

REFLECTIONS / REFRACTIONS

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University Lowbrow Astronomers Monthly Newsletter

October 2021, Vol 45, Issue 10

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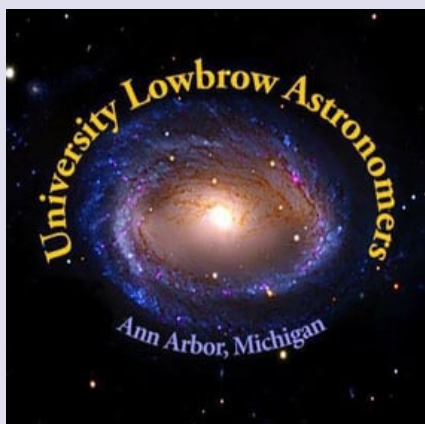
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WANING HARVEST MOON RISING OVER DESERT RIDGELINE

I had seen the Harvest Moon rising over some low mountains (named the McCullough Range, located in the Sloan Canyon NCA) for a few nights. The various ridges are between 2-3 miles from my backyard, and I wanted to catch the moon breaking the ridgeline.

I took a SER video of it rising, hoping to get something useful. Through SharpCap's live view, the silhouettes of individual desert plants and rocks were visible against the Harvest Moon. The vegetation appears to be Joshua Trees and Creosote bushes, and this area contains many angular metamorphic and volcanic rocks resulting from fracture cleavage.

This image is the best single 60-millisecond frame pulled from the video. I have tried stacking but was not

BY JASON CLOSE

successful due to the apparent movement of the moon relative to the stationary ridgeline at 948mm focal length. This was a lucky 60ms image at such a low altitude over rooftops. The Near-IR pass filter helped in this regard.

Location: Backyard, Henderson, NV,
Near the Edge of Sloan Canyon
National Conservation Area
Date: September 22, 2021
Time: Approximately 8:35 PM Local
Apparent Altitude: Approximately 8° 20'

Gear: Stellarvue SVX130T Refractor
ASI 533MCP Imaging Camera
Astronomik ProPlanet 742 Near-IR
Bandpass Filter
Sky-Watcher EQ8-R Pro Mount
Acquired in SharpCap Pro
Processed in PixInsight and finished in
Photoshop

FROM THE DESK OF THE NORTHERN CROSS OBSERVATORY

BY DOUG BOCK

During the 2021 Great Lakes Star Gaze, we managed 3+ clear nights, and I took the observatory system mobile to that location for the week. This takes about 2 hours to remove from the observatory and pack into the truck. I ran the ZWO asi2600MC PRO on the 10" RC.

September 10, 2021, I worked on the Cocoon Nebula or IC 5146, a reflection/emission nebula and Caldwell object in the constellation Cygnus. The NGC description refers to IC 5146 as a cluster of 9.5 mag stars involved in a bright and dark nebula.

September 8, 2021, I worked on the Deer Lick group and Stephan's Quintet. NGC 7331 Group (upper left corner) is a visual grouping of galaxies in the constellation Pegasus. Spiral galaxy NGC 7331 is a foreground galaxy in the same field as the collection, which is also called the Deer Lick Group. [1] It contains four other members, affectionately referred to as the "fleas" The NGC 7320 group (in the lower right corner) is known as Stephan's Quintet.



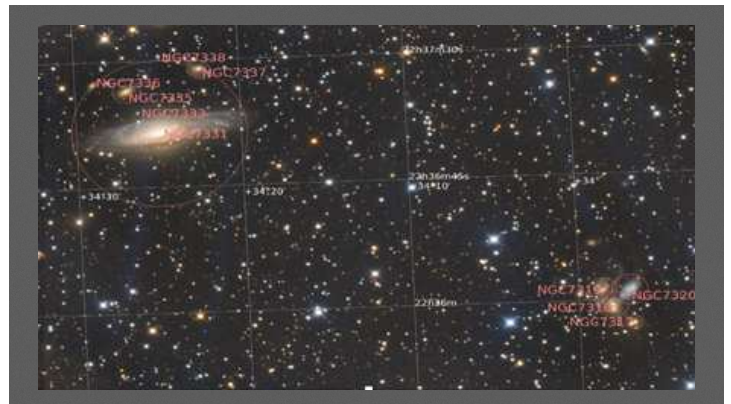
COCOON NEBULA data collection information:

10" f/8 RC telescope
ZWO asi2600MC PRO camera, at gain 100 (Unity), and
Temperature set to 0C
Losmandy G11 mount
20 x 600 second light frames, 24 dark frames, 50 flat frames



STEPHAN'S QUINTET data collection information:

10" f/8 RC telescope
ZWO asi2600MC PRO camera, at gain 100 (Unity), and
Temperature set to 0C
Losmandy G11 mount
41 x 600 second light frames, 24 dark frames, 50 flat frames



Northern Cross Observatory continues, pg. 3

Northern Cross Observatory continued ...

