, I decided I'd start building them for the enjoyment of fellow club members. At first, I planned to video-record the assembly process, but after this one, I'm not comfortable being recorded swearing that often. That being said, I did most of the assembly during our last virtual open house on June 27 - if you watch the replay of that, you will see me showing off each stage in succession.



I've built four of these before, and this one definitely was the most challenging. Compared to rectilinear kits like the Empire State Building or the Golden Gate Bridge, it's a whole different world. Even compared to the curvy and highly detailed SR-71 Blackbird, this one is a challenge. It's the only Metal Earth model kit to date where I had to widen the slots to fit a piece on - the solar panel assembly was way too tight a fit until I did. A number of online reviewers noted issues with pieces breaking off. I fortunately didn't have an issue there, but I'm afraid the solar panels won't take more than one or two more disasters.



The final product is top-heavy, but surprisingly stable when it's actually on a level surface. You may notice in a couple photos there are some ugly angles to the solar panels - that's because I kept but-fingering it. Despite being dropped several times, it kept its shape well.

However, I think the results speak for themselves - somebody who sees it on your desk will scarcely believe it cost \$7 and a couple hours of assembly! The design is quite accurate in most ways and includes some impressive details, like the assembly inside the tube.

I wouldn't do this one as your first kit, but it's not that hard, and it's a great value for the price. Highly recommended.

Tip: A good pair of nippers and an extremely fine-tipped needle nose plier will make building these kits much more fun and much more rewarding. I also recommend getting some round metal cylinders to roll cylindrical pieces around, but I made it work pretty well with ordinary whiteboard markers.



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 June 17 at 4:21 pm.

The observatory will remain closed until further notice due to the COVID-19 pandemic.

Riyad I. Matti
2020 WAS 2nd VP,
Observatory Chairperson

Treasurer's Report

Treasurer's Report for 6/30/2020 MEMBERSHIP

We have 84 current members

INCOME AND EXPENDITURES (SUMMARY)

We took in \$1,876 and spent/transferred \$510 We have \$22,104 in the bank \$103 in checks and \$677 in cash, totaling \$22,913 as of 6/30/2020.

INCOME

Row Labels	Sum of Credit
AL 2020	\$67.50
calendar 2020	\$150.00
donation	\$348.88
membership	\$407.00
merch	\$84.00
renewal	\$801.00

EXPENSE

Row Labels	Sum of Debit
Calendar Shipping Cost	35.35
PO Box 2020	92.00
Snack Reimbursement	70.00
Snack Supplies	2.12
Speaker Expense, Dinner	54.23
Speaker Expense, Driving	261.00

Astronomical Events for July 2020

Add one hour for Daylight Savings Time
Source:

<http://www.astropixels.com/ephemeris/astrocal/astrocal2020est.html>

Day	EST (h:m)	Event
03	22:18	Moon at Descending Node
04	08:00	Earth at Aphelion: 1.01669 AU
04	23:30	Pen. Lunar Eclipse; mag=0.355
04	23:44	FULL MOON
05	16:37	Jupiter 1.9°N of Moon
06	03:45	Saturn 2.5°N of Moon
10	07:00	Venus at Aphelion
11	07:10	Venus 1.0°N of Aldebaran
11	14:36	Mars 2.0°N of Moon
12	14:27	Moon at Apogee: 404201 km
12	18:29	LAST QUARTER MOON
14	02:00	Jupiter at Opposition
16	20:21	Aldebaran 3.8°S of Moon
17	02:26	Venus 3.1°S of Moon
18	07:33	Moon at Ascending Node
18	22:54	Mercury 3.9°S of Moon
20	12:33	NEW MOON
20	17:00	Saturn at Opposition
22	10:00	Mercury at Greatest Elong: 20.1°W
22	15:50	Regulus 4.3°S of Moon
24	23:54	Moon at Perigee: 368367 km
27	07:32	FIRST QUARTER MOON
27	16:00	Delta-Aquarid Meteor Shower
31	04:32	Moon at Descending Node

GLAAC REPORT 6/30/2020

Beginning Balance: \$2,237

INCOME

No activity

EXPENSES

No activity

Ending Balance: \$2,237

Mark Jakubisin
Treasurer

Outreach Report (July 2020)

First Meeting of July & W.A.S.P. Member Spotlight

Doug Bock gave a presentation to the Seven Ponds Astronomy Club on Saturday June 27th.

Check out Doug's YouTube Channel: <https://www.youtube.com/user/Mooselips56>

Check out **Jeff MacLeod's** AstroChat on Facebook: <https://www.facebook.com/pg/Jeffs-Astro-Chat-102700051378313/videos/>

If you are giving presentations or doing other astronomy outreach, *please let me know!*
[Use this link to send me a quick email report.](#)

Astronomy at the Beach 2020 Planning

For the public's safety, the GLAAC board has decided to host the 2020 Astronomy at the Beach event as an online / virtual event this year. The GLAAC board is looking for suggestions for pre-recorded presentations, as well as volunteers to give live presentations online.

AATB Planning Meeting: Thursday July 9 2020, at 7:00PM - *Everyone is Welcome!*

Online at: <https://umich.zoom.us/j/584733345> (Password: 0000)

W.A.S. Calendar Entry: [\[LINK\]](#)

Even if you can't make it to the July planning meeting, you can join the groups.io site to get emails and updates from the planning committee. <https://glaac.groups.io/g/main>.

