Society Meeting Times

Astronomy presentations and lectures twice each month at **7:30 PM**:

**First Monday** at Cranbrook Institute of Science.

**Third Thursday** at Macomb Community College - South Campus Building J (Library) Note: for the summer, we are meeting in room 151, lower level of the library.

September Discussion Group Meeting

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

As of 9-10-17, the Discussion Group meeting for September is not confirmed.

Please contact board@warrenastro.org for any further developments.

Snack Volunteer Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Volunteer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 11</td>
<td>Cranbrook</td>
<td>Craig Veresh</td>
</tr>
<tr>
<td>Sep 21</td>
<td>Macomb</td>
<td>Bob Trembley</td>
</tr>
<tr>
<td>Oct 2</td>
<td>Cranbrook</td>
<td>Mark Kedzior</td>
</tr>
</tbody>
</table>

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

Saw a Fireball? Report it to the American Meteor Society!

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

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Space Pirates

Tune in to Captains Marty Kunz and Diane Hall for live radio Wednesday nights at 9:00pm ET
Greetings, W.A.S. members. As the afterglow of the Great American Solar Eclipse fades out, I want to direct your thoughts to the biggest outreach event of the year for Metro Detroit amateur astronomy: Astronomy at the Beach 2017.

GLAAC, the organization that's put on Astronomy at the Beach for more than two decades, has relocated to a new venue for this year (full disclosure: I am the current president of GLAAC). GLAAC has a partnership with the Michigan DNR and the “beach” in AatB will be Kent Lake Beach located inside the Island Lake State Recreational Area, just across I-96 from our old digs at Kensington Metropark. We'll have a broad flat beach for telescopes, a building at the beach to host vendors and club tables, amenities like restrooms and concessions, a fascinating speaker in Dr. Dan Durda from the Southwest Research Institute... and most importantly, we'll have YOU.

The W.A.S. and the other clubs that make up GLAAC can't bring astronomy to the public effectively without the cadres of volunteers that've made Astronomy at the Beach the spectacular event that it's been since the late 1990s, and we'll need all hands available this year for our rebirth at Kent Lake. We'll need solar telescopes, we'll need nighttime telescopes to show off the Moon, Saturn, and deep-sky objects, and we'll need volunteers for our club's table so we can reward children who've completed the annual Scavenger Hunt. And we'll need every single one of you who wants to come as a “civilian” and see Dr. Durda speak on Near-Earth Objects and the threat they pose to life as we know it.

If you've never done an outreach event before, AatB is a good way to get into it, as you'll be surrounded by comrades who've done more than one beach rodeo. If you're an old hand at being an astronomical evangelist, then well... you know what makes AatB special. For two nights a year, many astronomy clubs and regional science and educational institutions band together to bring as much astronomy as we can pack into said two nights to people who just might really be looking at the Moon for the first time in their lives. This time around, it'll be September 29th and 30th, the usual 6:00 start time (with a special talk aimed at astronomers at 3PM on Saturday only).

See you there?

President’s Field of View

<table>
<thead>
<tr>
<th>Day</th>
<th>EST (h:m)</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>01</td>
<td>06:08</td>
<td>Venus 1.4°S of Beehive</td>
</tr>
<tr>
<td>04</td>
<td>18:41</td>
<td>Moon at Descending Node</td>
</tr>
<tr>
<td>05</td>
<td>00</td>
<td>Mercury 3.2° of Mars</td>
</tr>
<tr>
<td>05</td>
<td>04</td>
<td>Neptune at Opposition</td>
</tr>
<tr>
<td>06</td>
<td>07:03</td>
<td>FULL MOON</td>
</tr>
<tr>
<td>10</td>
<td>05:30</td>
<td>Mercury 0.7° of Regulus</td>
</tr>
<tr>
<td>10</td>
<td>21:44</td>
<td>Jupiter 2.9°N of Spica</td>
</tr>
<tr>
<td>12</td>
<td>10</td>
<td>Mercury at Greatest Elong: 17.9°W</td>
</tr>
<tr>
<td>12</td>
<td>12:09</td>
<td>Aldebaran 0.4°S of Moon</td>
</tr>
<tr>
<td>13</td>
<td>06:25</td>
<td>LAST QUARTER MOON</td>
</tr>
<tr>
<td>13</td>
<td>16:04</td>
<td>Moon at Perigee: 369856 km</td>
</tr>
<tr>
<td>15</td>
<td>12</td>
<td>Mercury at Perihelion</td>
</tr>
<tr>
<td>16</td>
<td>14:50</td>
<td>Beehive 3.1°N of Moon</td>
</tr>
<tr>
<td>16</td>
<td>18</td>
<td>Mercury 0.1° of Mars</td>
</tr>
<tr>
<td>17</td>
<td>18:28</td>
<td>Moon at Ascending Node</td>
</tr>
<tr>
<td>18</td>
<td>00:56</td>
<td>Venus 0.5°N of Moon: Occn.</td>
</tr>
<tr>
<td>18</td>
<td>04:32</td>
<td>Regulus 0.1°S of Moon</td>
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<tr>
<td>18</td>
<td>23:22</td>
<td>Mercury 0.0°N of Moon: Occn.</td>
</tr>
<tr>
<td>19</td>
<td>21:30</td>
<td>Venus 0.4°N of Regulus</td>
</tr>
<tr>
<td>20</td>
<td>05:30</td>
<td>NEW MOON</td>
</tr>
<tr>
<td>22</td>
<td>07:51</td>
<td>Jupiter 3.7°S of Moon</td>
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<tr>
<td>22</td>
<td>20:02</td>
<td>Autumnal Equinox</td>
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<tr>
<td>27</td>
<td>00:09</td>
<td>Saturn 3.5° of Moon</td>
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<tr>
<td>27</td>
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<td>Moon at Apogee: 404342 km</td>
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<tr>
<td>28</td>
<td>02:54</td>
<td>FIRST QUARTER MOON</td>
</tr>
</tbody>
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Source: http://www.astropixels.com/ephemeris/astrocal/astrocal2017est.html
Franklin, KY