On September 9, 2021, an experiment with the core of the Andromeda Galaxy with the 10". From Wikipedia: "The Andromeda Galaxy also known as Messier 31, M31, or NGC 224 and originally the Andromeda Nebula (see below), is a barred spiral galaxy approximately 2.5 million light-years (770 kiloparsecs) from Earth and the nearest large galaxy to the Milky Way. The galaxy's name stems from the area of Earth's sky in which it appears, the constellation of Andromeda, which itself is named after the Ethiopian (or Phoenician) princess who was the wife of Perseus in Greek mythology.

The virial mass of the Andromeda Galaxy is of the same order of magnitude as that of the Milky Way, at 1 trillion solar masses (2.0×10^{12} kilograms). The mass of either galaxy is difficult to estimate with any accuracy, but it was long thought that the Andromeda Galaxy is more massive than the Milky Way by a margin of some 25% to 50%. This has been called into question by a 2018 study that cited a lower estimate on the mass of the Andromeda Galaxy, combined with preliminary reports on a 2019 study estimating a higher mass of the Milky Way. The Andromeda Galaxy has a diameter of about 220,000 ly (67 kpc), making it the largest member of the Local Group in terms of extension."

I also picked up a William Optics Zenithstar 105mm APO refractor at the swap meet, which I



Data collection information:

10" f/8 RC telescope

ZWO asi2600MC PRO camera, at gain 100 (Unity), and

Temperature set to 0C

Losmandy G11 mount

37 x 300 second light frames, 24 dark frames, 50 flat frames

put on the G11, at home, and did some testing on September 18, 2021. With a reducer on, I got bad corners on this 5 hour and 37-minute run, so I'm going to take that off and try it native. **Photo 1** of the refractor is with the focal reducer/flattener straight through. **Photo 2** of the refractor is without the flattener, but with the On Axis Guiding port which will be how it will be used in the future. The ONAG gives me autoguiding and autofocusing capabilities. **Photo 3** (M31) is the results of the first night of testing with the reducer (5 hours 37 minutes). The corners are not flat, so I don't have it configured correctly, but maybe in the future.