GLAAC Board Meeting Minutes

June 11, 2020 - ONLINE, 7pm

<https://umich.zoom.us/j/584733345>

Call to order: 7:10pm

Online:

- Jeff Kopmanis
- Mike Ryan
- Brian Ottum
- John Wallbank
- Bob Trembley

Old Business:

Incorporation status - John

John will be temporarily assuming Treasurer duties w.r.t. Incorporation and bank accounts

New Discussion:

Discussion on Issues of Online or In-Person

John:

Safety in the foreseeable future is probably not going to happen
I'm in risk group

Mike:

Checked out Island Lake and the Mill Pond - no social distancing being enforced. No parking; crowded

(Continued on page 21)

(Continued from page 20)

In risk group

Jeff:

Re-iterate Adrian's sentiments: Safety is our first concern

Decide Online or In-Person: **Online**

Particulars

Times: 1Q Moon; dusk at 6:30-7pm

Flexibility in timing of live events (solar, dso, planetary)

Simulcasting security

password or waiting rooms

Guest password can be coded in URL

Muting automatically

To clubs: Recommend a co-host in your session to prevent Zoom-bombing

Zoom.us: free, \$15/mo, \$20/mo, 20/mo - # of hosts?

Collect donations and door prizes? Registration needed.

Content

Live

Solar

Planetary

DSO

Webinars (Teaching webinar: Bob Trembley)

Pre-recorded

How-to/tutorials

Club talks and presentations

Online Resources (available on GLAAC Site--*permanently?*)

Google Maps Space

Astrospheric

Stellarium Web (<https://stellarium-web.org/>)

Space Engine (star hopping)

Bank Account and Incorporation

\$20 for LLC (\$50 for expedited)

Open bank account

Adjourn: JW move to adjourn, JK 2nd, 8:27pm

JUNE TASK LIST

- JK: Contact ITS regarding more widespread use of UM Zoom/BlueJeans/Meet resources for AATB Virtual event
- JK: Get program of events (Live, Pre-recorded, Online resources) compiled from clubs
- JK: Get club participation in July 9 meeting (in announcement)
- JW: Incorporation and Bank Account (get with Bob Trombley for treasurer)
- BO/BT: Publicity for event: social and electronic media
- JK: Registration for Zoom (and other systems) -- how cumbersome?
- AB: Check with Comerica about bank account
- BT: GLAAC/AATB page updated for 2020

After the GLAAC board meeting, I stayed online with Jeff Kopmanis and showed him some highlights of my "Tour of the Solar System with SpaceEngine" presentation - he was impressed, and thought that would be a good fit for an AATB online presentation.

(Continued on page 22)

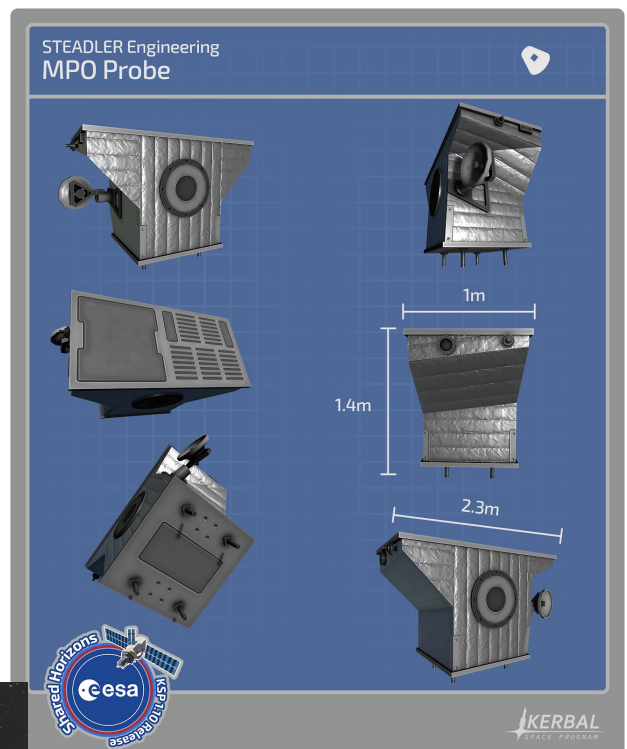
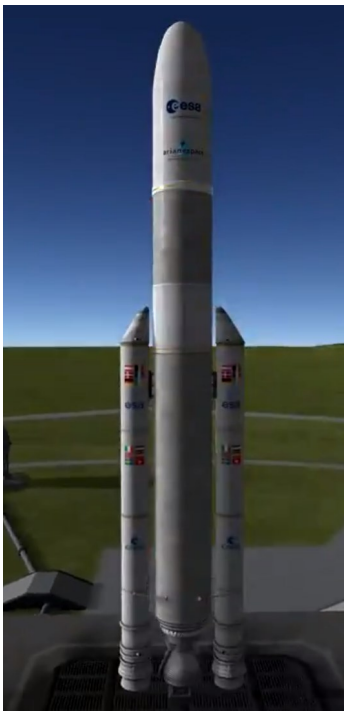
(Continued from page 21)

I'm updating the GLAAC website - I'm working on a page with info on all the member clubs: <https://www.glaac.org/test/>, and an "astronomy resources" page <https://www.glaac.org/astronomy-resources/>. I'm looking for suggestions for astronomy websites: news and info, educational, utility, smartphone apps, and any other things that you use frequently others might like to know about.

GLAAC YouTube Channel: <https://www.youtube.com/channel/UCCahSGAlbkXkAEhi7aghSq>. GLAAC now has a YouTube channel - *Please Subscribe!* I'm looking for suggestions for video playlists, and I need to make a "default GLAAC intro video" for the channel - I want to include several images and video clips from the Astronomy at the Beach event, and other member events.

