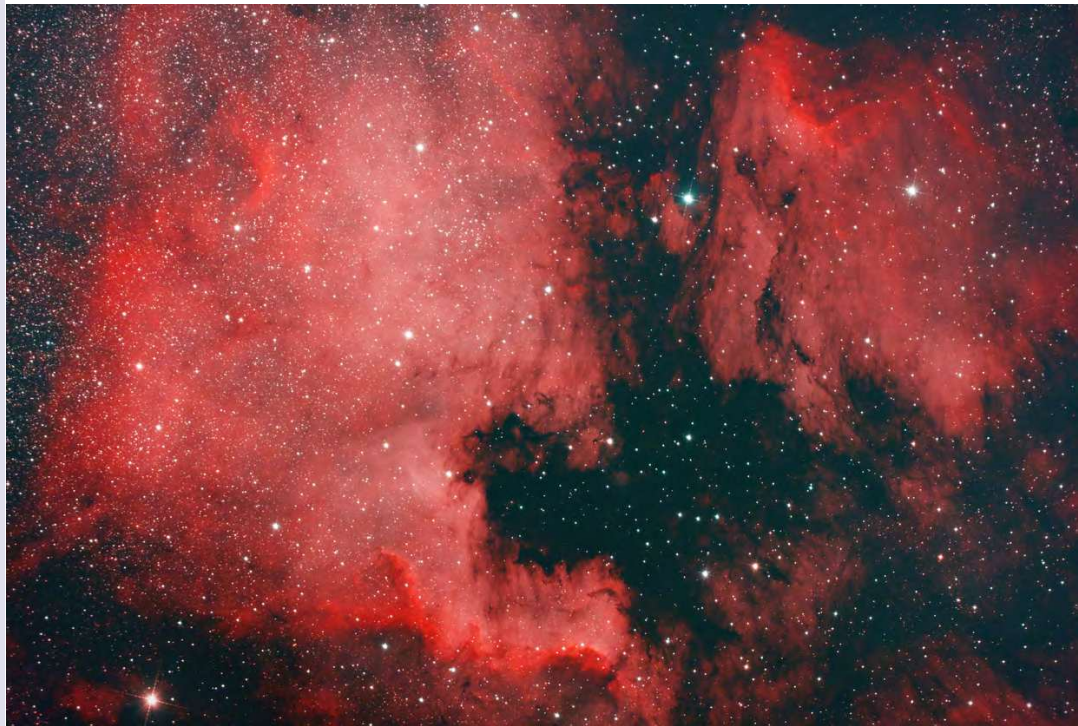


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## NORTH AMERICA AND PELICAN NEBULAE

BY BRIAN OTTUM

This was taken in mid-November from my light-polluted backyard in Saline. It was the longest I've ever stacked an image – 3 hours straight! SharpCap is a great program.

**Details:** ZWO2600 color camera, NBZ filter, 60" images, 6" f/2.8 reflector, AM-5 mount. ■



# ASTROPHOTOGRAPHY WITH STELLARMATE X

BY CLAYTON KESSLER

I have used a fair number of software packages to capture images and manage the capture process in my observatory. Most have worked pretty well although they have had a number of different capabilities. I can remember using “Sequence Generator Pro” which had “autofocus” and thinking nothing could be better than this!

Eventually, Jeff Thrush introduced me to a program called “StellarMate” that ran on, of all things, a Raspberry Pi 3 or 4 microcomputer. I was impressed by the powerful feel of the software on the simple Raspberry Pi – running on some flavor of Linux without the Windows overhead was very nice. I happily ran on this for some time until I started to experience shutdowns with the RPi. I concluded that I needed a new Pi board – no problem, they were pretty inexpensive. But - problem! We are in a “chip shortage” and RPi 4 boards are unavailable. At this point, I went back to my laptop running NINA and kept on going. NINA worked pretty well, although I did miss the functionality of KStars from StellarMate.

Sometime later Jeff Kopmanis mentioned “StellarMate X” which combined StellarMate with a fanless Intel-based mini computer. I decided that I needed this in the observatory and an order was placed for a system of my own.

A little background on my “Old Man” preferences: The Raspberry Pi system and this mini-computer were both meant to mount to the telescope and ride along, being controlled through a smartphone or a tablet. I prefer a little more display real estate and a mouse/keyboard for control. (I don't text much either). Fortunately, the USB3 cable from my mount plugged right into the computer and it made itself at home on my desktop in the observatory. I was able to get it to interface with a Samsung Tablet I have which will make focus for the guide scope very easy.



**The box that arrived is pictured here next to my old RPi 4 and in front of my Thinkpad that I run NINA on. As I unpacked the system it looked pretty simple!**



**The computer with a power supply was all that was needed.**



**Add the Keyboard and mouse from the RPi and I was ready to rock!**

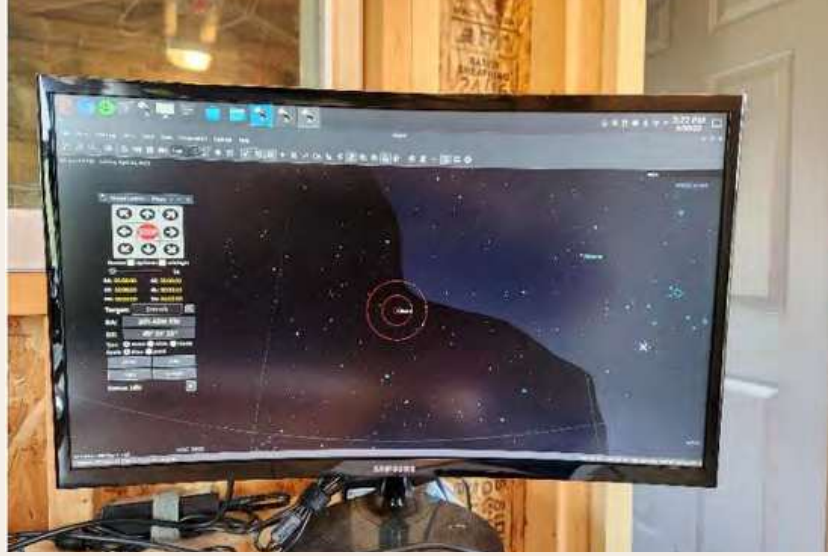
STELLARMATE X continues, p. 3.