Photo 1

Photo 2



Photo 3

THREE LANDSCAPES

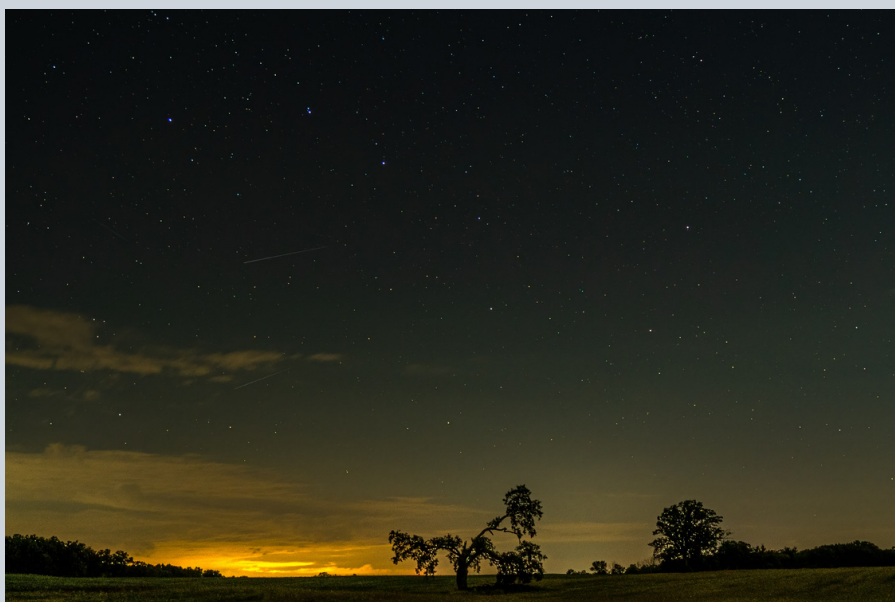
BY ADRIAN BRADLEY

Distant Thunderstorm
at Night



Sun Setting Behind
a Pine Forest

Country Night
in Clinton Township



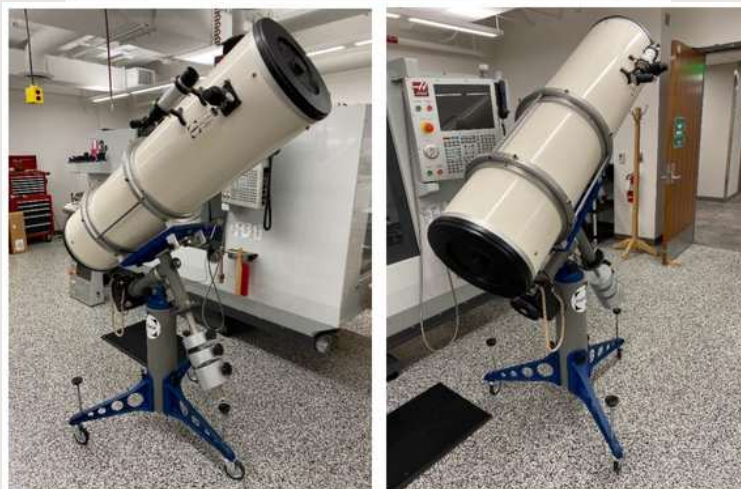
TEEN DREAMS OF THAT ULTIMATE TELESCOPE!

BY NORBERT VANCE

There I was at age 11 showing Uncle Ray my new Tasco 4.5-inch Newtonian that Santa had left under the Christmas tree. Apparently, the jovial red-suited fella found this gift at Hudson's Northland mall. Wow! I still have the scope, sitting in the shadow of our historic 4-inch Alvan Clark refractor in Sherzer Observatory. It still works, proving that telescopes are a wise investment, even in potentially kick-starting careers. Along the way, like so many of us experience, aperture fever soon set in, perhaps when I came across a 1970-ish catalog from Cave Optical Company in Long Beach, CA.

[<http://www.cave-astro.com/resources/cave7374catalogsm.pdf>] My, oh my, look at those HUGE 12.5-inch and 16-inch telescopes! How on Earth could I afford any one of those? What views they must give. Hmm, mom ...dad? Drat, they had me and all my brothers and sisters to feed. Dare to dream.

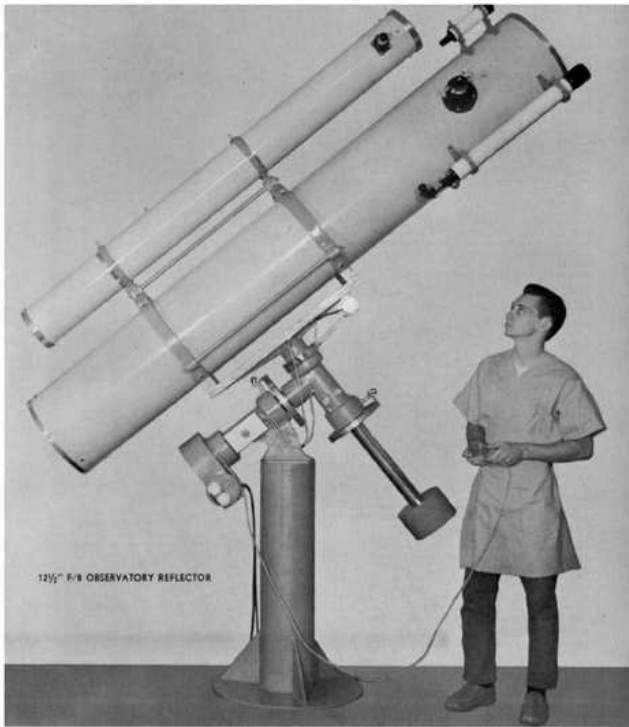
Fast forward to 2021. I recently brought home our EMU Parks Optical 12.5-inch f/5.6 Newtonian from EMU's Fish Lake nature reserve near Lapeer, MI, for repairs and reconditioning; first to my department machine shop, then to Jeff Thrush's Telescope Support Systems out in Manchester, MI, where I surmised it might get more use under his and Clay's dark skies. A competing brand to Cave, the Parks scope was originally purchased in August of 1988 to replace a 12.5-inch Starliner Newtonian that was destroyed in a fire at Fish Lake. At nearly \$5000, the Parks was a beast of a scope yet still considered "transportable." In fact, pulling it out of the boxes it was shipped in triggered a kidney stone attack! Seriously, I thought I had simply pulled a muscle, ouch. The scope got considerable use at Fish Lake for many years but would eventually give way to larger, more sophisticated light buckets and tech. Time to bring it home, I figured; back to campus. Besides, storage space at the reserve was becoming a premium. Jeff would replace the damaged synchronous RA motor and DC Dec motor. We pulled the primary and secondary mirrors and sent them to Spectrum Coatings. Pondering what to do with a scope of a mere 12.5-inch mirror that had