Kerbal Space Program Partners with European Space Agency

KSP v1.10 includes Ariane rocket parts, *Comets*, Rosetta and BepiColombo probe parts and missions!



Astronomer and KSP deity [Scott Manley](#) produced this video showing a recreation of the BepiColombo mission to Mercury using KSP, while discussing the mission with an ESA mission specialist! <https://youtu.be/Q9oaesxGbE8>

This free update to KSP became available *as I was writing this report!*

-Bob Trembley

Outreach Report (June 2020)

I mentioned in my last two reports about how libraries (and presumably other institutions) are looking for online astronomy presentations, and how I thought this is something our outreach team might want to consider; that being said, I've already given my Sun lecture to Connie's students via Zoom, and will do a tour of the solar system with them the first week of June. I could do those for whoever might want it.

Speaking of online sessions - Br. Guy told me a humorous story about a Zoom session he attended with some notable astronomers and astrophysicists; one of them "sounded like Darth Vader" the entire session, and that person was "so venerable" *no one* wanted to tell him.

I've been an avid PC gamer since the very first PCs existed; I've recently started playing [No Man's Sky](#) - a science-fiction themed, space-based survival game, with more star systems than you could possibly explore in your lifetime. I recently spent a week growing all the components for my "living ship," a biological starship similar in concept to those in the SF TV series [Babylon 5](#), and numerous SF novels.

This game has provided me with a necessary distraction during this quarantine; with the death of my brother to COVID-19, it may well have contributed to me retaining whatever sanity I may have had. That being said, I've found it difficult to concentrate on work, and I have not been doing *nearly* as much as I should with my W.A.S. duties, and I'm sorry about that. Maybe doing more online presentations will help.



Astronomy at the Beach 2020 Planning

GLAAC is requesting that member clubs provide some sort of hands-on activity to be hosted at their tables this year's event. Suggestions are welcome! GLAAC is looking into becoming a 501(c)(3) in their own right. Minutes from the latest AATB planning meeting are below.

AATB Planning Meeting: Thursday June 11 2020, at 8:00PM

- *Everyone is Welcome!*

Online at: <https://umich.zoom.us/j/451974838> (Password: 0000)

W.A.S. Calendar Entry: [\[LINK\]](#)

Even if you can't make it to the June planning meeting, you can join the [groups.io](#) site to get emails and updates from the planning committee. <https://glaac.groups.io/g/main>.

(Continued on page 24)

(Continued from page 23)

Great Lakes Association of Astronomy Clubs

Meeting Minutes 2020-05-14

Call to order: 8:28pm

Online:

- Jeff Kopmanis
- Adrian Bradley
- John Wallbank
- Bridget Harwood
- Brian Ottum

Old Business:

Tent status

No change

Comm status (Brian):

Telescope participant letter - **WENT OUT TO ALL CLUBS**

w/Bob: Flashlight/Lighting blurb for FB/AATB web site **SITES UPDATED**

Email Planewave contact for poss. Demo **NO RESPONSE**

Incorporation status - Geof/John

NEWS: Geof stepping down as Treasurer due to concerns over incorporation and other financial issues (AB talked with him)

Parks status - Bridget

Events can start on July 1, with distancing (>250 people)

Situation is highly fluid - could change anytime

Things are being ramped up slowly, due to limited staff; layoffs, etc

Targeting a Memorial Day opening

New Discussion:

Virtual AATB: Decision Criteria and Contingencies

Live sessions

EAA

Pre-captured/processed images & lecture

Bandwidth - multiple sites

It's becoming clear that spending more time on an online AATB is probably reasonable

Brian's Demo is an example of the kinds of things we can do: <https://youtu.be/E3uZQO-Fvns>

Over the summer, stream our own live streams

Offer up Lowbrow presentations as astronomy events for AATB

Costs? If any?

JW: contact sponsors about building a fund for the following year, and/or presenting a session at the event

JK: perhaps sponsors can be featured in materials, opening screens, etc

Norb Vance at EMU, UM club

Jack @ Peach Mountain

GLAAC site has Agenda; individuals produce and present their offerings, possibly at multiple times

Online ZoomBombers in events has to be considered and talked about with presenters

AB: Motion: Support for a virtual event? All are in favor, none against. **RETRACTED**

Concerns about crowds if we have a live event. (JK: sell tickets?)

Opening Presentation from Island Lake to preserve continuity with past and future AATB

AB/BO: Letter to clubs advising that we're going virtual for 2020. Outline vision for how it will be presented.

Solicit donations online, through banners on presentations, etc

Contingencies for an in-person Event

Large screens so that distancing could be maintained

Power?

Social distancing with the traditional large crowds is going to be very difficult to safely hold 2020 AATB, especially with an anticipated Fall outbreak

(Continued on page 25)

(Continued from page 24)

Financials

Getting incorporated

Transferring bank accounts - Diane was a signer from WAS

Insurance concerns?

Brian:

Michigan Science Center wants to stay involved

Adjourn: AB at 10:07pm

JUNE TASK LIST

- JK: Contact ITS regarding more widespread use of UM Zoom/BlueJeans/Meet resources for AATB Virtual event
- BO/AB: produce outline of vision for a virtual event based on our discussion - *Done. 5/18*
- JW/JK/AB: work on incorporation
- AB: Check out accounts with Comerica
- JK: Club Directory email - *DONE 5/16*

In order to have another successful year of Astronomy at the Beach, we need the W.A.S. to give an interactive demonstration at our table inside the big tent. Our surveys have shown that the public LOVES the astronomy and science-related demonstrations staffed by the Michigan Science Center, Cranbrook, Wayne State, some planetaria and some of the clubs. Just make sure it is simple, impactful and interactive. These demonstrations are critical for the nights that may be cloudy. There will be no keynote speaker.