Pre-eclipse thoughts
The trip that almost didn’t happen. In the ramp-up to the event, I felt content to watch an 83% show from northwest Florida, while entertaining thoughts of driving like crazy up to Tennessee/Kentucky. The other thing that kept the trip on the back burner was the game plan of meeting with my sister and brother-in-law (Lynn and Bill Czarniawski) at some midway point was up in the air (our plan was to use their 5th-wheel RV as our headquarters for the event and it wasn’t delivered yet).

Our arrival and Setup
Happily, all came together in time to make the trip. So, on the day before the eclipse, my wife and I drove up to Franklin, KY and met Lynn and Bill at a truck stop where they found a place to park the trailer overnight, at the edge of the parking lot, next to a cornfield. We had a semi rig parked by us to keep company.

This was my first totality, so I followed the advice of Ken Bertin and (other eclipse veterans) and didn’t weigh myself down with equipment. But I did want to do some simple things during the event, the colander trick, dappled tree shade, and the finger grid. I forgot to bring our colander and had to make a run to the store to pick up one. Armed with the colander, solar glasses (and two pair of 2x viewers I got from Celestron) and an eclipse timing app, we were ready for the show.

Day of the Eclipse
The RV had a satellite dish and we picked up the NASA and Science channels. We spent the morning watching eclipse shows and then the live coverage
of the eclipse once it started in Oregon. Once we got first contact locally, we went out in the sweltering heat to watch on the outside TV and pop out in the sun to catch glimpses through our solar glasses. The 2x ones still didn't magnify enough for me to see any of the sunspot group, so I was a little disappointed there. Once the moon took out a sizable chunk of the sun, Lynn and I did the colander shadow cast. With a bit of trial and error, we determined the shadow is best cast from about waist high- inches above the screen (a pillow case for us) gave a round image, no moon bite. We also managed to successfully, more or less, create a finger grid cast. There were no trees nearby for the dappled shade effect but I saw a number of postings on Facebook from other club members who got shots of that. As the moon crept across the sun, we followed the NASA coverage, watching their totality coverage progress across the states toward us, first Oregon, then Idaho, next Nebraska (apparently NASA wasn't going to report from every state). Meanwhile, the parking lot was crawling with late arrivals looking for a place to park and a number of annoyed truck drivers.

**Final thoughts**

I’m glad I made the trip up to Kentucky to get in total coverage zone, I found out later that the cloud cover in northwest Florida made viewing challenging, if not impossible.

For naked eye astronomical events, nothing compares to solar totality. Lunar eclipses are fascinating, seeing comet Hale-Bopp was exciting (and I’m talking non-magnified viewing here), but for sheer astoundingness (is that even a word?), the total solar eclipse takes the prize. It is one thing to intellectually agree with statements by the eclipse chasers, but to know it changes everything. I won’t become a world-wide eclipse chaser, but I’m certainly marking the next American one on my calendar.

Also, anyone need a slightly used colander? Just lightly used for straining sunlight.
**W.A.S Astrophotography**

M101 The Pinwheel Galaxy
21 million light-years from earth
by Bill Beers 7/26/17

Photo credit: Bill Beers

Photo credit: Joe Tocco, taken with a cellphone camera

Photo credit: Brian Thieme (Nashville, Tennessee)
Eclipse video by Bob Berta

Extra wide angle view of August 21, 2017 Solar Eclipse from Casper, Wyoming using a Garmin VIRB Ultra 30 sports cam. This was just a few minutes before Totality and a bit after. While my action camera couldn’t show the corona up close...
Hello Friends and Family,

I’m sorry to inform you that my Father (Theodore “Ted” Walling) has passed away. He fought stage 4 prostate cancer for 2 and a half years.

The “Celebration of Life” memorial will be held on September 30 at the Country Club Village Clubhouse 655 E. Nawakwa Road, Rochester Hills, MI. 48307. 2pm to midnight.

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.
Jim Shedlowsk presents “The Evolution of Giant Telescopes”

What is a modern Giant telescope? How and from where do they come about? What technologies make them possible? These questions, along with a brief history of notable telescopes, are discussed in this presentation by Jim Shedlowsky.