The Parks 12.5-inch Newtonian ready for return to Fish Lake

seen better days, I now plan to return the instrument to Fish Lake thanks to its new lease on life. Yes, our students have access to and use of fancy computer-driven scopes of much larger size, but there's something about old school. The Parks, with its simple GEM mount and blue colors, harks back to those Cave catalogs of a half-century ago. And the Parks mirror specs and performance are excellent, even if packaged in a bulky tube on a cumbersome mount. I mean rotating tube rings, sheese! How quaint. The views through the OTA are quite beautiful, especially using modern eyepieces instead of the dated 25mm and 10mm 1.25-inch oculars supplied by Parks. Remarkably, we still have them. The old-lookin' iron didn't mysteriously walk away after 33 years. The reinvigorated classic got cleaned up, waxed, and lubricated, even some new heavy-duty casters for those trademark legs. The old dual axis hand

Teen Dreams continues, pg. 6

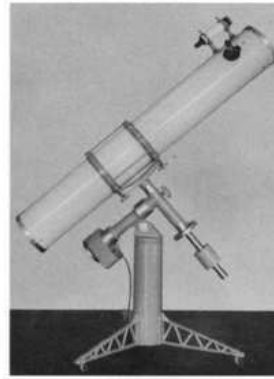


12½" F/8 OBSERVATORY REFLECTOR

Performance of the 12 1/2" ASTROLA REFLECTORS

The optical performance of the 12½" Transportable and Observatory Astrola reflectors is identical. These instruments are available in F/6 and F/7 as the Transportable Astrola and in F/6-F/9 focal ratios on the Observatory model. Both of these telescopes have electric declination slow motion controls brought to the observer's hand at the eyepiece with a small control box. The Observatory model also has developed control in right ascension as well as a very accurate sidereal clock drive. The extremely

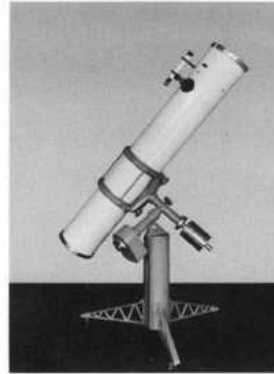
smooth, fully rotating tube assembly on each instrument allows the eyepiece to always be in a most comfortable observing position regardless of the position of the telescope when pointed in the sky. Magnificent optical performance is obtained with either of these models; extremely fine lunar detail can be glimpsed well below one-half mile diameter on the Moon's surface. The light grasp is approximately 50 per cent greater on the 12½" Astrola reflectors than on the 10" instruments, and resolution is approximately 20 per cent greater than the 10" Astrola telescopes. It is, therefore, possible to glimpse fainter and finer planetary detail than with smaller apertures. Saturn shows an immense wealth of very fine detail on the globe of the planet as well as all the finer shadings and divisions in the ring system. Very fine minute detail is easily seen on Jupiter



8" F/8 DELUXE

The new improved 8" Model "B" ASTROLA deluxe mounting features the finest and most rapidly manufactured mounting on the market today. Massive but light in weight and highly portable. Better in quality than some mountings costing twice as much.

8" ASTROLA LIGHT WEIGHT DELUXE



Performance of the ASTROLA "B" REFLECTORS

For years the 8" Standard Model "B" ASTROLA has been one of the most popular instruments ever produced by Cave Optical Company. The Standard model combines great portability and rigidity with budget price, while the Deluxe 8" ASTROLA is a combination of the finest obtainable features on a parabolic reflecting telescope with fully rotating tube, of the simplest possible performance, the most highly developed clock drive, and excellent setting circles allow the observer the greatest comfort in using this instrument for all visual and photographic purposes.

Lunar and Planetary:

Observational performance places the observer in a larger telescope performance class. Probably 85-90 per cent of all of the visible detail on the surface of Mars is within range of the 8" ASTROLA. Important research observational programs on Mars and Jupiter and Saturn may easily be carried on with this instrument because of its great resolution and light grasp. The finer divisions in Saturn's rings and an amazing wealth of fine detail is visible on Jupiter.

Double Star Resolution:

Maximum full resolution of double stars is 0.6 seconds of arc. Excellent double star tests for the 8" ASTROLA are comparison of Antares, Delta Geyser, etc.

Threshold Stellar Magnitude Limit:

Under good conditions it is 14.4 magnitude.

8" ASTROLA DELUXE MODEL "B" REFLECTOR

Specifications:

Standard Equipment.

Optics:

The same high quality optics, 8" fully corrected parabolic mirror and diagonal as used in our 8" Standard Astrola. Focal ratio choice of F/6-F/7 or F/8.

Optical:

Three of the finest Orthoscopic eyepieces, 1¼" standard outside diameter, in powers of 84X, 710X and 340X in F/7 (other power ranges optional).

Finder:

6X 50 mm. Newest ASTROLA exclusive achromatic finder.

Focuser:

The very finest quality rack and pinion focuser, 1¼" standard.

Tube:

Park's fiberglas paratensite tube in white with highly polished aluminum end rings.