**STELLARMATE X** continues ...

Not to say that there were no “changes.” The program got more “mature” and added a lot more setup choices for autofocus and the like. Something called “optical trains” became important, and I am not sure I understand everything about that. However, it works and that is the most important!

After a few sessions, delayed by smoke and general Michigan weather, I got the main features figured out and operating all at once. The following photo [at bottom] was taken in late August with a bright moon in evidence using plate solving, autofocus, and re-focusing automatically at a timed interval ... while I snoozed on the couch. The shot consists of 24 X 300-second exposures with appropriate darks, flats, and bias frames. It was shot using a ES127ED refractor, a QHY 263C one-shot color camera, and an L-Enhanced filter. Stacked and calibrated using Astro Pixel Processor and finalized using Photoshop.

We are fortunate to have a wide number of nice



**Everything seems to work out of the box and I get KStars and EKOS back!**

software/hardware choices to help automate the astrophotography process, from the ASI Air (a nice RPi-based system) to the original Stellarmate, Sequence Generator Pro, The Sky X, Nebulosity, or any of the many other offerings out there. Stellarmate X at \$349.00 seemed to be a good match to me and it has proved to be!

Check it out at - <https://www.stellarmate.com> ■



# LOWBROW MEMBER SURVEY - SUMMARY

## BY BRIAN OTTUM

Thank you to the 87 of you who took the time to carefully complete our first-ever member survey! Over a third were long-time (10+ years) members, but we also had a third who are newer members (<5yrs) plus some ex-members. The objective of the survey was to better understand what our members want.

### **We Are a Mature Club**

41% are 65+

The median age of 10+ year members is ~70

The median age of <5yr members is 54

### **Members are Highly Satisfied**

82% are either “very satisfied” or “satisfied” with their membership

No difference between long-time and newer members

### **The Club Offers Many Valuable Benefits**

Respondents indicated they have several astronomy interests

The #1 interest is visual observing (28% said either solo or w/club observing is their #1 favorite interest)

Close #2 interest is doing astrophotography (AP) – 23% said it was their #1

But half indicated that some other pursuit is their #1 (keeping up on the latest astro events, hearing good talks, the social interaction with like-minded people, public outreach, ATM, doing science)

### **Newer Members Are More Astrophotography-Oriented and Less Visual**

39% of <5yr members have astrophotography (AP) as their #1 interest

Just 13% of 10+ year members have AP as their #1 interest

Conversely just 14% of newer members listed solo visual observing, compared to 24% of long-time members

### **Lots of Ways to Get Involved in the Club**

90% say they read the newsletter (at least 3+ times)

68% say they attended meetings (at least 3+ times)

47% say they went to Peach Mountain during public open houses (3+ times)

Only 42% say they have reached out to a member for assistance (3+)

Only 38% have been to a private Peach Mountain evening

Only 30% have been to a non-Peach public outreach event

Only 4% have borrowed a club telescope

### **Members Want to Know Dark Places**

63% want to learn dark places to go observing (or do AP)

53% want to learn more about the night sky

49% want to learn AP

Many other wants (which equipment to buy, how to use my telescope, share my AP, armchair astronomy, social interaction)

### **COVID/Flu is a Concern for Some**

71% say that it is a minimal concern or none at all

29% say it is a moderate or significant concern (that can keep them from attending)

### **Members Willing to Pitch In**

28 (not %) respondents said they'd be willing to bring a scope to Peach Mountain

27 said they'd be willing to contribute images to the newsletter

26 said they'd write for the newsletter

19 said they'd learn a Peach Mountain telescope for open-house support

16 said they'd help improve the website

16 said they'd help by using social media

10 said they'd help edit the newsletter

8 said they'd be Peach Mountain open house coordinator

6 said they'd help lead the club

Other miscellaneous answers

### **New Offerings Are of Interest**

48% are interested in going on a dark site weekend (“significantly interested” or “extremely interested”)

48% say they are either significantly or extremely interested in a field trip to observe an astronomical event (eclipse, meteor shower, comet, etc.)

45% are interested in a field trip with an astronomical theme (PlaneWave factory tour, planetarium, etc.)

46% are interested in Special Interest Groups (SIGs)  
There was only moderate interest in an online roster/bio of members, and a periodic Zoom for onboarding new members.