Since Galileo first turned his handmade refractor to the night sky in 1609 and began a new era in astronomical discoveries, astronomers have continually sought more “powerful” telescopes to uncover the mysteries of the heavens. For nearly three hundred years “more powerful” telescopes meant modestly larger, longer and much more refined instruments, to support the “positional astronomy” which dominated that era.

Then around the turn of the 20th century with the advent of new technologies (i.e. photography, spectroscopy, etc.), the science of Cosmology was born. George Ellery Hale seized the moment, built the 60inch reflector at Mt Wilson, and the age of the modern mega-reflector was begun, culminating with the dedication of the 200 inch Hale telescope at Mt Palomar.

This presentation will concentrate on the “post-Hale” period from 1949 until the present, and discuss the trials, tribulations, politics and personalities which had to be overcome, along with the significant technological advances, which resulted in the current and near future generation of Giant telescopes. Jim will review these huge instruments and the technologies that make them “tick”!

Jim will also give the short presentation.

Sandra Macika presents “Meteorites and Tektites: Types and Composition, Part I: Differentiated”

Sandra will discuss how to identify meteorites, and types, composition and formation of various types of differentiated meteorites with many examples to pass around.

Sandra Macika is a lifetime member of the San Jose Astronomy Association (SJAA), and a Current member of the Ford Amateur Astronomy Club (FAAC). She worked at Lick Observatory (Public Outreach) for 10 years from 1997 to 2006, and also worked at NASA (Meteor Shower Studies) for 7 years from 1996 to 2002. She is also the Starry Starry Night Supervisor at the Wayne Oakland Science Olympiad since 2014, and participates in public outreach with her 100-piece collection of meteorites and tektites.

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 Mark Kedzior at : firstvp@warrenastro.org. We have open dates at both Cranbrook and Macomb meetings. Also, if you may have any contacts of possible presenters, please send them along - that would be greatly appreciated. See you at the next WAS meeting!
The Two Strong Men

Two craters can be seen staring out from the northern cusp of the five day old moon like a couple searching eyes south of Endymion. These two are Atlas (90km dia.) on the right (east) and Hercules (71km) on the left (west) with a nice 13km crater Hercules G, on its floor. On the floor of Atlas can be seen a wonderful system of fine rilles, Rimae Atlas. These rilles seem to have several different origins with the “V” of them straddling the remnants of the central peak looking on LROC like graben. Directly above these two is the crater Keldysh (34km) partly cut off by the image edge. A line from Keldysh through Hercules points to the shadow filled crater Grove (29km). Between Grove and Atlas is the ruined ancient crater Williams (37km) at 3.9-4.5 billion years age. Above and to the west of Grove are two side by side craters that I find very interesting. The very ancient looking one on the right is Mason (44km) and it’s actually about a billion years younger than Williams. Next to it, deep in shadow with just the west wall and central peak showing is Plana (46km) of the same age. Note the curious apron that extends to the southeast from Mason pointing back to Grove. We can see Burg (41km) just coming out of shadow above Plana, at the center of Lacus Mortis and lastly in the upper left corner is Baily (27km) not to be confused with Bailly, a much larger feature.

This image is a composite of 3 images each made from 600 frames stacked out of 3000 frame AVIs with AutoStakkert. Assembly was done with AutoStitch and final processing achieved with GIMP and IrfanView

Rik Hill
NGC 7789 is an open cluster in the constellation Cassiopeia. It is also known as Caroline’s Rose or as the White Rose Cluster due to the fact it was discovered by Caroline Herschel in 1783 and contains curving arcs of white stars that lend it a flower-like appearance. It is bright and has a fairly large size for an open cluster, with an integrated apparent magnitude of 6.7 and an angular diameter of about 25’. It has a Trumpler classification of II1r, indicating that it is well separated from the field stars with some concentration near its center, has a narrow range of stellar magnitudes, and is rich in terms of total number of stars. Caroline’s Rose holds more than 500 member stars within its gravitational embrace and sits at a distance of about 5900 light years from our solar system. It is about 43 light years across and is estimated to be 2 billion years old, which is unusually elderly for an open cluster. Typically such clusters are only loosely bound by gravity and disband within a few hundred million years.

NGC 7789 is easy to locate, lying approximately halfway between Rho (ρ) and Sigma (σ) Cassiopeiae, which are of magnitude 4.5 and 4.9, respectively. Alternatively, it can be found about 3° southwest of Beta (β) Cassiopeiae (mag. 2.3). The cluster is perhaps one of best objects of its type to not appear in the Messier catalog. It is an excellent target for small aperture telescopes, easily visible in 4” apertures at 50x magnification as a half degree orb of faint stars nearly uniform in brightness and distribution. In 8-10” telescopes at around 70-100x, the cluster is impressively large, dense, and abounding with detail. Numerous sweeping bands of stars of 11th and 12th magnitude are visible against the background glow of hundreds of dimmer members. There are several small bands of relatively star-poor areas that provide interesting contrast to an otherwise lush field of view. As can be imagined, Caroline’s Rose is a highly recommended highlight for any autumn evening observing session and is a splendid destination along the northern Milky Way.

Chuck Dezelah
Stargate Observatory

Monthly Free Astronomy Open House and Star Party
4th Saturday of the month!