Cell and Spider:

Cell of cast aluminum heat treated open construction.

Spider:

Spider of 4-vane type.

Equatorial Mounting and Stand:

Newest design equatorial mounting with Sealmaster ball bearings in polar axis. Setting circles 6" diameter finely divided and our newest ASTROLA clock drive are incorporated with the Deluxe equatorial mounting as well as fully rotating, heavy aluminum rings for smoothest possible tube rotation with ball bearings. 6" diameter extruded aluminum column with three heavy detachable aluminum legs with ball bearing casters.

Finish:

Basic finish of entire telescope is instrument gray and buffed aluminum.

Weight:

Total assembled weight is 85 lbs. Shipping weight, crated and boxed, is 150 lbs. approximately.

Price:

Complete telescope as above \$425.00 f.o.b. our plant.

Accessories:

Electric worm gear driven declination slow motion \$85.00, or manual \$45.00. Camera attachments, Barlow lens, and frequency generator also available as necessary equipment.

That's a LOT of telescope for a "mere" 12.5-inches. The 8-inch Newts were an enviable size in 1970.

control may be right out of Radio Shack, but it works. I can't wait to look through this beauty on our next trek the weekend of October 7-10. I'll give ya'll the skinny on how the ol' gem performs!

One more irony: In the storage room at Fish Lake sits a fine 8-inch f/8 Cave Astrola GEM-mounted Newtonian we gussied up years back; a nice piece of amateur astronomy history. I'm reminded by some that it was a fine planetary scope in its day. Maybe I'll drag it out to greet its cousin upon return. As to the ol' Tasco, you know, U-M astronomer James C. Watson and Thomas Edison once used our historic Alvan Clark 4-inch on an eclipse expedition in 1878. Peachy, but Tiger greets Al Kaline and Mickey Lolich looked through my humble Christmas present -- there's a story -- atop the Tower dorms during a baseball camp at EMU in 1977. I suppose it has some provenance, too. Guess I'll keep it. ☺

**UPCOMING MEETING
SPEAKER SCHEDULE**

OCTOBER 15: Associate Professor, Keren Sharon, U-M Astronomy. Topic: *Gravitational Lensing*

NOVEMBER 19: Dr. Fred Adams, U-M. Topic: *TBA*

DECEMBER 17: Don Fohey, Lowbrow member. Topic: *The New Horizon Mission to Pluto*

JANUARY 21, 2022: Dan Durda, Southwest Research Institute, Boulder, CO. Topic: *The Southwest Research Institute's Suborbital Research Initiative: First Flights with Virgin Galactic and Blue Origin*

FEBRUARY 18: Professor Claude Pruneau, WSU Physics Dept. Topic: *What the LHC mini-bangs tell us about the Big Bang*

MARCH 18: Tentative Professor Michael Meyer, U-M Astronomy. Topic: *The NASA/ESA/CSA James Webb Space Telescope: Discovery Space*

JUST WHEN YOU THOUGHT IT WAS SAFE TO GO BACK OUTSIDE ...

BY AWNI HAFEDH

JAWS was one of the movies that fascinated me towards sharks, even though it was over-exaggerated. This nebula was one of those stories, except it is real and it does exist. It does look like a Shark that is ready to bite and it looks really amazing.

It is super dim -- and to be honest, if it wasn't for the Hyperstar which makes my telescope capture at F/2.2 and for GLSG dark skies -- then I would have never got such details. It is really beautiful that you can see dark and reflection nebula in the same target creating such a stunning shape.

I captured 60 subs, 3-min each. I stacked them using AstroPixelProcessor and enhanced them using PixInSight and Luminar4. I really didn't spend a lot of time processing the photo and that is the beauty of capturing in dark skies.

Equipment used for the SHARK NEBULA:

Celestron 9.25" with Hyperstar adapter
ZWO ASI533MC Camera
Astronomik Lum filter
iOptron CEM60 mount



One of the other images that I captured at GLSG was a very faint nebula called the **Ghost Nebula**. Honestly, this is my first time ever to capture 10-min subs as this was a must with such a nebula. I was pessimistic, as I wasted more than an hour trying to figure out why all my stars were elongated and what the heck was wrong with my guiding. Also, I heard that focusing with the primary mirror will cause some mirror shift, especially if you do 10min+ sub-exposures.

The good news is that I didn't have any mirror shift. My main problem was bad seeing that affected my guiding. After the meridian flip, the seeing improved, which made me polar align and re-calibrate my guiding again. That fixed my problem and I was rewarded with pinpoint stars.