**SURVEY RESULTS** continues, p. 5.

## SURVEY RESULTS continues ...

Little interest in a purely social Zoom  
Newer members were especially interested in the dark site weekend and SIGs

### Why Did You Join?

Many different written answers to this question  
Most common theme was the love of astronomy and wanting to be around like-minded people  
Bought a telescope  
Retired and have more time now  
Want to learn AP

### Why Are You Satisfied (or not)?

Long-time members love the social interaction but health is starting to limit their participation  
Newer members like the social interaction,

newsletter, email discussions, talks, assistance. Some newer members as well as ex-members noted that it is sometimes hard to make initial introductions

### How Can We Do Better?

Long-time members would like to see more participation, especially by newer/younger members  
Newer members want astrophotography workshops/tutorials, beginner's nights on Peach, virtual "how-to's", dark sites map  
Some newer (and ex) members feel that they receive too many emails  
Some desire to improve the website

**The officers are working on using these results to improve the club. Everyone is encouraged to pitch-in and participate. ■**

## UPCOMING MEETING SPEAKER SCHEDULE

**December: 15:** David Gerdes, Chair UM  
Physics. Topic: **Shadow of a Fossil:**

**Stellar Occultations and NASA's Lucy  
Mission to Jupiter's Trojan Asteroids**

**January 19:** Melissa Kaelin, Michigan  
Aurora Chasers

Topic: **Outsmart Space Weather  
Forecasts to Catch Aurora in Your  
Backyard**

**February 16:** Rosalyn Friend, EMU Physics  
graduate, Topic: **Atmospheric Gravity**

**Waves and Solar Eclipses**

**March 15:** Jim Shedlowski, Topic:

**Searching for the Dark Universe**

**April 19:** Jeff Kopmanis, Club Online  
Coordinator, Topic: **Automated**

**Astrophotography (On the Cheap)**

## DARK SITE LOCATIONS

In response to the member survey, we've added a new page on the website with details about nearby dark sky locations:

<https://lowbrows.club/observing-sites>

(Thanks to Jeff Kopmanis,  
with help from Adrian Bradley.)

If you'd like to contribute to this online list, please send the following details to Jeff Kopmanis:

- Short description
- What amenities it has
- Pros (what you like about it)
- Cons (what you don't like about it, or stuff that's lacking)
- A website URL, if they have one
- An address or Google Maps location so we can include a map

# FROM THE DESK OF THE NORTHERN CROSS OBSERVATORY

BY DOUG BOCK

On the night of November 18-19, 2023, it was clear enough to do some imaging. I scheduled a run on 5 comets, a nebula, and a galaxy.

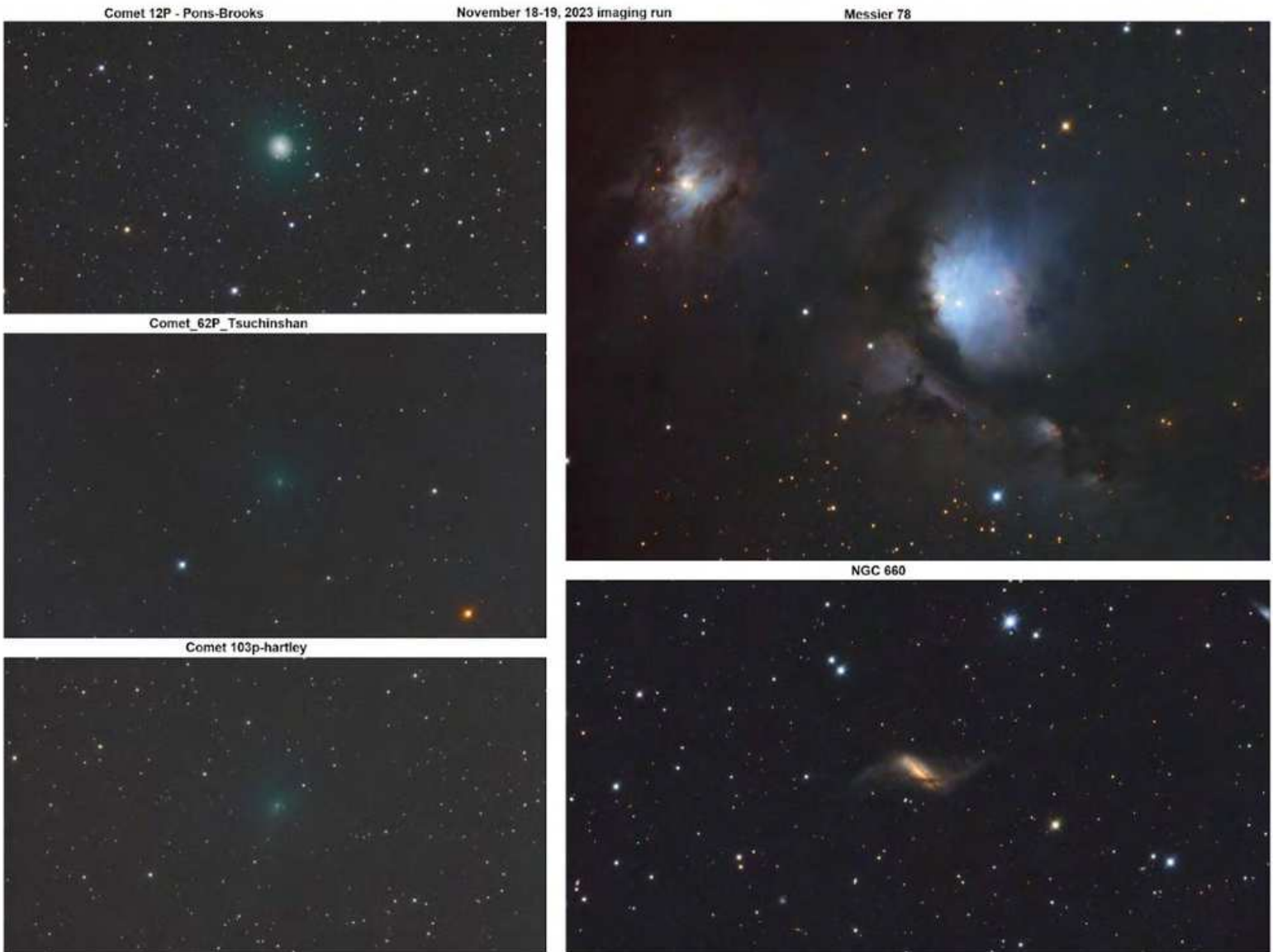
First up was Comet 12P/Pons-Brooks. I took about 48 frames at 2 minutes each but ended up only using about 4 frames for this first image. It is fairly bright to image at around 8th magnitude.