Brian Ottum - V.P. Communications, AatB



Artist's concept of exoplanet Groombridge 34 Ab. Credit: SpaceEngine - Bob Trembley

NITARP, the NASA/IPAC Teacher Archive Research Program

Applications for NITARP for 2021 are now available!

<http://nitarp.ipac.caltech.edu/>

NITARP, the NASA/IPAC Teacher Archive Research Program, gets teachers involved in authentic astronomical research. We partner small groups of educators with a mentor pro-

fessional astronomer for an original research project. The educators incorporate the experience into their classrooms and share their experience with other teachers. The program runs January through January. Applications for the 2021 class of educators are available now and due on Monday, September 14, 2020. The program is funded completely via NASA ADAP, and is contingent on the availability of funding.

Some things that make our program different from many (if not most) other astronomy pro-



(Continued from page 25)

grams for educators:

- (1) Each team does original research using real astronomical data, not canned labs or reproductions of previously done research.
- (2) Each team writes up the results of their research and presents it in a science poster session at an American Astronomical Society meeting (the AAS is the professional organization for astronomers in the US). The posters are distributed throughout the meeting, in amongst other researchers' work; the participants are not "given a free pass" because they are educators and students. Each team also presents the educational results of their experience in the program.
- (3) The program runs over 13 months, not just a few days or weeks.
- (4) Teachers are encouraged to involve their students from the beginning of the program.

Most of our educators are high school classroom educators, but 8th grade, community college, and informal educators have participated as well. The kinds of educators we are looking for are those who already know the basics of astronomy, and are interested in learning exactly how astronomy research is conducted. All educators must be US-based.

This program involves three trips — to an American Astronomical Society (AAS) meeting in January 2021, to Pasadena, CA in summer 2021, and to the AAS meeting in January 2022. The January 2021 meeting is in Phoenix, AZ; the January 2022 meeting is in Salt Lake City, UT.

While most of the work on these teams is done remotely using video conferencing and other online collaboration tools, the structure of the program heavily relies on three different face-to-face visits, necessarily requiring interstate travel and meeting in groups. If the January 2021 AAS meeting is held online because of the pandemic, we may not be able to have a NITARP class of 2021. We will monitor the situation closely and inform applicants of progress as decision points come up.

The application itself consists of short answers to a few questions. We release the questions in May so that you have time both to hear about the program and to get started writing; the website to which you need to upload your PDF answers will be available no later than early August. Please let us know if you wish to be explicitly notified via email when the site is open for submissions.

For more information, please see our website (<http://nitarp.ipac.caltech.edu>), or if you have any questions, please feel free to contact us at our central email, nitarp@ipac.caltech.edu.



OSIRIS-REx TAG is a GO!

From Dolores Hill: We have an official target date for the OSIRIS-REx Asteroid Sample Return Mission's Touch-and-Go (TAG) maneuver first attempt at the Nightingale site: **October 20, 2020!** For more information: [NASA's OSIRIS-REx Ready for Touchdown on Asteroid Bennu](#)

Bob Trembley

Meeting Minutes

JUNE MEETING MINUTES VIRTUAL BOARD MEETING June 1, 2020

Members present: Diane Hall, Dr. Dale Partin, Riyad Matti, Glenn Wilkins, Mark Jakubisin, Jonathan Kade, Bob Trembley and Dale Thieme. Diane called the meeting to order at 6:31

Officer Reports

Dr. Partin reported that we are still in good shape with presenters; however, it is proving to be more difficult to recruit speakers without talking to people in person. Please contact me if you would like a slot, or if you know of someone who might be interested. David Levy has agreed to a presentation in September.

Riyad reported that everything was in good shape at Stargate as of 11 days ago.

Mark reported that he has some checks that are expired or due to expire soon. He is concerned that there may be a late fee attached, or even an outright bank rejection.

Glenn noted that he is actually finding it easier to take minutes on a desk at home than at normal meetings. He agreed to search for current addresses for beg letters that were undeliverable last year.

Bob reported that almost nothing is going on with Outreach and those that would normally ask for help are not willing to deal with social distancing or the complexities of virtual presentations. He noted that NASA is currently accepting applications to September 14 for teachers to do research with IPAC. Contact him for details.

Diane reported that **Governor Whitmer** announced Phase 4 of her restart will begin on June 8. This will allow gatherings up to 100 people as long as individuals can maintain at least 6' between each other. This holds promise for future star parties. However, even if we were able to comply, we cannot resume normal meetings without authorization from Cranbrook and the Community College as well as the Metro Park Authority. Concerns about disease transmission from sharing eyepieces might be avoided utilizing video monitors as long as the screen brightness is not bothersome to others nearby.

Old Business

Jonathan reported that the 2020 mailer has not been sent as our membership is about 20 short. Mark proposed that the Board consider providing dues relief due for the hardships created by the current medical emergency. Board members

agreed in principal but were unsure of the best plan of action. Numerous proposals were discussed before a final position was drafted. The Dues Proposal was unanimously agreed on as follows:

“In view of the extraordinary circumstances we are living in, we are extending everyone’s paid-up membership for one year. Those who wish to contribute their dues this year are welcome to do so.”

This announcement will be printed in the annual dues flyer.

Our Form 990 postcard has been filed.

The WAS projector is still missing. Jonathan will first check in our storage area and then contact the Ukrainian Banquet office.