I ended up with 38x600sec subs from the first night. My friend stacked those subs for me just to see if I need more subs and it turned out that what I had is enough. I ended up stacking with bias and flat frames using APP (AstroPixelProcessor) and then enhanced and improved to get to this final image using PixInSight and Luminar 4. I am pretty happy with the final image and using the ASI533MC made a huge difference with such a sensitive sensor.

<< Equipment used for the GHOST NEBULA:

Celestron 9.25" with 0.7x reducer; ZWO ASI533MC Camera; Astronomik Lum filter; iOptron CEM60 mount

RETURNING TO VISUAL OBSERVING

BY BRIAN OTTUM

After 8 years totally immersed in the astrophotography realm, I'm back to doing some visual observing and having a blast. This is an observing report from Lake Hudson, September 29, 2021.

I bought a pair of giant binoculars at the Tom Reichel estate sale (where Lowbrows Jim Forrester and Don Fohey generously helped the family by cataloging and pricing the large inventory). I've had my eye on the Miyauchi 100mm "binocular telescope" for 20 years. This model has the f/5 fluorite lenses with changeable eyepieces that give 20X, 26X and 37X. Jim helped me choose a tall Manfrotto tripod with a heavy-duty video fluid head and a height adjustment crank. The 131b binoculars can be smoothly moved by using two handles, just like the big TV cameras and battleship gunners. There are comfortable 45 degree prisms, and the tripod allows for viewing up to 75 degrees in altitude. This is stand-up viewing!

For most of us, seeing with two eyes is the usual way of taking in the world. That's why I have always found one-eyed telescope viewing to be slightly uncomfortable. We all have noticed that the public (especially children) often struggles to see what we want them to see when up on Peach Mountain. I love my Denkmeier binoviewer when viewing bright targets in my 15" dob. So these binoculars offer a super-comfortable "grab-n-go" scope.

LAKE HUDSON SEPTEMBER 29

It was one of those evenings we all cherish, knowing what the months ahead will bring (clouds!). Pure blue skies, daytime temperature quickly dropping from 70's down to the 50's. I set up in the picnic ground observing area. No mosquitoes! Canadian geese honking overhead. Transparency was forecasted to be average, and there was a bit of wildfire smoke overhead. Mag 5.5 stars were later visible with averted vision.

One of the absolute joys of these binoculars is tracking airplanes! I could see a Southwest flight



that probably took off from Midway Airport in Chicago, climbing slowly towards the east. Right after sunset, SkySafari told me to look low in the SW for Venus. The binox showed a 60% full, very bright little disk. This is an extreme test for a refractor, and there was very little color around the planet.

Then Jupiter popped out, and I saw all four Galilean moons strung out on a wide line. At least four cloud bands were seen at 50X. [Yes, 50X eyepieces were not included. Miyauchi went out of business in 2010 because of cheap



inferior Chinese copies AND because they insisted on using their own proprietary 1.338" eyepieces instead of the universal 1.25". So I purchased a pair of cheap inferior 10mm Chinese plossls, unscrewed their shiny extension tubes so they would reach focus, and applied a bit of Scotch tape around them.]

Returning to Visual Observing continues, pg. 9

Return to Visual Observing continued ...

Saturn was small but magnificent! SkySafari identified the nearby points to be Titan and Rhea. Tethys was barely visible as an “extension” of the western ring edge.

At home, I had tracked down Neptune with the binox, but I wanted to focus on DSO's. Once it was fully dark, I concentrated on the summer Milky Way. 37X seemed optimal:

- The M22 globular cluster in Sagittarius always surprises me with its huge size relative to M13 in Hercules. Very low and unresolved, but still cool to see a central brightening glow.
- Lagoon Nebula (M8) was a BIG glowing star cluster. Using averted vision, I could see the little dark lane in the middle.
- The Trifid Nebula (M20) was a smaller glowing star cluster. No color was noted like in pictures, but the nebula was obvious.
- The Omega/Swan Nebula (M17) was really cool. You could easily see that upside-down swan.
- The Eagle Nebula (M16) was first a nice star cluster but turned into a nebula once you took time to inspect and use averted vision.
- This instrument really shines when it comes to open star clusters. The Sagittarius Star Cloud (M24) was spellbinding, so I lingered for several minutes. Wow. Very sharp pinpoints.
- Open cluster M23 was one I don't usually see, but it was great as well. There are so many knots of stars when you slowly sweep through the Milky Way!
- One of the highlights of the night was M11, the Wild Duck Cluster. FINALLY, I can see Admiral Smyth's ducks. At 37X it does look like a V-formation of flying ducks. At 50X I could resolve the glow into tiny points. Very cool.
- Albireo was easily resolved and showed the nice contrasting colors
- I struggled to find M27, the Dumbbell Nebula for several minutes, despite observing it for 46 years. Out came SkySafari to help me see that it was just above the line from Albireo to the left edge of Sagitta. Big and bright, with a round shape. (The Coat hanger was also great).
- Scanning through Cygnus made me think of the line in 2001: A Space Odyssey, “My God, it's full of stars!”