I ended up not using data from 2 comets due to their dimness.

On to NGC 660 for about 3 hours of data, as seen in the lower right of this collage.

Then Messier 78 for 2.5 hours shown in the upper right.

Finally, Comets 62P-Tsuchinshan and 103p-Hartley, using only 1 or two frames acquired. 103P was in last month's issue with 43 frames stacked on the comet. ■



All images taken with the 10" f/8 RC and ZWO asi2600mc pro camera, at gain 100, and temp 0C.

# REVIEW: CELESTRON COMETRON 7x50 BINOCULARS

BY ED HERNANDEZ

I purchased these binoculars on a recommendation from one of Ed Ting's videos. I had researched quite a few binos but wasn't ready to take the plunge into a "proper astronomy" expensive pair. For comparison, I have an old Olympus 10x25 binos that my late father gave me years ago; however, according to my research, this magnification and aperture are not recommended for stargazing. I can say that using those old binos required a steady hand. So, for \$34, I thought why not try these cheap 7x50s?

I took them up to Headlands International Dark Sky Site on Sept 18, where I was blown away by pointing them anywhere in the sky, especially the Milky Way. Now I can appreciate the advice for lower power and larger aperture. I love seeing more sky than the old 10x binos, and of course, they are less sensitive to shaky hands. I can also see more detail than the 10x25s. I don't remember looking at planets that night, since I had my scope for that, but I could definitely see the Andromeda Galaxy.

In my backyard on November 14 (the same night that Don went to Hudson Lake), I was able to pick out the large disc that is Jupiter, and one satellite. When I braced myself against a tree, I could resolve a total of three satellites that night: Ganymede, Io, and Callisto. I will admit that Ganymede was easy, but I needed averted vision to count the other two. Europa was supposed to be visible, but I can't claim I could resolve it; either that or I had mistaken Europa for Callisto. Or maybe I thought both of them were just one little diamond since both were on the opposite side of Jupiter compared to Ganymede and Io. Anyway, then I pointed the binos at Saturn and could easily tell that "it ain't round." I cannot resolve the rings, of course, but I can make out the lobes that represent the rings, and what angle they were oriented. When I got back inside, I verified the orientation of the rings in Stellarium matched what I saw in the binos. I could not find H2 Lemmon, but then again my backyard is in Canton. If I had been able to meet Don in Lake Hudson, I hope I'd have been able to pick it out.

The funniest endorsement, however, comes from my friend who accompanied me to Headlands, which I



wrote about in the October 2023 Reflections. When I told him to point them anywhere into the Milky Way, their immediate reaction was, "Ugh! That's just making me sick. There are SO many <bleeping> stars!" and they handed them back to me.

Two things I don't like, which likely are the result of this price range: First, after about two months, it seemed the focuser stopped working. When I got back inside, I saw that the two eyepieces were quite loose and would rock back and forth, which is why I thought the focuser stopped working. I pulled back the vinyl cap on the end of the focuser shaft, and sure enough, I found the screw was loose. I tightened it back up to eliminate the rocking and the focuser began working again. Second, the focuser has some mechanical hysteresis in it and I don't think it's on purpose. This means you have to rotate it a bit before the eyepieces start moving in the other direction compared to a prior attempt. It's likely due to excessive gear clearance in the focuser system, or perhaps I had tightened the screw too much. In comparison, the old 10x25s had far less hysteresis.

In summary, if you're considering your first binoculars for stargazing, I would highly recommend this model, despite my two problems. I can focus well enough to resolve the largest Jovian satellites into sharp diamonds, and I can resolve Saturn's rings into lobes at the correct orientation. I can make out the Andromeda galaxy, and, as my friend says, "There are so many <bleeping stars>". It has a good balance between magnification and aperture, they are lightweight, and they are inexpensive. Compared to my 10x25s, they are far more satisfying to use, so much so that I stopped using the 10x25s and only use these 7x50s. ■

# OVER THE HORIZON

BY JACK SPRAGUE

Holidays! Always a lovely time of year and for me, notoriously cloudy.

We're rolling the dice hoping for any sort of holiday clear night; but, aren't we always?

This month, we cover some Caldwell objects near the meridian. Many require AP techniques and a solid window for exposures. These are worth the effort. There's usually a chance to look at something during the month and sometimes that chance accompanies curious guests.

To that end, I introduce the "Why?" section for our objects, notes about distinctiveness or notoriety that make a selection worthy of interest, or which answers your 13-year-old guest's question, "Why is this one important?"

The answer as always is SCIENCE! Okay, but some of these need more than that. I hope the notes help.

## Caldwell Objects of Interest

**Caldwell 1** NGC 188 – Open cluster in Cephus. 00hr 48' x 85° 14'. Mag 8.1. Diameter 15'. Distance: 5.4 Kly. This is a difficult object for many because of its proximity to the celestial north pole. Nevertheless, this is a stunning cluster and is approximately twice as old as Earth (6.8B years) making it one of the oldest known open clusters. It lies inside the Milky Way as do most open clusters. **Why?** Explain to the relatives this season peering through your eyepiece that this cluster, while seemingly insignificant, has a very high content of "blue stragglers" – stars that appear young and hot even though the cluster itself is past middle-age and populated otherwise with unremarkable yellow and yellow giant stars. These particular blue stragglers are mostly (80% +/-) partners in binary systems; they have an inflow of gas from the outer shell of their partner stars and so enjoy a "fountain of youth" condition allowing them to burn hotter with a renewed vigor.