Wolcott Mill Metropark - Camp Rotary entrance

- Sky tours.
- Look through several different telescopes.
- Get help with your telescope.
- We can schedule special presentations and outings for scouts, student or community groups.

Contact: outreach@warrenastro.org

Find us on MeetUp.com

Observatory Rules:

1. Closing time depends on weather, etc.
2. May be closed one hour after opening time if no members arrive within the first hour.
3. Contact the 2nd VP for other arrangements, such as late arrival time. Call (586) 634-6240.
4. An alternate person may be appointed to open.
5. Members may arrive before or stay after the scheduled open house time.
6. Dates are subject to change or cancellation depending on weather or staff availability.
7. Postings to the Yahoo Group and/or email no later than 2 hours before starting time in case of date change or cancellation.
8. It is best to call or email the 2nd VP at least 2 hours before the posted opening with any questions. Later emails may not be receivable.
9. Generally, only strong rain or snow will prevent the open house... the plan is to be there even if it is clouded over. Often, the weather is cloudy, but it clears up as the evening progresses.
August Open-House

The August Open-house was ran by Joe Tocco in my absence, he reported a good turnout despite hazy skies. The Moon, Saturn, M13, M57 and the Double-Double were all observed. People cleared out around 10:30, attendance was 50+

September Open-House

The regular Open-house for September is scheduled for Saturday the 23rd, three days after the new Moon. We will have a waxing crescent Moon setting at 9:40pm. Sunset is at 7:30pm with astronomical twilight ending right around 9pm. Please arrive just after sunset (or sooner if you plan to set up a scope or do solar observing). A friendly reminder to be courteous if you arrive after dark, dim your headlights upon entry to the park, and no white light flashlights please. If you are setting up a large scope or have a lot of equipment to set up then you are permitted to park on the observing field, with your vehicle lights pointed away from the observatory and other telescopes.

Observatory update

No Observatory update at this time.

Jeff MacLeod
2nd VP
The new school year has begun, and the great American total solar eclipse is now history - and what a historic event it was! Tens of millions of people got to experience the wonder of totality, tens of millions more got to see a partial eclipse. For a single day, a good percentage of the population of the continental U.S. joined together to experience a rare astronomical event. Museums, libraries, science centers, and a host of other venues across the country hosted eclipse viewing events; volunteer NASA/JPL Solar System Ambassadors were out in force along the line of totality, and in many states. Every post I’ve saw about the eclipse had images of literal throngs of people in attendance. What a way to get people interested in astronomy! I can’t wait for 2024!

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Connie and I assisted the Chesterfield Township Library with an event they hosted at Chesterfield’s Brandenburg Park. We got to the park at 10:15 a.m. to start setting up; I dropped off load #1 and went back home for my telescopes. A friend showed up and helped Connie plaster the clubhouse walls with several of our astronomy posters, then helped set up a tent outside where Connie would be with my meteorites; Connie was immediately swamped with kids, and stayed that way. I arrived with load #2, and set up my telescopes by Connie, and my laptop and projector in the clubhouse.

My daughter and son-in-law showed up - THANK GOODNESS! They manned my telescopes, which had a 50 foot line the entire event. I gave my Sun lecture twice: before and after the eclipse’s maximum, and talked with a bazillion people. There were well over 2000 people at the park; the parking lot was full, and police needed to direct traffic. The library ran out of solar glasses; we had a small reserve – and handed all of them out too, asking that people share them.

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Mark Kedzior reports:

“All went well at both Woods Branch and Ewald Branch - I was set up at Woods with three scopes - two library telescopes with white light filters and a Lunt 60MM H Alpha scope - my son Adam was set up at Ewald Branch with two library telescopes with white light filters and a Coronado PST H Alpha scope. The skies were great - clear and no clouds until about 3PM then some scattered clouds moved in as the eclipse was waning. It about 3:43PM when it was all over. I also had a few extra filters which were large enough to go over some heavy duty photo gear that some of the visitors brought to take images of the eclipse.

According to the library staff, there were 350 official visitors at both branches who signed up for the event to get eclipse glasses, and a lot of passerbys who stopped in to get views through the scopes. We also had representatives from C&G Newspapers and the Grosse Pointe News to take pictures of the attendees, the eclipse with the solar filter I had available, and interview participants at the event - I gently nudged the reporters up to the scopes to get a closer view of the eclipse visually through the white light filter. I’ll send you the links when the stories are posted and published.

Finally, I did mention to the library staff that I hope they took good notes on getting ready to do it all over again on April 8, 2024!”

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Ralph DeCew was unable to get through the mass of people to assist at Cranbrook; Gary Repella got set up at Cranbrook really early, and was able to assist them with their event.

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In other news, the Cassini mission at Saturn is due to end on September 15th, and that will be a very
sad day. Cassini ranks right on the top of my list of favorite space missions; the discoveries it has made at Saturn over the last decade are amazing, and the imagery it has returned are awe-inspiring. I plan on having a good healthy cry on the 15th. Watch the NASA Cassini Grand Finale video: https://youtu.be/xrGAQCq9BMU

Possible Lecture series

We have a request for an eclipse lecture for those who are blind or visually impaired by the Macomb Library for the Blind and Physically Handicapped (MLBPH) – Gary Ross said he is provisionally interested; If anyone else might be interested too, please contact outreach@warrenastro.org.

