

# REFLECTIONS / REFRACTIONS

# REFLECTIONS \ REFRACTIONS

University Lowbrow Astronomers Monthly Newsletter

September 2026, Vol 50, Issue 8

## IN THIS ISSUE

*Summary of Lunar Eclipse*  
by Jeff Kopmanis ..... 1

*Rebirth of an Observatory*  
by Brian Ottum ..... 2

*The Long Way Round: Moving 20 Years  
of Logs Into SkySafari Using AI:  
PART 3*  
by Roger Wade ..... 5

*Speaker Schedule* ..... 6

*IC1318 & Solar Eclipse*  
by Glenn Kaatz ..... 7

*Photos of the Partial Lunar Eclipse*  
by Club Members ..... 8

*Annual Picnic Report*  
by Brian Ottum ..... 9

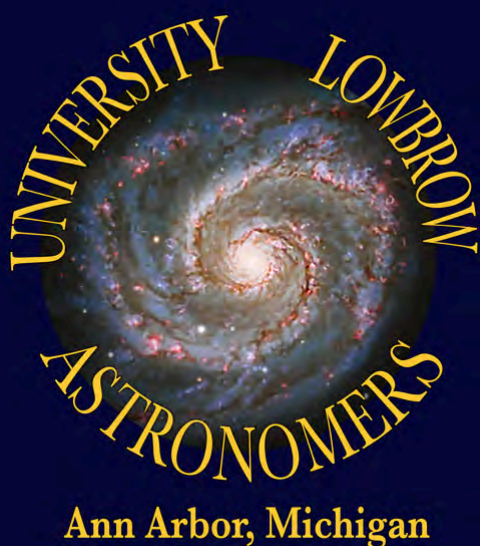
*Club Information* ..... 10



## SUMMARY OF LUNAR ECLIPSE Aug 27/28, 2026

BY JEFF KOPMANIS

More photos of the partial lunar eclipse  
by club members, page 8



# REBIRTH OF AN OBSERVATORY

BY BRIAN OTTUM

Once upon a time, I built a big observatory in my backyard. A friend found a 16' diameter fiberglass dome in Ohio, and I bought it for \$4,500 (1996). A carpenter built a 16' square deck, with an octagon of fat posts on which the dome's base rings sat. I remember using the ancient leveling tool (a water bucket with a tube coming out the side) to sand the 8 posts all within 0.125" of each other so the dome would always rotate easily by hand.

Before I moved to Michigan, I lived in Salt Lake City and knew a telescope builder. I bought his 20" f/5 dobsonian and eventually placed it on the big concrete pier inside the dome. Hundreds of people came to the dome (Girl and Boy Scouts, school classes, Lowbrows, neighbors, curious passers-by). I absolutely love sharing the night sky with others.

Then Canon started to sell a very exciting camera that had a Trash button. So I sold the 20" dob to Lowbrow Mike Kurylo and bought an imaging rig: 10" f/5 reflector, big MI-250 german equatorial mount, and a Canon 10D. I had a wonderful time capturing all the Messier objects, plus other bright NGC/IC objects.

Then the nearby prison put new lights in. Ugh. My dome was now "Prison Glow Observatory." So took a tour of the desert Southwest to check out possible remote observatory locations. I happened across a spot where fellow Lowbrow Dr. Stan Watson was getting ready to install his telescopes. He was gracious enough to enlarge his building a bit so I could install my 10" reflector.

About the same time (2014), I sold the dome because I wasn't using it anymore. It is located in a county park between Dayton and Cincinnati, OH.

The remaining observatory deck was neglected, so nature slowly and steadily took over. The juniper and cedar bushes grew to a stupendous 12' height! The trash trees encroached on the deck. Some of the wood started to rot. Woodchucks raised generation after generation of young 'uns underneath. Weeds started to grow up through the deck in places.



After COVID, I realized I had imaged all the "greatest hits" deep sky objects with my remote-control observatory. It was either get a bigger scope or sell. I sold. Then I switched from the solitary activity of controlling a scope from my basement PC to getting back out among humans once again. I bought an Electronic-Assisted Astronomy (EAA) rig: superfast 6" f/2.8 reflector, cooled color camera, AM-5 light mount, projector.