**Caldwell 2** NGC 40 – Bow Tie Planetary Nebula in Cephus. 00hr 13' x 72° 31'. Mag 12.3. Size 0.6'. Distance: 3.5 Kly. Age: 5800 years. Tiny, this was

Observing: (all times EST)  
Average Sunrise 07:57, Sunset 17:03.

## The Moon Phases:

05 Dec	Tuesday	Third Quarter	Rise 00:03	set 13:27
12 Dec	Tuesday	New Moon	Rise 07:50	set 16:29
19 Dec	Tuesday	1 <sup>st</sup> Quarter	Rise 12:47	Set 00:58 (20 <sup>th</sup> )
26 Dec	Tuesday	Full Moon	Rise 15:42 (25 <sup>th</sup> )	Set 08:05

nonetheless discovered by William Herschel in 1788. This is one for the AP folks! **Why?** The recent age – domestication of the horse, domestication of the chicken (!), the potter's wheel, and the beginning of the Minoan civilization – of the event means it was in the sky for "modern man" and would have been a noteworthy event. The progenitor star was almost certainly a Wolf-Rayet star which was thousands of times brighter than our sun. Now we are left with the outer shell of the star which is roughly barrel-shaped, and the remaining dim central star (Mag. 11.6) which AP techniques can capture.

**Caldwell 5** IC 342 – A Galaxy in Camelopardalis. 3hr 46.8' x 68° 6'. Mag 8.4. Size 16'. Distance: 10.8 Mly. This lovely intermediate spiral is called the "Hidden Galaxy" as it lies partly obscured by the Milky Way itself. This is not a local group member but a member of the nearest galaxy group to the Milky Way: The Maffei Group. While it is partially obscured, near-IR imaging using conventional astrocameras brings out plenty of detail. No supernovae have yet been detected in C5. Perhaps tonight is the night? **Why?** Discovered in 1890 by William Denning, it wasn't until Edwin Hubble and Milton Humason examined plates taken by the Mount Wilson observatory in 1934 that the spiral nature of the galaxy was observed. If gas and dust did not obscure the galaxy, it would be among the top 5 visible objects in our night sky. HINT: O'Meara in The Caldwell Objects suggests low power is best for viewing visually: 14x for a 4" scope and not more than 27x for an 8". (C5, below, by Jack Sprague.)



Details: Es 127mm APO reduced to 680mm at f5.6, 3hr exposure ZWO 462MC camera. Some star bloat uncorrected in post-processing.

OVER THE HORIZON continues, p. 19



**Caldwell 8** NGC 559 – Open cluster in Cassiopeia. 1hr 29.5' x 63° 18'. Mag 9.5. Size 7'. Distance: 7.2 Kly. Located near and between Segin and Ruchbah, this cluster is easy to find and photograph. Its nickname is the “Ghost Goblet” for the asterism suggesting a stemmed goblet from a king’s banquet table. **Why?** The cluster – at 1.8B years of age – is one of eight similar clusters in the same region of Cassiopeia. This one with 40 or so stars of Mag 12 or brighter has one of the more vibrant displays of a tightly packed center and a sparse open halo – the goblet. Aiming the telescope in this region allows a drift over the stars of Cassiopeia and you may relate the origin of Navi – Ivan reversed – for astronaut Virgil Ivan “Gus” Grissom lost in the tragedy of Apollo 1.

**Caldwell 10** NGC 663 – Open cluster in Cassiopeia. 1hr 46.3' x 61° 13'. Mag 7.1. Size 15'. Distance: 7.8 Kly. Another of the Cassiopeia clusters, this one features a horseshoe-shaped asterism. I cannot claim to see it. **Why?** The most notable open cluster in Cassiopeia is M103. Caldwell 10, however, is brighter by nearly 1/3, 1000 ly closer, and 2 ½ times larger than M103. I believe Messier got this one wrong but with at least five “common” clusters in this region, it is easy to be confused through the eyepiece.

**Caldwell 13** NGC 457 – Open cluster in Cassiopeia. 1hr 19.5' x 58° 17'. Mag 6.4. Size 20'. Distance: 8 Kly. Another open cluster in Cassiopeia (a holiday tour?). **Why?** Two reasons. This is the E.T. cluster as in “E.T. phone home...” and is one of the most preferred telescopic targets. The asterism is not hard to discern and, of course, kids can hardly believe it when with just a little prodding they see the E.T. asterism outlined in the stars. Maybe today’s kids would see a Pokémon character instead. (Like I’d know.) Also, the cluster is rich in Be stars – spinning fast-rotating stars with circumstellar disks of uncertain origin surrounding them. (I had to look these up. There’s always something new.)

**Caldwell 14** NGC 869 and 884 – Open clusters – The Double Cluster – in Perseus. 2hr 20.5' x 57° 8'. Mag 5.3 / 6.1. Size 18' – both. Discovery credited to William Herschel though known from antiquity and recorded by Hipparchus. **Why?** Certainly one of the top 5 telescopic sights of the northern hemisphere, these two are true jewel boxes of the night. Try examining the pair with at least 27x magnification and the glittering darlings pop right out.

**Caldwell 17 & 18** NGC 147 and NGC 185 – Elliptical galaxies in Cassiopeia. 0hr 33.2' x 48° 30' and 0hr 39' x 48° 20'. Mag 9.5 and 9.2. Size 18' x 11' and 17' x 14.3'. Distance: 2.3Mly. Companions of Andromeda among the four brightest of these companions, C17 and C18 are members of our local group of galaxies. These targets both benefit from AP techniques over visual observation. **Why?** These two galaxies are among the 22 companions to local group galaxies listed in the 1994 paper by Halton Arp suggesting that this set had “positive” redshift with respect to their parent galaxies. This is a continuation of the “intrinsic” redshift assertion which is in opposition to the conventional Hubble expansion, which is an alternative interpretation of data Arp suggested in 1967. The evidence Arp believed presented by the velocities of these galaxies among others argued against the Big Bang and put Arp in the realm of Fred Hoyle and others who passed from favor in mainstream astronomy and astrophysics. Arp was essentially blacklisted and lost time on North American instruments – including Palomar where he worked for 29 years – retreating to the Max Plank Institute near Munich.