We have a request for astronomy lecturers at the Colombiere Center in Clarkston – this is a Jesuit retirement center, and several of the folks there know Br. Guy. They are looking for dates in October and November. Ken Bertin has expressed interest, if anyone else would like to lecture for them, please contact outreach@warrenastro.org.

August 2017

8/2/2017 - Eclipse Lecture - Brandon Township Library - Ken Bertin lectured to 50+ people; he said it went great, and had lots of questions.

8/2/2017 – Beginning Rocketry Lesson + Sun/Eclipse Lecture at Starbase One – Bob Trembley ran a second set of two half-hour KSP sessions, and gave his Sun lecture at Starbase One.

8/9/2017 - Telescope Class + PowerPoint in Grosse Pointe – Mark Kedzior, Excelsior!

8/10/2017 - Eclipse Lecture - West Bloomfield Library - Ken Bertin lectured to 250+ people (Another 50+ were turned away at the door); his presentation was well received, and he answered several questions.

8/11/2017 - Perseid Party - 7:00 PM - 10:00 PM Our monthly open houses are free, but the Perseid Party will require buying a Metroparks day pass if you don't already have an annual pass.

8/12/2017 - Hobby Day event at Crosswinds Marsh - 9:00 AM - 1:00 PM Diane Hall, Pat Brown, and Jeff MacLeod introduced the public to astronomy, and attended a W.A.S. table.

8/21/2017 - The Great American Solar Eclipse of 2017!

Online Eclipse Resources:
NASA Eyes Web App:
https://eyes.nasa.gov/eyes-on-eclipse-web-detail.html
NASA Eyes Desktop App:
https://eyes.nasa.gov/eyes-on-eclipse-detail.html
NASA's Eclipse Website:
https://eclipse2017.nasa.gov
Eclipse Fly-Over Video:
https://youtu.be/cvE4lY5RGqQ

8/26/2017 - Monthly Stargate Open House
A Cub Scout pack 252 was at Stargate

September 2017

9/16/2017 – Junior Girl Scouts at Stargate
Jeff Macleod, could use a couple volunteers!

9/23/2017 - Monthly Stargate Open House
Jeff Macleod, volunteers welcome!

9/29 & 9/30 - Astronomy at the Beach – 6:00 PM
Kent Lake area of Island Lake State Recreation Area.

Website:
https://www.glaac.org/astronomy-at-the-beach/

We have several W.A.S. members signed up, more volunteers are always welcome!

We have an outreach volunteer mailing list – if you would like to be added, please contact outreach@warrenastro.org.

Bob Trembley
Outreach
History SIG Report
September 1985

This only member generated article in this volume of the WASP is “The Star”, the Newsletter of the Great Lakes Region/Astronomical League (editor Ken Kelly, who seems to be wearing two editorial hats now). Included in the newsletter is an announcement of the 1985 Akron Convention and an invitation to hear Patrick Moore at Cranbrook speak on Halley’s Comet.

This issue of the WASP includes of a couple charts from our members: Positions for Giacobini-Zinner (1984e), printed by Ken Kelly, and my favorite, “Location of the Sun, Moon and Planets” by Raymond Bullock. After some direct copying, out of Sky & Telescope articles, we get a word search problem by Ken Kelly, promising answers next month (provided I can find a copy of the October 1990 issue by our publication deadline).

September 1990

This newsletter is the first I came across without cover art. I don’t have any earlier ’90 samples or any ’89 issues yet, so the actual “first” remains to be determined. Much about the layout suggests “desktop publishing” and I was tempted to start going with my desktop publishing software but for some reason, stuck with Word to recreate the issue.

“Journal Roundup” by Scott Jorgensen leads off the issue, where Scott discusses the astronomical news he came across since the previous month.

We also have a chart, “Ephemeris for Comet 1990c – Levy”, calculated by Ken Kelly and an article, “Anomalous Shadows of Saturn on Its Rings” by R. Stephen Franks.

Report from the Scanning Room

I’ve gone through the penultimate box in my possession of Kim Dyers collection. Once again, I hit pay dirt: thirteen more issues to scan. 1987 is now only missing 3 issues (10,11, and 12), I have a start on 1989 with a May issue; 1993 with Oct, Nov, and Dec; and 1994 with Jan-May and Dec. I also need to extend a belated thanks to Jim Shedlowsky for his WASP collection donation back in December.

Dale Thieme,
Chief scanner
**Treasurer’s Report**

**TREASURER’S REPORT FOR 8/31/2017**

**MEMBERSHIP**
We currently have 111 memberships, of which 29 are Family memberships.

**INCOME AND EXPENDITURES (SUMMARY)**
We took in $250.66 and spent $81.40. We have $19,560.28 in the bank and $277.66 in cash, totaling $20,088.60 as of 8/31/2017.