New Business

Diane noted that the GLAAC treasurer resigned on May 14 and also that we have not yet paid our dues. Since it is uncertain if we will even have a joint star party this year, what does the Board advise? Bob recommended waiting for an update from our meeting with GLAAC on June 4.

CRANBROOK VIRTUAL GENERAL MEETING June 1, 2020

Diane called this meeting to order at 7:32. 24 members participated on Webex and an additional 13 watched on You Tube.

In the News/Sky was presented by Diane

SpaceX successfully launched two astronauts last weekend and the Dragon capsule is now docked to the ISS. Tensions were high due to the explosive failure (aka a rapid disassembly) of an engine on test just a few days earlier!

The sun seems to be waking up lately as a large flare was seen recently, the greatest since 2017.

A baryon census study was recently completed utilizing the unique light dispersion characteristics offered by Fast Radio Bursts, and new equipment which can accurately determine the galaxy that the burst came from. The results reinforce the current understanding that baryonic (ordinary) matter only represents about 5% of all matter.

Pluto and Jupiter will shortly provide a conjunction offering a rare photo opportunity as well as a Pluto finding aid.

Diane remarked in conclusion on how proud she

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was about the extraordinary accomplishments of the Board and Team members who have tirelessly worked to enable the WAS to not only continue but flourish under conditions that nobody could have expected just a few months ago.

Officer reports

Dale reported that final appointments were made at this meeting for participants in the July debate regarding if it is feasible/sensible to send live astronauts to Mars.

Riyad reported that the WAS expects to continue with Open House events on line.

Mark reported that we have 82 paid memberships. A complete financial report is in the current WASP.

Jonathan reported that the June WASP includes a report by David Levy as well as the May minutes.

Viewing and Special Interest reports

Jonathan & Marty reported only insignificant sun spots since the last meeting.

Dale T. indicated that the History report is ongoing. On May 31, Gary Ross provided an uncharacteristic written report from the Veen Observatory regarding his comprehensive observations of the atmosphere of Jupiter though his largely hand-made Newtonian scope guided by hand and viewed at 100X through hand-me-down eye pieces.

Bill Beers posted his address, BEEZOLL@aol.com, for anyone with astrophotography questions.

Short talk – Dr. Partin introduced Mark Jakubisin and his presentation Seeing is Believing

This talk addressed the impact of various factors on “seeing level” such as given by the widely-used Pickering Scale. Examples of viewing the same star at the different “seeing” levels were shown. A medium, such as our atmosphere, refracts the various wavelengths within light and can be compared to seeing through 30 ft. of water! Some other factors include wind, tube currents in different scope designs, and the impact of various land forms on turbulence at the viewing location. Several recommendations were offered to maximize the viewing experience.

Break – 8:36 to 8:51

Main Talk – Dr. Partin introduced Dr. Alan Kaplan, retired M.D., discussing Space Medicine

The talk was delayed almost 15 minutes due to the difficulties in uploading the presentation on Webex. The problem was apparently caused by insufficient bandwidth as it became necessary for most everyone to log off for a short time.

The following topics were explored in depth:

Risks to astronauts from meteorites, radiation etc.
Problems created by temperature variations in flight and on planetary surfaces

Risks due to slow/rapid pressure changes

Physical effects of zero gravity and isolation (noted recent comparison of the Kelly identical twins)

Need to bring significant amounts of medical equipment for emergencies, and train everyone on their use

The meeting was closed at 10:15, sadly without the opportunity to continue discussions at the Red Coat

MACOMB VIRTUAL MEETING

June 18

Diane Hall called this meeting to order at 7:30 for 23 viewers on You Tube and 29 participants on Webex.

IN-THE-NEWS/IN-THE-SKY presented by Diane News -

O’umuamua, the recent deep space interloper, appears to be a frozen hydrogen iceberg.

The extraordinary number of hits noted in a Xenon collector supports the postulation that dark matter could largely be composed of Axions.

The nested craters on Triton appear to be from vulcanism rather than from impacts.

The equatorial bright spots on Cassini photos are probably dry ice beds

Repeating fast radio bursts of 4 days on & 16 days off have been discovered. The source appears to be a baby magnetar, a strong dead sun with strong magnetic fields.

The rising solstice sun event at Stonehenge will be live-streamed this year.

The annular solar eclipse this June (southern hemisphere) may present a Bailey’s Beads viewing opportunity.

Sky –

The Jupiter/Pluto conjunction will repeat on June 30.

OFFICER REPORTS – Diane

The reasons why Astronomy at the Beach will be a virtual event this year are presented in the WASP. Presentations by amateurs and youth are being solicited by GLAAC.

Jim Shedlowsky noted that a report by Jon Blum has been circulated regarding the success of a similar virtual gathering recently at the Grand Canyon.

On July 6 our feature Cranbrook presentation will be the pros/cons debate about sending astronauts, rather than robots, to Mars. A lively debate is expected so be sure to join the event!

Riyad reported that all is well at Stargate. The Park

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has formally agreed to allow observing for WAS members as long as government safety guidelines are adhered to.

Limited Outreach continues – Ken Bertin will make a presentation for the Low Brows and Jim Shedlowsky will present to the Ford club.

Jonathan noted that Astro League dates for June are in the WASP

Dale Thieme reported that 12 additional history reports have been scanned.

OBSERVING REPORTS

Nothing of note was reported on the sun

Several members remarked about the current extraordinary stretch of good observing weather.

Gary Ross presented a detailed observing report on Jupiter which was forwarded to members by E-mail.