**Caldwell 23** NGC 891 – Spiral galaxy in Andromeda. 2hr 22.6' x 42° 21'. Mag 9.9. Size 12.2' x 3'. Distance: 31Mly. An edge-on galaxy featured in the closing credits of the television program The Outer Limits. **Why?** NGC 891, while edge-on, represents a near-twin of our own Milky Way galaxy in size and mass. Perhaps “twin” is too strong. Comparable is probably the better word. Nevertheless, the view we see is approximately the same for any civilization looking at the Milky Way edge-on. 100 Billion stars in the Milky Way. Whatever your assumptions are for the Drake equation, odds are someone is looking back at us.

**Caldwell 24** NGC 1275 – Peculiar galaxy in Perseus cluster. 3hr 19.7' x 41° 30.5'. Mag 11.9. Size 3.2' x 2.3'. Distance: 230Mly. Perseus “A”. This one does best with EAA and AP techniques as it is indeed a “faint fuzzy” in the 4” class refractor. **Why?** Caldwell 24 is part of the cluster called Abell 426: the Perseus cluster, which holds something around 12,000 systems! It is the brightest of the Perseus cluster. Caldwell 24

# CLEANING A C-8 CORRECTOR PLATE

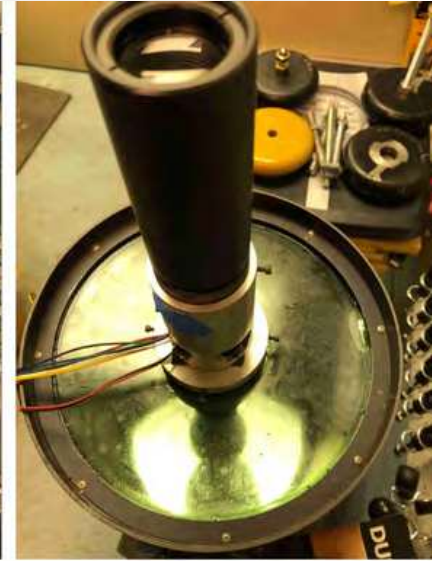
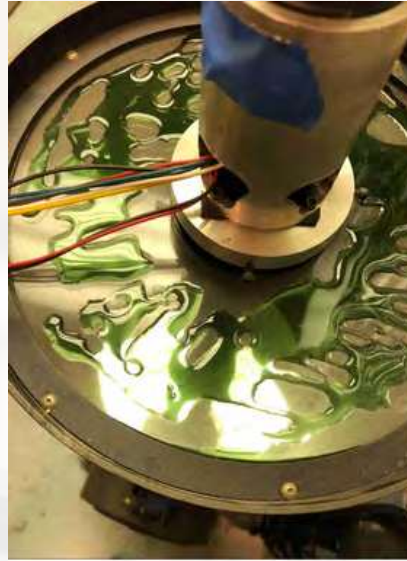
BY TOM RYAN

## Applying the Partall Film #10

My old 8" Celestron Schmidt-Cassegrain had been sitting around my shop or garage for about ten years, so when I decided I had a use for it again, I had to clean off a lot of collected dust and grit from the corrector plate.

Since I had previously had a lot of luck cleaning optics with Partall #10, I decided to start with that. Not even rinsing off the plate first. I was trying to avoid taking the corrector plate out of the tube. That central tube is a laser beam expander from the C-8's last experiment.

In the first picture, you can see how dirty the corrector is, between the squirts from a syringe of the Partall #10.



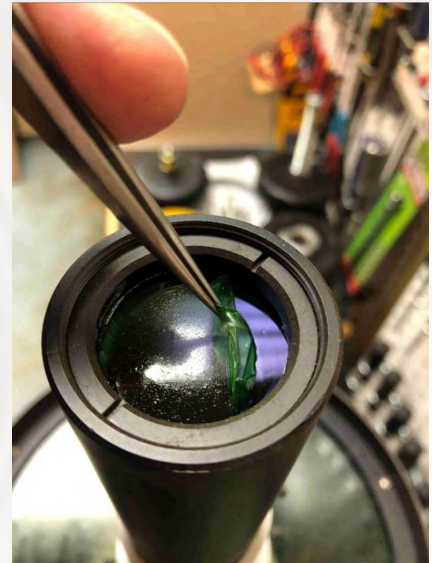
In the second picture, the film has covered the plate and has dried.

## Removing the Film

Partall #10 dries to a thin, elastic film which can be lifted off the surface, once you get a grip on it. I used an X-Acto knife to cut around the edges of the lens on the beam expander, and then used the point of the knife to "bump" the film up off the surface. From there, it could be lifted with tweezers, and with it, goes all the accumulated dust and old sin.

Pouring the Partall film on a lens which is held in a locking ring mount isn't the smartest thing I've ever done. The film was able to get under the locking ring on the laser beam expander, and I was just lucky that it didn't get between the two lenses in its achromatic doublet. If it had, I'd be taking the lens apart.

As it turned out, the Partall #10 did get under the sealing ring around the edge of the Celestron's corrector plate, so I ended up having to take the plate out, anyway, for a full cleaning.



## Cleaned Optics

In the next picture, I've flipped the cleaned corrector plate over in it's cell, so you can compare its surface to that of the secondary's surface.