I had a great time putting on night shows for guests at resorts in Texas and Florida (and Peach Mountain and Scouting camp). Livestacking software is a true innovation that allows you to show a fantastic picture in just a minute of exposures.

Then dual-band filters became available. They allow for great images, even with prison glow skies. A real innovation for color cameras. So instead of the EAA quick-and-dirty imaging, I am turning back to long-exposure pretty pictures in 2026.

But the old backyard observatory was overgrown with thistles, weed trees, shrubbery. So I got out my chainsaw went to work. What a hot and exhausting job!

It was much more fun to mount my ZWO AM-5 tripod to the old concrete pier. My SharpStar 6" f/2.8 reflector was barely able to see Polaris between [new] big pine branches. EAA is fine with manual focusing, but for remote imaging I needed to add a focusing motor. EAA is fine with short exposures, but for long exposures I needed to add an autoguider on a small

REBIRTH OF AN OBSERVATORY continues, p.3

## REBIRTH OF AN OBSERVATORY continues...

scope (thanks to fellow Lowbrow Jeff Kopmanis). Most importantly, I needed a little computer to control this menagerie of technology. The ASIAir Plus is a wondrous little box. ZWO has steadily improved the computer over the years to a point where it can autonomously take pictures throughout the night (even moving from object-to-object, refocusing, doing a meridian flip).

Luckily, I had run electricity out there 30 years ago and it still works. But I had to get a 12V DC power supply that was weather resistant. But holy cow, look at all the cables! USB, power going everywhere. I still need to improve on cable management.

What about Internet? Decades ago, I ran electricity and a phone line to the observatory (a phone line!). Ethernet cable was around back then, but I was not smart enough to run that. And I am certainly not going to cut up the ground to run it now. So I talked to a mid-Michigan imager and he recommended a WiFi “blaster” to broadcast a strong signal from my house.

I ordered one and mounted it on the outside wall of my house (facing the observatory). Cutting a hole in the house to supply the “blaster” with an Ethernet cable seemed very scary to me. But I found that I could simply run it through a bathroom exhaust fan duct. Whew. The “blaster” (WAVLINK AX300) offers both 2.4Hz and 5Hz wifi networks. With the 5Hz, the speed at the telescope is fast (over 200Mbps). I would not have been able to install the new mesh WiFi network, plus the “blaster”, without AI help.