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<td>$15.00 AL memberships</td>
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**GLAAC REPORT 8/31/2017**
Beginning balance: $6,019.80

<table>
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<tr>
<th>INCOME</th>
<th>EXPENSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Activity</td>
<td>$22.00 Membership reimbursement</td>
</tr>
<tr>
<td>No Activity</td>
<td>$45.00 Snack reimbursement</td>
</tr>
<tr>
<td>No Activity</td>
<td>$14.40 Supplies for Stargate (batteries)</td>
</tr>
</tbody>
</table>

Ending balance: $6,019.80

Ruth Huellmantel  
Treasurer

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The W.A.S. Library

Come visit the breathtaking WAS library, located in the scenic rendering-server room at Cranbrook Institute of Science! In our library, you’ll find six shelves of books about:

- Observing every celestial object imaginable;
- Using and making telescopes;
- Popular and unpopular science;
- Science biography, science history, science fiction;
- Archives of our fifty-year history;
- and other stuff we can’t classify.

To check out a book, you simply have to be a member in good standing. At Cranbrook, see our librarian, Jonathan Kade, at the break. To have a book delivered to Macomb, simply request a book from the library list from Jonathan. Where do you see the list? It doesn’t exist yet! Hassle Jonathan to post it.

Club Members
Email publications@warrenastro.org for your personalized name tag.
BOARD MEETING - August 7, 2017

Present: Diane Hall, Mark Kedzior, Jeff MacLeod, Ruth Huellmantel, Joseph Tocco, Robert Trembley, and Brian Thieme

Absent: None

Meeting convened at: 6:34 PM

Officer's reports

President - Diane welcomed the Board.

1st Vice President - Mark noted that the presentation schedule is filled for the year and discussed a few ideas for filling the 2018 schedule.

2nd Vice President - Jeff reported on the interesting open-house and that he’ll be meeting with the Metropark Managers about the precarious stone skirting around Stargate and the wooden ramp that was recently installed.

Treasurer - Ruth summarized the financial standings and included that the Treasury report is in the WASP.

Secretary - Joe mentioned the meeting minutes are published in the current issue of the WASP and also mentioned that the request letters would be going out asking for donations for the December Christmas Party.

Outreach - Bob detailed an extensive list of outreach activities.

Publications - Brian noted that the WASP is on-line!

Old Business

Discussion Group - Gary Ross to host in September, October is open if someone is interested in hosting and Jon Blum is hosting in November.

Eclipse - Discussed the various expeditions to areas of the Eclipse path and also the need to support the various venues locally.

Joey Lico - an invitation was extended to the Board Members to attend Joey Lico’s Eagle Scout Award Ceremony, Joey’s bench and projection screen project helped him meet his requirements for Eagle Scout.

Insurance is up for renewal - Diane asked all Board members to review the policy so we can vote on it at the September Board Meeting.

Picnic - Post picnic review; the Board seemed to feel that the picnic was successful despite a light turnout. The format will remain the same for the 2018 picnic and Jeff will schedule the pavilion for the 21st of August.

New Business

MOTION: Ruth made a motion to reimburse Jonathan Kade $312.24 for Pay Pal Fees which was seconded by Jeff; approved by all members.

Fundraising ideas were discussed by all.

MOTION: A motion was made by Joe to donate a $20 gift card to the Ray Township Fundraiser, seconded by Bob Trembley and approved by all members.

MOTION: A motion was made by Joe to adjourn which was seconded by Jeff and approved by all members.
Meeting adjourned at: 7:25 PM

CRANBROOK MEETING - August 7, 2017

Meeting called to order at 7:30 PM by Diane Hall, President.

53 members present.

Officer reports were given as well as discussion group updates.

Diane reported that the picnic was a great success and wished success to all those traveling to see the Eclipse.

Main talk: “Maui Astronomy” by Jon Blum

Meeting was adjourned at 10:00 PM

MACOMB MEETING - August 17, 2017

Meeting called to order at 7:31 PM by Diane Hall, President

Diane Hall, President, made announcements the general announcements. Diane also summarized the Officer's reports from the June Board meeting.

Main talk: “Solar Eclipse” by Bob Trembley

Meeting was adjourned at 9:34 PM

Joe Tocco
Secretary

September 13 and 14

Prof. Kip Thorne (Cal Tech) will give two lectures in the area

On September 13 at the University of Michigan, Ann Arbor:
2018 Ta-You Wu Lecture in Physics | Exploring the Universe with Gravitational Waves: From the Big Bang to Black Holes

The talk will be given at the Rackham Graduate School Main Auditorium from 3:00-5:00 p.m.

On September 14 at Wayne State University:
Exploring the nonlinear dynamics of curved spacetime via computer simulations and gravitational wave observations

This talk may be somewhat technical. It will be scheduled for 3:45 - 5:00 p.m.
Scan the realm beyond Neptune for rogue worlds and new planets.

**BACKYARD WORLDS: PLANET 9**

Is there a large planet at the fringes of our solar system awaiting discovery? At Backyardworlds.org, you can help NASA search for this planet and for new brown dwarfs in the backyard of the solar system.

Volunteers at backyardworlds.org follow in the footsteps of Clyde Tombaugh, the discoverer of Pluto, but with help from modern technology and thousands of friends from around the world. You’ll view animated images from NASA’s Wide-field Infrared Survey Explorer mission, and click on moving objects. You might find a rogue world between us and Proxima Centauri—or even the elusive Planet Nine.