You can criticize SCTs for a number of things, but one thing their sealed tube does very well is to keep the optics clean. That mirror hasn't been touched since 1978.

On the other hand, the 1978 corrector doesn't have an anti-reflection coating on it. Apparently, that was normal when the scope was produced.

In the last picture, the corrector is installed normally. Note the arrows to orient the plate for reassembly. "Safety first!" ■



**OVER THE HORIZON** continues ...

allows you to tell the story of two colliding galaxies. A spiral -- unnamed -- passes through the nearly perfect flat-on apparent disk of NGC 1275. If you are able to image the object you will see distinct “whisps” of dark against the lighter background of the elliptical and these whisps are the gravitationally distended arms of the spiral as it is swallowed by the great “maw” of the central core. The beauty of the object is a snapshot into the chaos of 230M years ago when the two galaxies were colliding at 3000 KM/s ~ almost 1% the speed of light.

**Caldwell 56** NGC 246 – Planetary nebula in Cetus: The Pac-Man nebula. 0hr 47' x -11° 52'. Mag 10.9. Size 4.6' x 4.1'. Distance: 1.6Kly. Perhaps the most interestingly visual planetary nebula in the Caldwell catalogue (or so suggests O'Meara in The Caldwell Objects which I reference here). **Why?** The nebula's distinct shape requires little visual nudging to bring

to mind the video game character of its name fame. Popular references help the layperson internalize the science of our hobby. Wait until the Taylor Swift nebula is named and you won't be able to buy a telescope for a year. It is however the central star that holds our scientific interest. HIP 3678 A is about 260M years old which is about the time Neanderthals were walking the Earth. The white dwarf is barely larger than the Earth and is quite evolved well into the triple-alpha process where helium is fused to make carbon. See if you can split the binary and find HIP 3678 B which is 3.8" from the primary. There you have it: an enjoyable “public viewing” object which contains a very interesting binary pair for true star hounds.

I hope the weather and circumstances find you at the eyepiece or imaging screen this holiday season and that you have the wonderful opportunity to share what you find with friends and family. Happy Holidays – and stay warm! ■

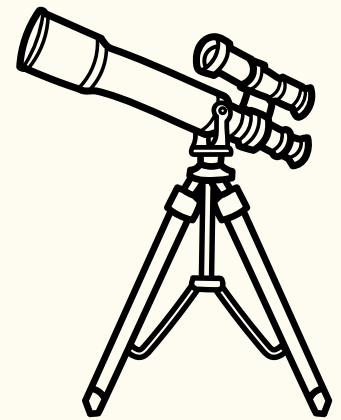
## UPCOMING TOPICS FOR THE OBJECTIVE LENS

BY JACK SPRAGUE

Our Lowbrow photographic roll features images from snapshots, eyepiece imaging, EAA captures, and astrophotography. All images are welcome and while we have a monthly theme, we love any submission.

**January** – Part of our “classics” series this month features two galaxies in particular: M81 and M82 in Ursa Major. These together or singly are delightful showpieces and a capture of the nebulosity surrounding the pair is an especially entrancing. Think of this month as a perfect opportunity (for – ahem- some of us) to brush upon skills rendered stale by the gloom of a long damp fall!

**February** – Planets! Jupiter and Saturn have been lovely this fall but Mars becomes a star in January. Get the ADC out and make all preparations for lucky imaging. I know there have to be some awesome image captures we haven't seen in our photo roll yet! ■



## LOWBROW MONTHLY MEETING – November 17, 2023 @ Detroit Observatory

President Charlie Nielsen called the meeting to order, then introduced the speaker. Timothy Campbell is a NASA JPL Solar System Ambassador who is also a Ford Amateur Astronomy Society past president, and planetarium operator at Henry Ford College. He gave a presentation on the wonderful images & science that the James Webb Space Telescope is giving the world: “Webb’s First Look at the Universe.”

**President’s Report (Charlie):** A public open house was erroneously listed for November 18, and we lack sufficient volunteers. Therefore, the open house will be cancelled. We had a wonderful member response to the request for meeting speakers! Our monthly schedule is now filled out to September of next year: Dec 15 (David Gerde UM Physics), Jan 19 (Melissa Kaelin “Outsmart Space Weather Forecasts to Catch Aurora in Your Backyard”), Feb 16 (Rosie Friend, EMU Physics), Mar 15 (Jim Shedlowsky “Searching for the Dark Universe”), Apr 19 (Jeff Kopmanis “Automated Astrophotography (On the Cheap)”), May 17 (Gary Nichols “How Smart Are They? A Comparison of the New Breed of All-in-One Smart Telescopes”), Jun 21 (Fast-paced astrophotography by members program), July 19 (at EMU planetarium), Aug 16 (Lowbrow picnic – stay tuned for details), Sept 20 (cancelled so we can attend Astronomy at the Beach that night), Oct 18 (TBD), Nov 16 (TBD), Dec 20 (TBD).

**Vice President’s Report (Brian Ottum):** The Lowbrow Member survey was a huge success. Thank you to the 86 people who took the time to give your opinions on the club. The tone was very positive, and showed what members value most and what they want more of. We also heard you mention a couple areas in which we can improve. The officers are developing the next steps. A summary of findings will appear in the next newsletter.

**Peach Mountain Observatory Director (Jack Brisbin):** It’s time to move the 17.5” telescope into storage. Fans were installed on the McMath mirror to improve cooling & image clarity. There’s more maintenance to be done to get ready for winter.