**REBIRTH OF AN OBSERVATORY continues, p.4**



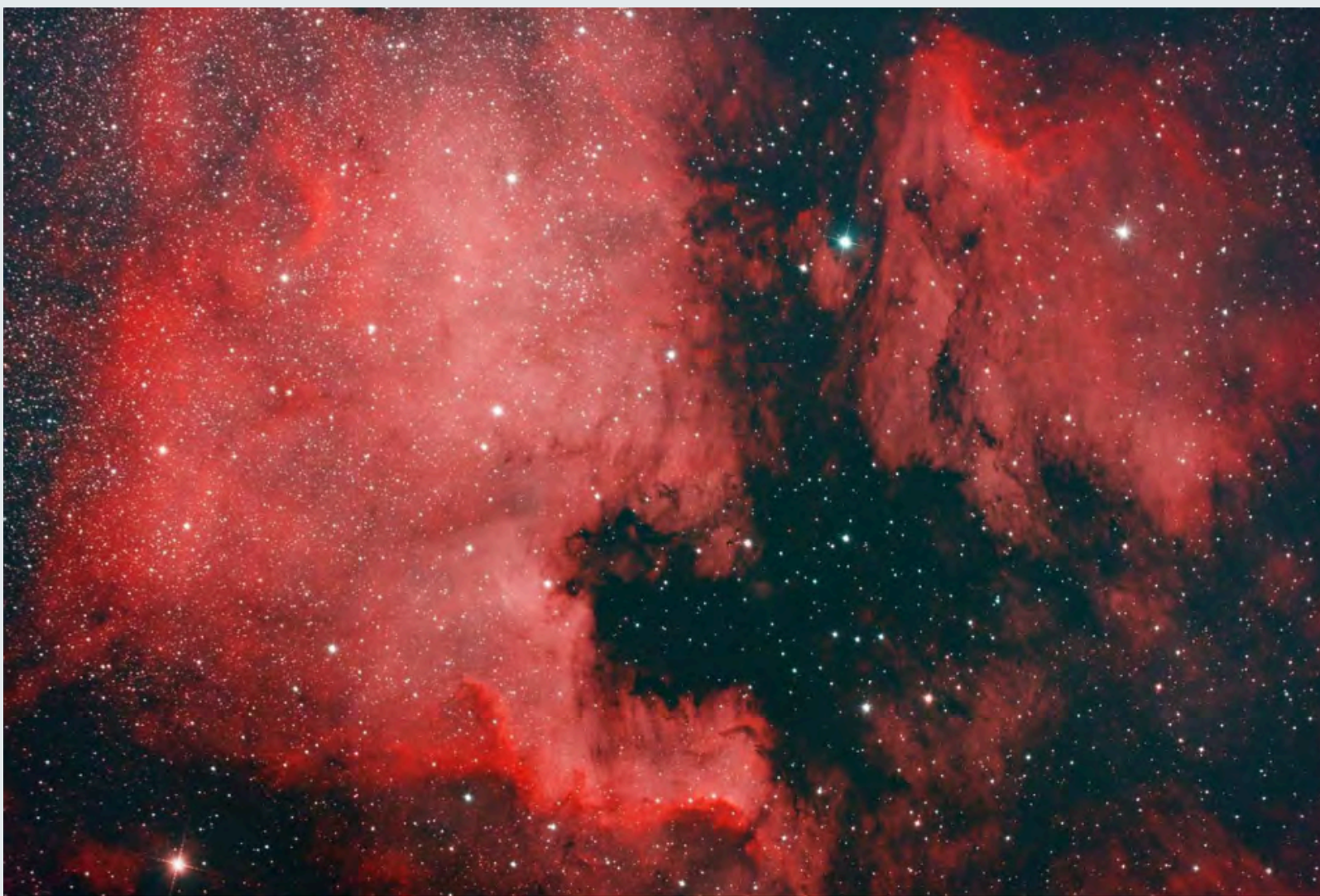
## REBIRTH OF AN OBSERVATORY continues...

The final construction item was some sort of protective cover. I really wanted some sort of box that could pivot 90 degrees to expose the scope. Then later I might be able to make the operation totally remote controllable with a garage door opener system. Alas, this was too hard. Al helped me design a lightweight box that covers the rig. I used 1" sch40 PVC pipe to create a rectangular frame the size of a small refrigerator. The covering is "Coroplast" which is corrugated plastic (screwed to the pipe). Finally, the corners are sealed with white duct tape. No, it is not a permanent solution. But it will work for a year or two. A ratchet strap holds the box down securely to the deck. I had some old desiccant tins that I dried out and placed inside.

Last week was "first light" for the complete rig and workflow:

- Uncover at sunset, plug in
- Go in the house and log into the telescope's computer
- Set up an all-night plan: object(s), # of exposures, camera settings, etc.
- Sleep
- Go out at 9:30am after the sun has had a chance to burn off the dew
- Unplug, cover the scope
- 

I'm working on a dim object, Wolf-Rayet 134, so I don't have any results to show yet. But here is a long exposure shot with this rig, from my backyard. North America Nebula plus the Pelican. ☐



Hopefully, I will have some good shots to share with the Lowbrows.

## THE LONG WAY ROUND: MOVING TWENTY YEARS OF LOGS INTO SKYSAFARI WITH AI: PART 3



**BY ROBERT WADE**

The first scale test was the obvious one: inject a batch of observations from the biggest catalogues, Messier, NGC, IC, the objects that make up the bulk of any observer's log, and see whether the single-object recipe held across many objects at once, not just one. It did, immediately and without exception. That was reassuring, but the AstroPlanner logs did not stop at the big three. Objects were drawn from more than sixty catalogues, many of them obscure, and the real difficulty of the project turned out to live there.