Diane talked about the benefits of filters for enhancing objects with various albedos

Jonathan spoke about the importance of dark adaptation and how it can degrade the viewing experience, even at dark sites.

Bill Beers shared his recent photo of the Draco Trio (NGC 5981, 5982 & 5985) which are actually at considerably different distances.

Adrian Bradley shared his recent natural light photos at Lake Hudson with Jupiter & Saturn embedded in the Milky Way.

Doug Bock shared some recent nebula photos.

BREAK – 8:15 to 8:30

MAIN PRESENTATION – Dr. Dale Partin introduced Mark O'Malley who presented the life story of Wernher von Braun.

Wernher had an early fascination with amateur liquid-fueled rockets and astronomy but surprisingly he did not initially have much interest in math & physics. However, he later realized the importance of these fields of study and went on to achieve an ME at age 20 and a PHD in physics at age 22 from recognized German universities. His interests and degrees were quickly recognized and led to leadership positions in rocket design & development.

Following WWII, the U.S. quickly decided to keep this team intact and under their control. So, they brought most of the group together to the U.S. under Operation Paper Clip. Of course, the combined team work with American scientists and engineers was a major factor in winning the race to the moon. Running out of time, Diane closed the meeting at 9:34

Glenn Wilkins,
Secretary
– from Florida



Space Pirate Radio

Tune in to Captains Marty Kunz
and Diane Hall for live radio
Wednesday nights at 9:00 pm ET
on
Astronomy.fm

amazonsmile
You Shop. Amazon Gives.

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.

Saw a Fireball?

Report it to the American Meteor Society!



www.amsmeteors.org/members/fireball/report-a-



Club Member Name Tags

Email publications@warrenastro.org for
your personalized name tag

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

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

GLAAC Club and Society Meeting Times

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

GLAAC Club and Society Newsletters

Warren Astronomical Society: <http://www.warrenastro.org/was/newsletter/>
 Oakland Astronomy Club: <http://oaklandastronomy.net/>
 Ford Amateur Astronomy Club: <http://www.fordastronomyclub.com/starstuff/index.html>
 Sunset Astronomical Society: <http://www.sunsetastronomicalsociety.com/>
 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>

TELESCOPES & ACCESSORIES FOR SALE

From the Estate of John Causland

(beloved Ann Arbor Lowbrow astronomer observer)

Additional items have been found and are included here.

All items must be out of the house by the 7/10 closing! Send us your offer. **Cash only.**

Pick-up only.

The items are available for inspection & purchase ONLY by prior arrangement (location is 4733 Midway Dr, Ann Arbor MI 48103).

This listing is being shared with amateur astronomers throughout SE Michigan and NW Ohio.

Send your offers and questions to:

ottum@comcast.net

Brian Ottum, estate representative

Once you've been told the item is yours, please coordinate pickup time with Debbie Smith:

Dsmith956@hotmail.com

Executor

Filters



TeleVue 3mm-6mm Zoom Eyepiece (1.25")

Legendary TeleVue quality. Nagler provides wide field, fifty degrees in this zoom. Good condition. Just Google for more information. Perfect for a small refractor. \$410 new, price is \$200. Pick-up only. [see Astromart ad 98430 for reference price]



Lumicon 2" Eyepiece Deep-Sky Filter \$80 [see Astromart ad 8968]



Aluminized mylar solar filters for binoculars (2.25" ID) \$20

(Continued from page 31)

Catseye Collimation Tools



Original 2" CATSEYE collimation tool. Just Google for more information. Also includes 3'x3' transparency to aid in collimation of Newts and Cats. Triangle mirror center stickers. Price is \$30.



Celestron 8mm-24mm Zoom Eyepiece

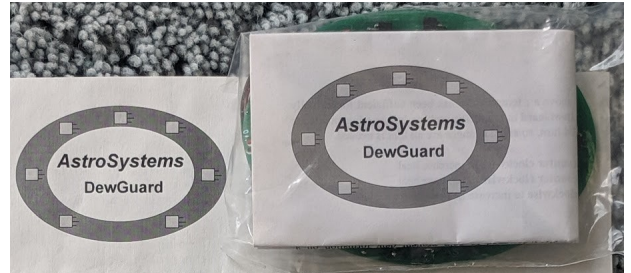
This is a 1.25" eyepiece in fair condition. Model 93230. New \$80, price is \$20.

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DewGuard for Large Secondary Mirror

This is a 9-12VDC warming device to be placed on the backside of a large Newtonian secondary. The elliptical major axis is 4.75", so that Newt needs to be BIG. Includes sophisticated circuitry to turn on/off based on temperature difference between glass and air. Uses either conventional 9V battery or onboard 12V battery. These were installed on Starmaster telescopes. \$20



The DewGuard is the first temperature controlled heating system designed to help prevent dew formation on a telescope's secondary mirror. The uniform distribution and controlled heating avoids air currents and optical distortion. Newtonian telescopes in the 6" to 36" range can experience condensation on their secondary mirrors. This may be due to the open structure of their upper tube assemblies or severe condensation conditions. The DewGuard will keep it dry.