**Online Coordinator (Jeff Kopmanis):** Work continues on creating a new Lowbrows website. Jeff met with member Barry Chapman (who is a Wordpress expert). Barry was a big help in providing ideas to improve the look & feel. A new mockup is being prepared. Jeff was able to get register our club at the great Astrospheric.com website (which many of us use to get accurate cloud forecasts). Now Lowbrow members can get more benefits than the usual free membership (almost what paid Pro members get). An email will be sent to give instructions on how to get your upgrade. Attendance at tonight’s meeting is 19 in person, and 23 via Zoom.

**Vice President (Dave Snyder):** Fred Adams (UM Physics) will be giving a talk "Formation of Planetary Systems" Saturday December 2, Room, 10:30 am, 170 Weiser Hall (UM Central Campus)

## LOWBROW MONTHLY MEETING – continued

December's speaker will be David Gerdes (chair of the Physics dept). His research work has focused on small solar system objects (asteroids, trans-neptunian objects) so I expect his talk will be along those lines.. Debbie Smith had suggested him as a speaker. (I included some links below)

[https://en.wikipedia.org/wiki/David\\_Gerdes](https://en.wikipedia.org/wiki/David_Gerdes)

<https://www-personal.umich.edu/~gerdes/>

<https://lsa.umich.edu/physics/news-events/all-news/search-news/professor-david-gerdes-featured-in-usa-today-solar-eclipse-artic.html>

Amy Harris (director of the UM Museum of Natural History) has retired, I had a conversation with Dawn Johnson who is now the Interim Director. There will be a national search for a new director. I had asked Tim McKay (one of the associate deans) how long that will take. He said "a long time."

**Vice President (Jim Forrester):** We are looking for a suitable location for our August 16 Lowbrow Picnic. It would be an evening so we could observe afterward (if clear). Looking for a pavilion. Please email Jim your ideas for a location.

### **Treasurer (Doug Scobel):**

We have 201 memberships.

I made our usual monthly payment to AT&T for our Open House "hotline", and paid the newsletter editor's cost of printing and mailing the printed version of our newsletter.

I paid observatory director Jack Brisbin \$75.63 for the new cooling fans for the 24" McMath primary mirror.

I bought a \$50.00 gift card to Zingerman's for October speaker Brian Ottum.

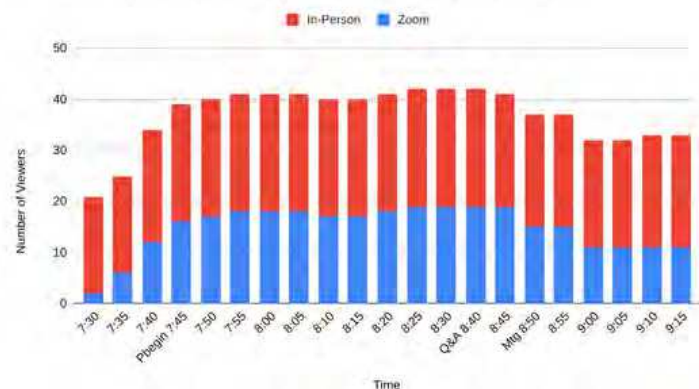
Today I sent a reminder email to the membership stating that we still have RASC calendars and handbooks available to order. As of this writing we have 9 calendars and 7 handbooks available.

**EMU (Norbert Vance):** The Fish Lake observing and imaging retreat has been a marvelous success. Unusual stretch of clear nights. Two telescopes previously owned by Lowbrows Doug Scobel and Mark Deprest are getting heavily used.

Meeting was adjourned at 9:15pm. Austin Edmister (Assistant Director for Astronomy at the Detroit Observatory) invited everyone to visit the observatory upstairs.

Meeting Attendance

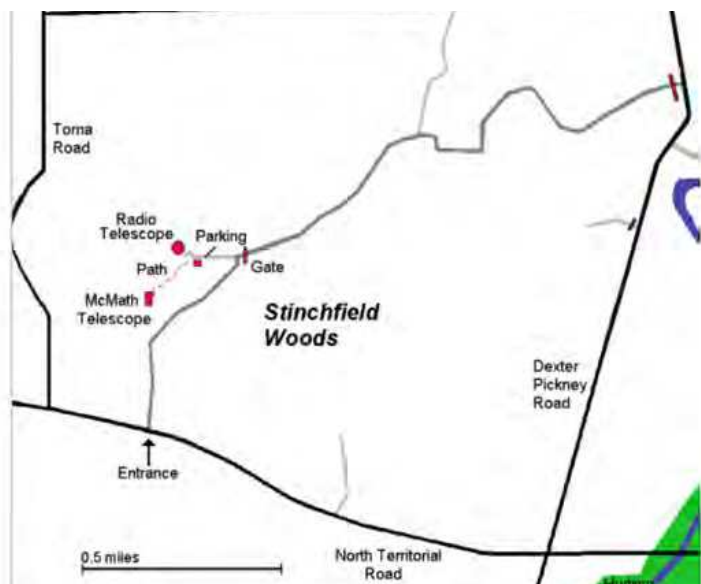
November 17, 2023 - Tim Campbell, FRAC, Pres; GUAAC; J. Wain; Spade; Treasurer



## 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)

Lowbrow members can obtain a discount on these magazine subscriptions:

**Sky & Telescope** - \$43.95/year

**Astronomy** - \$34.00/year, \$60.00/2 years or \$83.00/3 years

### 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:	Adrian Bradley (313) 354-5346
	Jim Forrester
	Brian Ottum
	Dave Snyder
Treasurer:	Doug Scobel (734) 277-7908
Observatory Director:	Jack Brisbin
Newsletter Editor:	Amy Cantu
Key-holders:	Jim Forrester
	Jack Brisbin
	Charlie Nielsen
Webmaster:	Krishna Rao
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)



# University Lowbrow Astronomers