The central difficulty was that SkySafari's catalogue knowledge splits into two systems that do not agree with each other. One is SEARCH: type a catalogue name into the app and it will usually find the object, because SkySafari's own database genuinely contains it. The other is what happens when an observation is written into the file directly, as ours were. On being viewed for the first time, SkySafari tries to match the identifier we supplied against its own catalogue and, if it succeeds, replaces our minimal entry with its own richer record: correct position, correct name, correct thumbnail. If it fails, the observation sits there as "[Unrecognized]", present in the database but orphaned from the sky. Search finding an object says nothing about whether an injected observation will bind to it. Early on, this cost real time: catalogues the app plainly knew about, by name, still would not accept an injected log.

There was no documentation of which catalogue prefixes the injection path accepts, so we had to establish it empirically. The method, worked out with Claude, was a synonym probe: pick one representative object from a catalogue family, write a single test observation for it under a candidate identifier, inject it into a copy of the database, open SkySafari, and see what came back. Repeat with a different candidate spelling if the first one failed. It is a slow, one-object-at-a-time process, but it is the only reliable way to establish ground truth against a closed, undocumented application, and it is the same fabricate-and-observe method from Part 2, now aimed at the catalogue system instead of the observation format.

Beyond the big three, the results were often unintuitive. Collinder open clusters would only bind under their abbreviation, "Cr 421", never the full word "Collinder 421", even though SkySafari's own search recognises both. Stock clusters, by contrast, accepted either form.

Trumpler clusters would only bind by their full name, not the abbreviation some AstroPlanner records used. And the Abell catalogue held a genuine trap: "Abell" is used for two entirely different things, 1958 galaxy clusters and 1966 planetary nebulae, and SkySafari's injection path

binds the identifier to the galaxy cluster every time, regardless of which one AstroPlanner meant. The nebula's own log had to be reinjected under its alternative Perek-Kohoutek identifier instead, or it would have silently attached itself to the wrong kind of object entirely.

One shortcut looked, for a while, like it would save weeks of this one-by-one testing. SkySafari also stores a compact internal numeric code for each catalogued object, and for some catalogues that code can be computed directly from the catalogue number, without testing anything. If it had worked in general, it would have replaced the whole probe exercise with arithmetic. It did not, and it failed in the worst possible way: silently. When a computed code did not correspond to a real SkySafari object, the app did not reject the observation or flag it. It attached the log, its correct catalogue name still showing in the title, to whatever unrelated object the malformed code happened to resolve to. Tried at scale, several observations ended up attributed to the Sun. Others ended up attributed to the Large Magellanic Cloud. A log correctly titled for a distant galaxy would appear to succeed, complete with a real object attached to it, just the wrong one. The only way to catch this was to compare, methodically, what the database claimed against what should have been there. We dropped the shortcut and went back to the slower, verifiable method. An honest "[Unrecognized]" is a minor nuisance. A wrong answer that looks right is a real hazard, and it is the one failure mode in this whole project that would not have announced itself.

By the time every catalogue quirk we could find had been tracked down, of the 3,108 original log entries (3,123 once a handful of multi-eyepiece sessions were split into separate records, as SkySafari expects), all but 42 were bound to their correct catalogue object. The 42 that remain are genuinely obscure: uncatalogued asterisms with no formal identifier at all, a couple of Abell clusters and planetary nebulae with no clean SkySafari equivalent, and a handful of open clusters and galaxies that exist in no catalogue SkySafari's injection path recognises. These are parked in a spreadsheet, not lost, for one-by-one recovery later by capturing a real in-app identity for each and reinjecting it: the same technique that solved the Collinder and Stock puzzles.

**THE LONG WAY ROUND continues, p. 6**

The last step was signing back into the LiveSky cloud account, disabled in-app for the whole project so that local testing would not leak to the server. Watching the full offline build push and merge with the cloud was the payoff moment: every one of the 3,123 injected observations was accepted, with a stable server identifier assigned to each, and the cloud reported zero errors. That is a validation independent of anything we tested locally: LiveSky's own merge logic, not our script, confirms the data is well formed. The final count came back as 3,125, two more than we pushed. The two extras turned out to be harmless leftovers: a pair of test observations from early in the project, deleted locally months ago but never deleted from the server, resurrected by the merge. A minor loose end, not a data problem, and one now tidied up in-app so the deletion propagates properly this time.