INSTALLATION

The DewGuard is attached to the back of the secondary mirror using silicone adhesive (RTV). Apply a small amount, about 1/32" thick, on the surface of each small square heater. Center the DewGuard on the back of the diagonal, wire end of the circuit board higher, or toward the open tube end of the diagonal, and allow it to cure overnight. You will need to supply the DewGuard with 12 volts DC (6-18V DC is suitable). The preferred place for high capacity (usually heavy) batteries is by the primary mirror or rocker box to have the smallest affect on balance. We recommend gel-cell batteries for capacity, charging characteristics and low temperature performance. A thin wire can be attached along the edge of the spider with super glue producing the smallest affect on diffraction. The spider itself can be grounded to the DewGuard and act as the ground wire, eliminating one wire. Red is positive. Attach the digital sensor and LED away from the secondary in a convenient location with free air circulation. Do not stuff the sensor into the packing that is supplied with most secondary holders. It is however, OK to stuff the polyfill wadding into the holder and against the DewGuard. The unit is supplied with a 9 volt battery snap connector. A 9 volt battery will work for 3-12 hours, depending on the particular environment. Twelve volt operation is best, therefore cutting off the snap connector or using another snap connector (watch polarity) will be necessary to rewire the DewGuard. It is advisable to put a switch and a fuse in line with the DewGuard. The DewGuard consumes about 0.02 watt at 12V while connected to a power source to operate the temperature sensor.

OPERATION

The DewGuard senses both the ambient temperature and the glass temperature using two sensors: one on the circuit board and one on the pigtail. It compares the two and applies power to the heaters when the glass to air difference is less than or equal to the preset value. A small LED indicates power consumption and is at "half" brightness when there is a 2 degree or smaller difference between the air and glass. The adjustable potentiometer is preset at the factory with heat being applied when the secondary mirror is still 1 - 3 degrees C above air temperature. A 5/64 hex key can be used if adjustment is necessary.

Using a large temperature difference preset will cause the unit to turn on sooner and may be used for the most severe conditions. A small temperature difference preset will allow the mirror to nearly reach air temperature before turning on, the preferred setting for typical dew or frost conditions. This will give the longest battery life and have a negligible affect on the optical figure of the secondary mirror while avoiding tube currents. The unit will remain off until the secondary mirror reaches the preset air/glass setting, then cycles on and off as the secondary mirror is gently heated.

Old Fashioned Camera-to-Telescope Adapter



Clamps onto eyepiece. Uses either 37mm or 52mm male threads to attach to camera. Seems like it uses the "afocal" method, so this is threading into the female threads on outside of a LENS. \$15



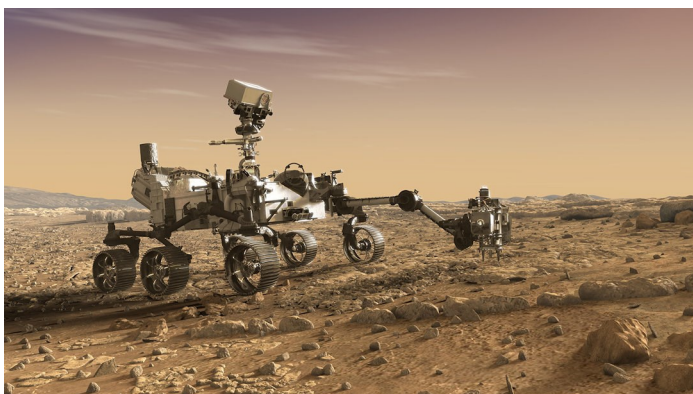
This article is distributed by NASA Night Sky Network

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!

Mars's Latest Visitor: NASA's Perseverance Rover

David Prosper

NASA's latest Mars rover, Perseverance, is launching later this month! This amazing robot explorer will scout the surface of Mars for possible signs of ancient life and collect soil samples for return to Earth by future missions. It will even carry the first off-planet helicopter: Ingenuity. Not coincidentally, Perseverance will be on its way to the red planet just as Mars dramatically increases in brightness and visibility to eager stargazers as our planets race towards their closest approach in October of this year.



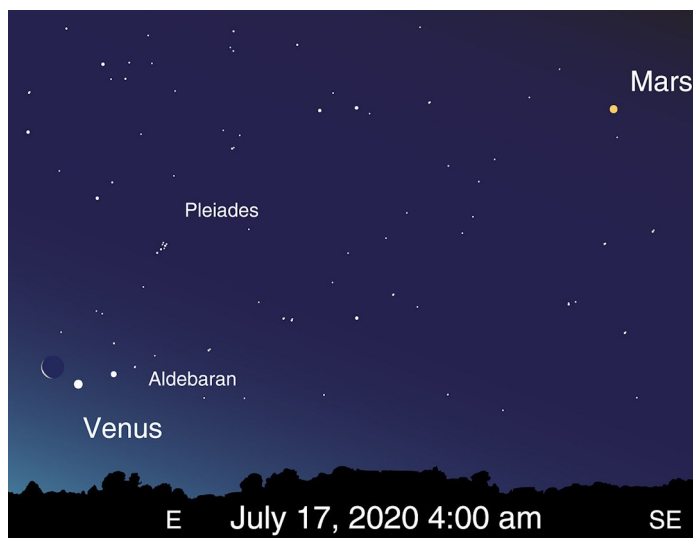
Perseverance inspects a cluster of interesting Martian rocks with its instruments in this artist rendering by NASA JPL/Caltech

Perseverance's engineers built upon the success of its engineering cousin, Curiosity, and its design features many unique upgrades for a new science mission! In February of 2021, Perseverance will land at the site of an ancient river delta inside of Jezero Crater and ready its suite of seven primary scientific instruments. The rover will search for traces of past life, including possible Martian fossils, with WATSON and SHERLOC, two advanced cameras capable of seeing tiny details. The rover also carries an amazing instrument, SuperCam, to blast rocks and soil outside of the rover's reach with lasers to determine their chemical makeup with its onboard suite of cameras and spectrometers. Perseverance will also take core samples of some of the most promising rocks and soil, storing them for later study with its unique caching system. Future missions will retrieve these samples from the rover and return them for detailed study by scientists on

Earth. Perseverance also carries two microphones so we can hear the sounds of Mars and the noises of its instruments at work. It will even launch a small helicopter - Ingenuity - into the Martian atmosphere as a trial for future aerial exploration!