The only disappointment of the night was the Veil Nebula. Just barely there. I tried the OIII filters that clumsily fit over the TOP of the eyepieces, to no avail. Gotta find a way to put the filters underneath the eyepieces.

Outside the disk of the summer Milky Way, I still was having a lot of fun:

- M13 in Hercules was very good, but not quite resolved. I bet I could resolve with better transparency or a slightly better location.
- The Ring was a wonderful little glowing powdered sugar doughnut, placed nearly perfectly in the center between the two bright stars in Lyra.
- Though they were low, I could easily see M51 the Whirlpool Galaxy (and could see a big and small object within) and M101 the Pinwheel Galaxy. No spiral structure noted.
- Similarly low, M81 and M82 appeared in the same field of view. This is going to be a wonderful view when they are higher in the sky.
- Cassiopeia and Cepheus are a treasure trove of open clusters. The absolute highlight of the night was Caroline's Rose (NGC 7789). Holy cow, how did Messier miss that one! Beautiful.
- The Owl/ET Cluster (NGC 457) was fun to see with those glowing eyes.
- It took some time, but I was able to track down the Helix Nebula (NGC 7293). It required averted vision but was definitely a large “hole” in the sky.
- Because I knew it would be great, I waited until Andromeda Galaxy (M31) was higher in the sky. Even through Adrian/Ann Arbor light pollution, it was a great sight. 20X was best. You could faintly see a dust lane, and easily see companion galaxies M32 and M110. Definitely a highlight, a great object for big binoculars.
- M33 was also very nice, though low and in the gunk
- Finally, I watched the Pleiades come up over the trees. I was initially surprised to see so much nebulosity around the stars. But checking the 4” lenses, I saw that dew was forming. Since it was 11:45pm and my scratched cornea was bothering me, I packed up and drove the hour home.

Returning to Visual Observing continues, pg. 10

SUMMARY of the MIYAUCHI'S

- The optics are excellent. Focus snaps right in, and sharpness is excellent (I could almost resolve the Double-Double at 37X!). There is the normal softening once you get 60% away from center, like you see with fast refractors.
- The collimation is excellent. I have no trouble merging the image, even at 50X.
- The tripod and head offer easy "grab-n-go" observing. Lightweight, simple. (Which would not be the case for a parallelogram.). However, some effort is needed to slew upward when pointing 45 degrees to 75 degrees in altitude. The fluid head is smooth but has trouble locking the heavy binocular telescope when pointing high.
- Relying on a single ¼" x 20 screw to attach the bottom of the binox to the mount makes me nervous. I found a long screw to go all the way upward from the tripod head's plate, through a spacer, and through the binox bottom plate, capped with a nut at the top. Still, I am using a "doomsday cable" to hold the binox to the tripod head.
- As fantastic as these binoculars are, and as much as I want to share them with others, they are not wonderful for public outreach. Everyone needs to adjust them for their IPD (inter-pupillary distance). Everyone needs to adjust focus for each eye. This is not effortless, takes direction and most importantly, time.

I'm looking forward to more nights out with the big binos under even darker skies.

METEOR MIMICS

BY DOUG SCOBEL

While photographing the Perseid meteor shower on the night of August 11-12 up in Calumet MI, I captured this image. "Great meteor!" you might say. Wrong! It's an artificial satellite. It's really too bright to be a meteor; but more importantly, there's a sharp cutoff where it starts and stops. Which means it was there when the camera's shutter opened and it was still there when it closed. It was a fifteen-second exposure, so that would make it the slowest meteor ever! There's a second, much fainter streak near the top of the image, but I believe that to be from a satellite as well. If that fainter streak really is from a meteor, then it wasn't a Perseid - it doesn't trace back to the radiant near the Cassiopeia/Perseus border.

I have many other images from that night with streaks in them. Most are from satellites (one of them from before the end of twilight contains 9!), and just a handful contained faint meteors. Alas, my shot in the September Reflections is my only one with a Perseid. You may notice Lyra near the top of the image, Aquila left and below center, and Ophiuchus towards the right. The "Coathanger" is above left of center, about halfway to the corner.



University Lowbrow Astronomers

Monthly Club Meeting Minutes

17 September 2021, 7:34 pm, Individual Live Connections via conferencing tools

After some chatter to allow for late arrivals, President Charlie Nielsen called the meeting to order and then introduced our speaker.

Speaker

Who

Professor John Monnier PhD, U/M LSA Astronomy

Subject

Telescope Interferometry--Stars and Exoplanets

A Q&A session occurred afterward with audience members asking questions. Charlie thanked our speaker for the presentation.