Looking back on what Claude actually contributed here, the value was less in any single clever answer and more in the pace of iteration. Writing a Python script to diff two database snapshots, adjusting it, running it again, took minutes rather than the hours it would take by hand, and that speed is what made an empirical, one-object-at-a-time probe a practical strategy rather than a theoretical one. The coding to do this was well beyond my capability. Pattern recognition across dozens of catalogue spellings, keeping track of which forms had and had not been confirmed, and generating the repetitive mapping code were all places an AI collaborator earned its keep. What it could not do was decide, on its own, when a result was actually correct. The catnum shortcut looked plausible and was wrong; only checking the real, running application, object by object, caught it. Deciding what counted as close enough to inject, and what to park honestly rather than force, stayed a human judgement throughout. I would recommend this kind of AI-assisted reverse engineering to anyone facing a similarly undocumented format, with one condition: treat every claimed success as a hypothesis until you have verified it against the real application. Software, AI-written or not, will report a confident wrong answer if you let it.

Twenty years of observing, three thousand-odd logs, a fair few of them typed in by hand at the eyepiece in the dark, are now live in SkySafari. That was the whole point of starting down this road: one program, one observing history, instead of two. □

## UPCOMING SPEAKER SCHEDULE

**September 18:** canceled  
(conflict with AATB)

**October 16: Jim  
Shedlowski**

**Topic:** Peenemunde: The  
Birthplace of Space Travel

**November 20: Sebastian  
Garcia**

**Topic:** Telescopius Software  
Update

**December 18: Jim  
Shedlowski**

**Topic:** From Peenemunde  
to the Moon

**January 15: Cayanne Matt**

**Topic:** Evolution of scaling  
relations between galaxy  
properties and  
supermassive black hole  
mass

**February 19: TBA**

# IC1318 & SOLAR ECLIPSE

BY GLENN KAATZ

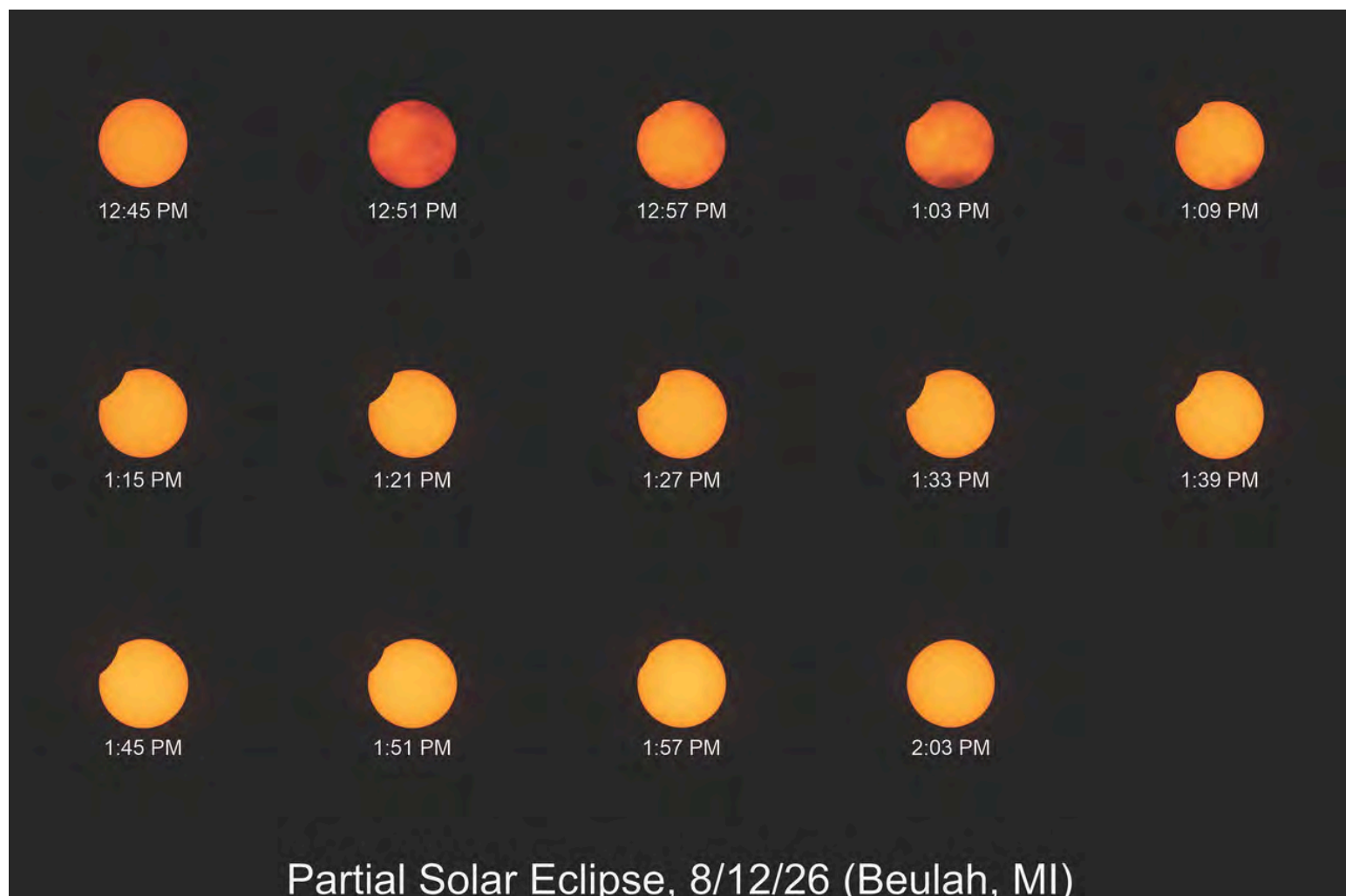
At right is IC1318, the Butterfly Nebula, near the supergiant star Sadr in Cygnus, approximately 5,000 light years away. Acquisition details were as follows:

William Optics Z6III refractor, William Optics field flattener, ASIAir Plus, ZWO EFW Mini, ZWO off-axis guider with an ASI120MM mini guide scope, ASI1600MM Pro (cooled) camera, Astrodon 5nm Ha, Baader 6.5nm OIII, and Baader 6.5nm SII 1.25 inch filters, ZWO AM5N mount

72 X 300 sec Ha, 90 X 180 sec OIII, and 54 X 300 sec SII for a total integration time of 15 hrs



Below: Partial solar eclipse: Coverage was 10% here. I used a tripod mounted Nikon D850 with a Tokina 16-28mm lens set at 16mm. Shutter was 1/400 sec, f/9, ISO 1600 with a solar filter installed. Maximal eclipse was at 1.27 pm. ☐



Partial Solar Eclipse, 8/12/26 (Beulah, MI)



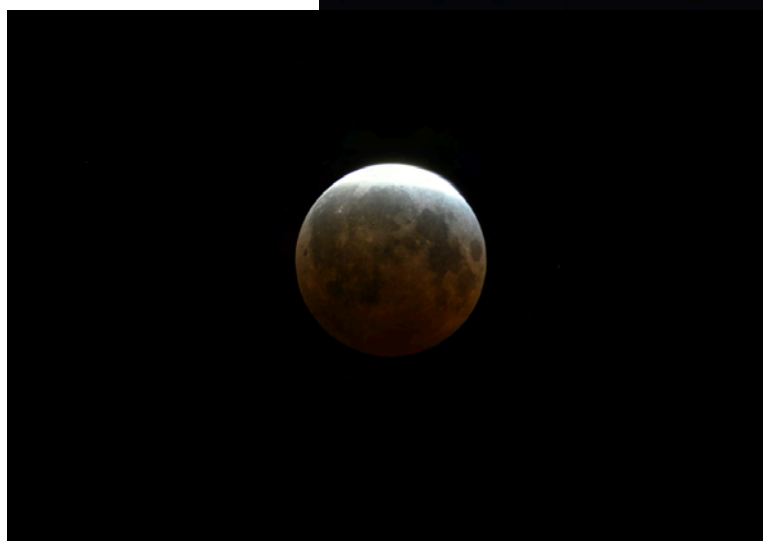
**Left: PRITHVI DASGUPTA:** “So here's a shot of the Burton Tower with the eclipse, with a Sony A 6600 on w/ a 24mm lens.”