You’ll work with astronomers from NASA, Arizona State, American Museum of Natural History, Berkeley, and Space Telescope Science Institute on cutting-edge research to be published in the professional scientific literature.

Join this REAL ongoing scientific search now at BackyardWorlds.org
backyardworlds.org

• Launched February 15, 2017, commemorating the 87th anniversary of the discovery of Pluto.

• Over **1 million** animated color images combining data from 3.5 and 4.6 micron infrared wavebands.

• Over **3.6 million** classifications of a subset of those images made so far by about 100,000 participants.

• More than 100 brown dwarf candidates discovered, one confirmed so far; four citizen scientists are co-authors on the publication in the Astrophysical Journal Letters.

• Facebook: https://www.facebook.com/backyardworlds/

• Twitter: @backyardworlds, @backyardworldsSP

Backyard Worlds: Planet 9 uses data from NASA’s WISE telescope and NEOWISER mission, which is still collecting data! We will update the site as new images arrive.

Sixth grade class using Backyard Worlds: Planet 9 in Brampton, Canada

For more information, contact Marc.Kuchner@nasa.gov
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

<table>
<thead>
<tr>
<th>Club Name &amp; Website</th>
<th>City</th>
<th>Meeting Times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astronomy Club at Eastern Michigan University</td>
<td>Ypsilanti/EMU</td>
<td>Every Thursday at 7:30PM in 402 Sherzer</td>
</tr>
<tr>
<td>Capital Area Astronomy Club</td>
<td>MSU/Abrams Planetarium</td>
<td>First Wednesday of each month 7:30 PM</td>
</tr>
<tr>
<td>Farmington Community Stargazers</td>
<td>Farmington Hills</td>
<td>Members: Last Tuesday of the month</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public observing: 2nd Tuesday of the month</td>
</tr>
<tr>
<td>Ford Amateur Astronomy Club</td>
<td>Dearborn</td>
<td>Fourth Thursday of every month (except November and December) at 5:30 PM</td>
</tr>
<tr>
<td>Oakland Astronomy Club</td>
<td>Rochester</td>
<td>Second Sunday of every month (except May)</td>
</tr>
<tr>
<td>Seven Ponds Astronomy Club</td>
<td>Dryden</td>
<td>Monthly, see club website for times</td>
</tr>
<tr>
<td>Sunset Astronomical Society</td>
<td>Bay City</td>
<td>Second Friday of every month</td>
</tr>
<tr>
<td>University Lowbrow Astronomers</td>
<td>Ann Arbor</td>
<td>Third Friday of every month</td>
</tr>
<tr>
<td>Warren Astronomical Society</td>
<td>Bloomfield Hills/ Cranbrook &amp; Warren/MCC</td>
<td>First Monday &amp; third Thursday of every month 7:30 PM</td>
</tr>
</tbody>
</table>

For information, contact: waynestateastronomyclub@gmail.com

### GLAAC Club and Society Newsletters

- Warren Astronomical Society: [http://www.warrenastro.org/was/newsletter/](http://www.warrenastro.org/was/newsletter/)
- Oakland Astronomy Club: [http://oaklandastronomy.net/newsletters/oacnews.html](http://oaklandastronomy.net/newsletters/oacnews.html)
- University Lowbrow Astronomers: [http://www.umich.edu/~lowbrows/reflections/](http://www.umich.edu/~lowbrows/reflections/)

### WAS Member Websites

- Jon Blum: [MauiHawaii.org](http://www.mauihawaii.org)
- Bob Trembley: [Balrog's Lair](http://www.balrogslair.com)
- Bill Beers: [Sirius Astro Products](http://www.siriusastroproducts.com)
- Jon Blum: [Astronomy at JonRosie](http://www.jonrosie.com)
- Bob Trembley: [Vatican Observatory Foundation Blog](http://www.vaticanobservatory.org)
- Jeff MacLeod: [A Life Of Entropy](http://www.alifeofentropy.com)
The 2017 Solar Eclipse Across America
By Teagan Wall

On August 21st, the sky will darken, the temperature will drop and all fifty United States will be able to see the Moon pass—at least partially—in front of the Sun. It’s a solar eclipse!

A solar eclipse happens when the Moon passes between the Sun and Earth, casting its shadow on Earth. Sometimes the Moon only covers up part of the Sun. That is called a partial solar eclipse. When the Moon covers up the Sun completely, it’s called a total solar eclipse. As our planet rotates, the Moon’s shadow moves across Earth’s surface. The path of the inner part of this shadow, where the Moon totally covers the Sun, is called the path of totality.

The path of totality on August 21 stretches from Oregon to South Carolina. If you happen to be in that path, you will be able to experience a total solar eclipse! If you’re in any of the 50 United States during this time, you can see a partial solar eclipse.

No matter where you’ll be for the eclipse, remember that SAFETY is very important. Never look at the Sun when any part of it is exposed, like during a partial eclipse! It can hurt your eyes very badly. If you want to view the eclipse, you can buy special eclipse glasses. Go the NASA 2017 Eclipse Safety website to learn more about what glasses to buy.