Would you like to contribute to Mars mission science? You can help NASA's rover drivers safely navigate the Martian surface by contributing to the AI4Mars project! Use this tool to label terrain features on photos taken of the Martian surface by NASA missions to help train an artificial intelligence algorithm to better read their surrounding landscape: bit.ly/AI4Mars

The launch of Mars Perseverance is, as of this writing, scheduled for July 20, 2020 at 9:15am EDT. More details, updates, and livestreams of the event are available on NASA's official launch page: bit.ly/Mars2020Launch . Dig deep into the science of the Mars 2020 mission and the Perseverance rover at: mars.nasa.gov/mars2020/ . Find out even more about past, present, and future Mars missions at nasa.gov.



Observe Mars yourself over the next few months! Mars can be found in early morning skies throughout July, and by the end of the month will rise before midnight. Mars gradually brightens every night until the close approach of Mars in October. The pre-dawn skies of July 17 present an especially nice view, as the waning crescent Moon will appear near Venus and Aldebaran.



What Kind of Telescope Should I Get?

Oh, the eternal question - one that I think we all both love and dread hearing. Love, because it means someone things you know what you're talking about, and you have the opportunity to help them get started in the hobby. Dread, because you feel responsible for whether they have a good experience in astronomy or whether they join the ranks of so many who have given up on it.

The old advice is: DON'T. Come to an open house instead, and check out different types of telescopes in person before taking the plunge. Since we're not having large events, that advice isn't practicable. And sometimes people really want to buy a scope! (Most of us were like that once.) So you can probably go with it. DO make sure to recommend they get decent binoculars too, and do a naked-eye trip to true dark skies so they can visualize themselves hauling and setting up a telescope.

And, well, relax a little. You can't control what your friends, coworkers, relatives, and total strangers feel when they look through that eyepiece for the first time. A lot of times, people have an idea of what they want already, and they're just looking to you for validation of that idea. But there are some things you can do to increase the odds they don't end up with a terrible telescope, or a telescope that totally mismatches their life situation. Here are some tips, and some anecdotes from somebody who just gave a lot of this advice.

First off, try to make sure that the telescope they get fits their living space, their car, and their pocketbook. We've all known - or been - the person with a huge telescope and a tiny apartment or car. If a telescope becomes a source of stress and frustration because of the space it takes up, it probably doesn't bode well for their future commitment to the hobby. Likewise, if they spend their whole telescope budget on the scope and don't have money for good eyepieces, red dot finder scopes, and so on, they will have a pretty limited experience. If they get a telescope and have to leave their kids home to take it up to dark skies, they might enjoy the experience, but the kids might not so much!

Case study: A friend of mine who is a huge self-starter, experimenter, and maker asked about buying a Celestron CPC 1100 GPS scope. (<https://www.celestron.com/products/cpc-1100-gps-xlt-computerized-telescope>) He's had small scopes before, but nothing huge or dedicated to astronomy. Ordinarily, I would be really concerned about somebody starting off in the more formal astronomy hobby with a scope this big and this massive. But in this case, my friend had all the ingredients in his life situation to make it work for him - the money, the space, and the carrying



capacity. And a dark sky to use it in. I'm hoping I get to look through it before too long!

Secondly, try to figure out what the person is interested in. If they are a photog, and are primarily interested in astrophotography, a dob is a really bad choice. Similarly, if they want to look at planets and just relax as they pan through the night sky, a complicated go-to system is probably not going to be an ideal choice for them. Now, it's true that people's interests and tastes change over time. But generally they don't change THAT much. I was interested in observing galaxies most of all when I started, and that's still what I seek out the most. My observing partner Diane wanted star clusters, and that's what she spends her quality time with. I don't know anybody who started out wanting to do astrophotography who has become an accomplished astro-sketcher, and I don't know anybody who started disinterested in photography who's spent five figures on an astrophotography setup. They're out there, but they're not the majority.



Case study: A friend of mine is new to the hobby. He lives in an apartment and has a smaller car. He wanted to get a telescope that would let him see the planets well, but also see an assortment of other objects. He was really interested in some kind of guiding assistance, but also wanted to be able to easily pilot it himself without having to worry about powering it. After we discussed extensively, we agreed that he probably wanted

something in the 4.5" to 6" range - small enough to fit in his car with other stuff, but big enough to give a distinct impression of celestial objects in dark skies. After examining prices and options, we settled on the Celestron [StarSense Explorer DX 130AZ](#). This new telescope line cleverly uses your portable camera and supercomputer - your smartphone - to plate-solve the view where your telescope is pointing, giving you push-to support at a very affordable price. I look forward to hearing his review and trying it out myself one of these days!

Finally, when they actually take the plunge, check in! See if they're having trouble with anything, recommend objects that will knock their socks off, maybe lend some of your second-tier eyepieces out, and, depending on your risk factors and comfort level, try observing together - it's easy to effectively social distance while telescoping. (At this point, the jury is out about whether it's safe to share an eyepiece, but I recommend against it.) For many of us, it's social support and other people's enthusiasm that keeps the hobby fun, so try to be that support for your loved ones who starting out.

I hope that's helpful advice, and I wish you and all the new telescope owners out there clear skies.

Jonathan