**Right: BRIAN OTTUM:** “Here's a .2sec exposure at 12:10am maximum. 6" f/2.8, ASI2600color, AM-5.”



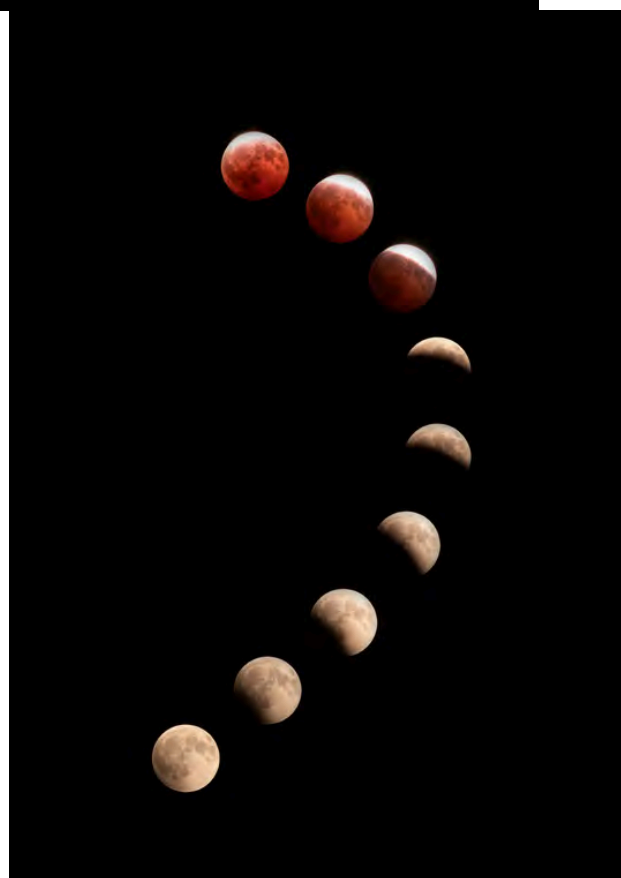
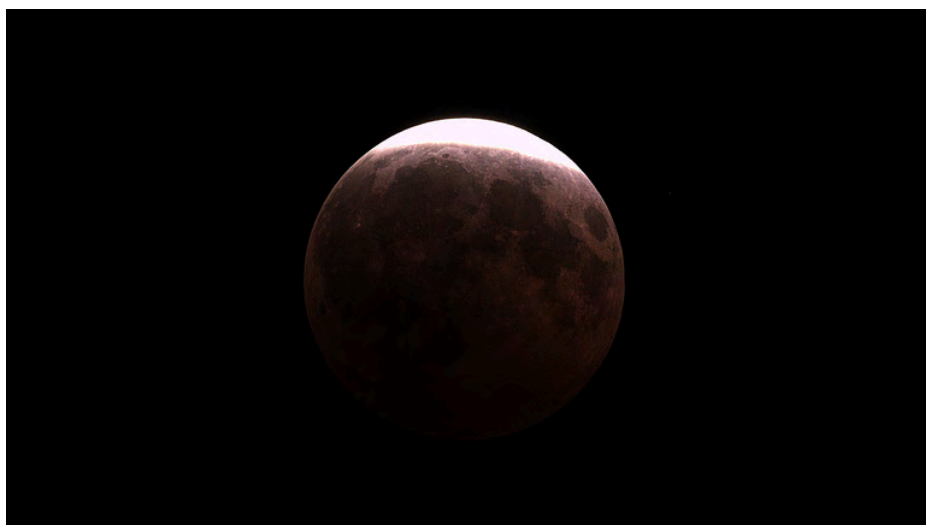
**At right: NELLE DOUG:** “I think this best matched the view in my 8x40 binocs. Maybe a little darker.”



**Above: JACK BRISBIN:** “Used my Orion Starmax 102 mm Mak Cassegrain & 36mm/72 degree Hyperion eyepiece with my cell phone.”

**Right: AMY CANTU:** “A composite from my yard.”

**Below: JOHN RIDLEY:** “Dwarf 3 from my back yard.”



## **LOWBROW PICNIC A SUCCESS!**

**BY BRIAN OTTUM**

On Friday, August 21 the Lowbrows gathered at the Saline home of Brian & Mona Ottum for dining and observing. The former was great. The latter was not.

In attendance were Jeff & Gretchen K., Keyon W., William P., Joe P., Don & Jan F., Ed & Linda P., John & Julie W., Ken & Barb R., Jeff R., Norb V., Doug N., Adrian B., Charlie N. & Vanessa, Jim & Ginia F. and Mike K.