If you are in the path of the total eclipse, you may look directly at the eclipse only when the Moon has completely covered the Sun. This is called totality, and it lasts a very short time. You must be sure to put your eclipse glasses back on before the Sun peeks out from behind the Moon.

You won’t be the only one watching this event! NASA scientists will use this eclipse to study our Sun. During a total solar eclipse, we can see the Sun’s atmosphere, called the corona. Usually the Sun is so bright that we can’t see the corona. However, when the Moon blocks out most of the Sun’s light, we can get a glimpse of the corona.

The surface of the Sun is about 10,000 degrees Fahrenheit, but the corona is much hotter. It’s about 2 million degrees Fahrenheit! The eclipse gives NASA researchers the chance to learn more about why the corona is so hot. In fact, while the eclipse will only last about two to three minutes in one place, scientists have found a way to have more time to
study it.

NASA will use two research jets to chase the eclipse as it crosses the country. The jets will fly very high, and spend seven minutes in the shadow of the Moon. Researchers are using jets to help look for small explosions on the Sun, called nanoflares. These nanoflares may help to explain the corona’s extreme heat.

Whether you’re watching with eclipse glasses from the ground, or in a NASA jet from the sky, the 2017 eclipse should be quite a show! It’s a fun reminder of our place in the solar system, and how much we still have to learn.

To learn about what eclipse glasses to buy and other eclipse safety guidelines, visit: [https://eclipse2017.nasa.gov/safety](https://eclipse2017.nasa.gov/safety)

To learn more about solar eclipses, check out this NASA Space Place video: [https://spaceplace.nasa.gov/eclipse-snap](https://spaceplace.nasa.gov/eclipse-snap)

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**For Sale**

The following pieces of astronomical equipment are for sale from Russell Tanton, on behalf of Margaret Meyer.

Please send your inquiries to: board@warrenastro.org

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Televue 7mm Nagler</td>
<td>$135</td>
</tr>
<tr>
<td>Televue 22mm Panoptic</td>
<td>$225</td>
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<tr>
<td>Televue 32mm Plossl</td>
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<tr>
<td>Televue 40mm Plossl</td>
<td>$70</td>
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<tr>
<td>Televue 15mm Plossl</td>
<td>$55</td>
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<tr>
<td>University 32mm Konig</td>
<td>$90</td>
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<tr>
<td>Meade eyepiece moon filter 07531</td>
<td>$10</td>
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<tr>
<td>Meade 1.25” camera adapter 07356</td>
<td>$15</td>
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<tr>
<td>Orion skyglow filter 1.25”</td>
<td>$45</td>
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<tr>
<td>Lumicon 1.25” OIII filter</td>
<td>$60</td>
</tr>
<tr>
<td>Orion ultrablock filter 1.25”</td>
<td>$50</td>
</tr>
<tr>
<td>Meade 10” Starfinder, Magellan 2, camera mount, and GEM Meade 6x30 finder scope Telrad</td>
<td>$450</td>
</tr>
</tbody>
</table>
For sale: Handmade reflector and equatorial mount

I have a 6 inch reflector telescope that my father made in his spare time while raising and family and doing all the stuff a father does. He made his own mirror, tube, gearing and other details necessary to couple the scope to a precision motor to drive the scope. Note the timing marks on the assembly as shown in one of the photos. My father was a tool maker by profession and found the time to make this telescope.

I also have a 10 inch telescope mirror that he received from Polaris Telescope store which was on Michigan Ave. in Dearborn and relocated to Arizona sometime in the late 1970’s. He had plans to make a 10 inch scope but never got the time to design and make the scope.

I am selling the telescope as shown in the pictures and the 10 inch mirror. If there is any interest that your organization or members have in either of these items I can be reached via my email address dwarmus@comcast.net.

Dan

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<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orion 90mm f/11 refractor with GEM Taiwan w/ Telrad finder</td>
<td>$200</td>
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<tr>
<td>Telrad base spare</td>
<td>$5</td>
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<tr>
<td>Orion 90mm solar filter</td>
<td>$40</td>
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<tr>
<td>Pentax T-ring</td>
<td>$10</td>
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<tr>
<td>Orion Megaview 15x80 binocular - Japan</td>
<td>$200</td>
</tr>
<tr>
<td>Night Observers Guide Volumes 1&amp;2</td>
<td>$35</td>
</tr>
</tbody>
</table>

Orion 90mm f/11 refractor with GEM Taiwan w/ Telrad finder $200
Telrad base spare $5
Orion 90mm solar filter $40
Pentax T-ring $10
Orion Megaview 15x80 binocular - Japan $200
Night Observers Guide Volumes 1&2 $35
For sale: Fiberglass Dome
I have a 6 foot diameter fiberglass dome that I would like to sell. I am only asking $250. I live in the Oxford area. I can be contacted either by e-mail at cw41000@aol.com, or by cell. My number is 248-802-0408.

Chuck Ward

Seven Ponds Open Invitation
WAS members are invited to The Seven Ponds Astronomy Club monthly meetings.

More information about upcoming meetings, maps to Seven Ponds Nature Center, etc. are available at http://www.sevenpondsac.com

Please let John Lines know if you might attend so that appropriate plans can be made: (248) 969-2790, or jelines1@gmail.com