Business Meeting

Name	Topic
President Charlie Nielsen	Delighted to announce that the Lighting Ordinance that Sally Oey has spent many years working on for Ann Arbor has finally passed.
Vice President Liz Calhoun – absent, email read to club	- Worked with Doug Scobel regarding receipt and distribution of ordered RASC materials.
Vice President Adrian Bradley – absent, email read to club	- Worked with Doug Scobel for RASC handbook/calendar info. Was able to get direct RASC contacts as a member. - Continuing to be a part of the Explore Scientific Global Star Party which happens each Tuesday night at https://explorescientific.com/live , or on Facebook and YouTube. - AATB will take place next week on September 24 and 25th. My friend from Argentina, Maxi Faleris, has agreed to do either a live viewing or image share of Southern Hemisphere skies. This will be an online live view event.
Treasurer Doug Scobel	-We have 169 memberships, including about a dozen memberships that would have expired but for grace extended due to COVID-19 pandemic considerations. - We have \$10,700.20 in the treasury. - The treasurer is taking orders through mid-October for 2022 RASC observer's calendars and handbooks. VP Liz Calhoun will be responsible for distributing them when they arrive in November or December. An email to that effect was sent to the membership on September 13. Reminders will follow. - Since our August meeting our expenses consisted of payments for our usual monthly newsletter printing/ mailing costs, our monthly fee for maintaining our open house telephone "hotline", the cost to mail t-shirts to our August presenters and fellow Lowbrows Jodi and Roy McCullough, and reimbursement to Jack Brisbin for paint for the exterior of the observatory. *Treasurer content emailed for transcription accuracy and ease

Observatory Director Jack Brisbin	The broken entrance fence to the Radio Observatory has been repaired. The Graffiti on the Peach Mountain Observatory walls has been painted over. The recent storms have prevented some of the planned days for cutting down trees that are too close to the observatory building.
Online Coordinator Jeff Kopmanis	- Meeting attendance today reached a max of 27, with 1 being from YouTube. - This month's Communication Committee meeting was canceled due to all the members forgetting about it. - Astronomy At The Beach is this weekend.
Jim Forrester	A reminder that the late Tom Reichel's astronomy equipment is to be sold Saturday, September 18, and Sunday, September 19 from Noon-6:00 PM, both days.

Adjourned
9:15 pm

Minutes were taken and transcribed by
Joy Poling

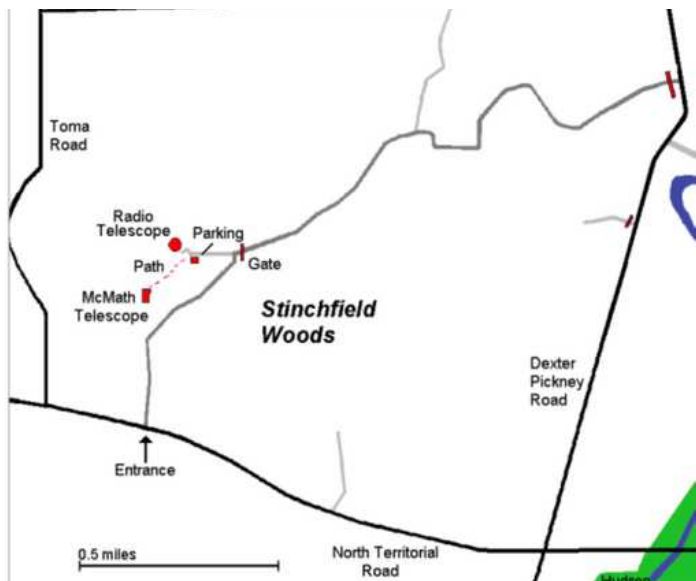
**NEXT ISSUE: A full report from the Okie-Tex Star Party.
Adrian Bradley sends this photo of Star Trails over
Don Fohey's Camper as a preview of coming attractions.**



PLACES & TIMES

Monthly meetings of the University Lowbrow Astronomers are held the third Friday of each month at 7:30 p.m. The location is usually Angell Hall, ground floor, Room G115. Angell Hall is located on State Street on the University of Michigan Central Campus between North University and South University Streets. The building entrance nearest Room G115 is the east-facing door at the south end of Angell Hall.

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). You can have the newsletter mailed to you with an additional \$18 annual fee to cover printing and postage. Dues can be paid by Venmo, PayPal, or by mailing a check. For details about joining the Lowbrows, contact the club treasurer at: lowbrowdoug@gmail.com

Lowbrow members can obtain a discount on these magazine subscriptions:

Sky & Telescope - \$32.95/year
or \$65.90/2 years

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 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
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	Joy Poling
	Liz Calhoun
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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



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