Brian grilled cheeseburgers and bratwurst. Mona made homemade lemonade and iced tea. Everyone brought either a side dish or dessert. We had an abundance of fantastic food. The conversation was great.

However, the clouds stayed for the party. Brian brought out his 26x100 binoculars and many guests were able to see brief views of the moon (Clavius and the Apennine Mountains). □

## **NO MINUTES THIS MONTH**

**NO MEETING NEXT MONTH:  
VISIT ASTRONOMY AT THE BEACH (AATB)  
INSTEAD. 9/18-9/19**

**Details here: <https://www.glaac.org/>**

## PLACES & TIMES

Monthly meetings of the University Lowbrow Astronomers are held on the third Friday of each month at 7:30 p.m. The location is usually the Judy & Stanley Frankel Detroit Observatory. The Observatory is located at 1398 E. Ann St., Ann Arbor. The Ann Street Parking Structure (M86), the Catherine Street Structure (M5), the Glen Street Structure (M61), and the School of Public Health II Lot are usually open after 6:00 p.m. Mon-Fri. The M86 structure is closest to the Detroit Observatory.

Peach Mountain Observatory is the home of the University of Michigan's 25-meter radio telescope and McMath 24" telescope, which is maintained and operated by the Lowbrows. The entrance is addressed at 10280 North Territorial Road, Dexter MI, which is 1.1 miles west of Dexter-Pinckney Rd. A maize and blue sign marks the gate. Follow the gravel road to the top of the hill to a parking area south of the radiotelescope, then walk about 100 yards along the path west of the fence to reach the McMath Observatory.



## PUBLIC OPEN HOUSE / STAR PARTIES

Public Open Houses / Star Parties are generally held on the Saturdays before and after the New Moon at the Peach Mt. Observatory but are usually canceled if the forecast is for clouds or temperatures below 10 degrees F. For the most up-to-date info on the Open House / Star Party status call: (734) 975-3248 after 4 pm. Many members bring their telescope to share with the public and visitors are welcome to do the same. Mosquitoes can be numerous, so be prepared with bug repellent. Evenings can be cold so dress accordingly.

Lowbrow's Home Page  
<http://www.umich.edu/~lowbrows/>

## MEMBERSHIP

Annual dues are \$30 for individuals and families, or \$20 for full time students and seniors age 55+. If you live outside of Michigan's Lower Peninsula then dues are just \$5.00. Membership lets you access our monthly newsletter online and use the 24" McMath telescope (after some training). Dues can be paid by PayPal or by mailing a check. For details about joining the Lowbrows, contact the club treasurer at: [lowbrowdoug@gmail.com](mailto:lowbrowdoug@gmail.com)

### Newsletter Contributions:

Members and non-members are encouraged to write about any astronomy-related topic. Contact the Newsletter Editor: Amy Cantu [cantu.amy@gmail.com](mailto:cantu.amy@gmail.com) to discuss format. Announcements, article, and images are due by the 1st day of the month as publication is the 7th.

### Telephone Numbers:

|                       |                                |
|-----------------------|--------------------------------|
| President:            | Charlie Nielsen (734) 747-6585 |
| Vice President:       | Don Fohey                      |
|                       | Brian Ottum                    |
|                       | Ken Cook                       |
|                       | Tim Miller                     |
| Treasurer:            | Doug Scobel                    |
| Observatory Director: | Jack Brisbin                   |
| Newsletter Editor:    | Amy Cantu                      |
| Key-holders:          | Jim Forrester                  |
|                       | Jack Brisbin                   |
|                       | Charlie Nielsen                |
| Webmaster:            | Barry Chapman                  |
| Online Coordinator    | Jeff Kopmanis                  |

**A NOTE ON KEYS:** The Club currently has three keys to the Observatory and the North Territorial Road gate to Peach Mountain. University policy limits possession of keys to those whom they are issued. If you desire access to the property at an unscheduled time, contact one of the key-holders. Lowbrow policy is to provide as much member access as possible.

Email to all members  
[Lowbrow-members@umich.edu](mailto:Lowbrow-members@umich.edu)