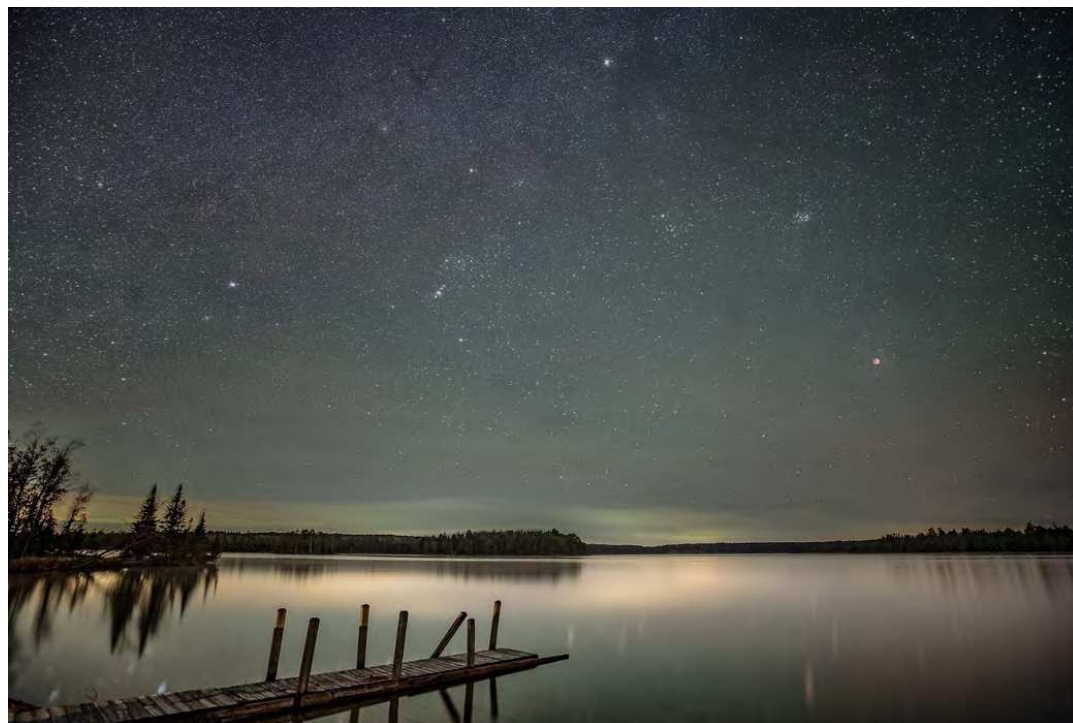


## Inside this issue:

<b>Lunar Eclipse over Alcona Dam Pond</b> by <i>Adrian Bradley</i> .....	1
<b>First Use: iOptron Sky Hunter</b> by <i>Jeff Kopmanis</i> .....	2
<b>Behind the Eyepiece: Seeing Color Visually in Deep Sky Objects</b> by <i>Alex Swartzinski</i> .....	3
<b>Over the Horizon</b> by <i>Jack Sprague</i> .....	5
<b>Cleaning Optics</b> by <i>Thomas Ryan</i> .....	6
<b>From the Desk of the Northern Cross Observatory</b> by <i>Doug Bock</i> .....	9
<b>Speaker Schedule</b> .....	10
<b>Objective Lens</b> .....	10
<b>Monthly Minutes</b> .....	11
<b>Club Information</b> .....	13



## LUNAR ECLIPSE OVER ALCONA DAM POND

BY ADRIAN BRADLEY

It took three photos to make this composition: One for the sky, tracked 120 seconds; one for the moon itself, two seconds; and one for the lake, trees, and dock, which was two minutes without tracking.

It's been a goal of mine to produce an image of the sky that looks the way it does to the eye when looking at a total lunar eclipse. This was during astronomical twilight, which may partly explain the sky color. I know there was skyglow present as well.

The moon just hangs there, faded in the background with that noticeable auburn color. This year it appeared to be just inside the umbra, as the right limb seemed to remain a little brighter than the rest of the moon. At this dark site, the Milky Way above Orion's head was visible naked eye.

Taken with a Canon 6D and a Canon 16-35mm f/2.8L IS III lens on a Move-Shoot-Move Tracker at Alcona Campground. This is Alcona Dam Pond near the Au Sable River.



# FIRST USE: iOPTRON SKY HUNTER

BY JEFF KOPMANIS

I know what you're thinking: This might not be the best promotional photo for the hobby of amateur astronomy. Or for Lunt Solar Systems. Or for iOptron.

However, it is a representative photo of an excellent lightweight AZ/EQ Goto mount on its first run with its happy new owner.

This is the iOptron SkyHunter AZ/EQ Goto mount, which was introduced in July of 2022 as an updated version of their very successful and popular Cube mount. It ran me \$588 through Highpoint Scientific, which is the MSRP; no discounts exist and your best deal is to find the lowest shipping fee and a source with the mount in stock.

Some specs: It has a maximum payload of 11 lbs and sports Alt-Az and Equatorial modes, as well as a number of common tracking speeds (1x, 1/2x, solar, lunar). It has built-in Wifi, so you can connect with a cellphone, tablet, or laptop with the companion iOptron Commander Lite cellphone/tablet app or SkySafari 6 or later edition. Windows, MacOS, iOS, and Android are all supported. The iOptron Commander Lite phone/tablet app provides controls for most of the mount's functionality and has a Goto library of 370 common solar system objects, stars, and deep-sky objects. For comprehensive Goto capability, SkySafari is the way to go, but I stuck to the stock software (iOptron Commander Lite) to discover just how extensive the package was. The Android version of the app did lock up a couple of times, but simply closing it and restarting was enough to get back to business.

Since this mount has only been out for a few months, it will likely need some firmware updates and contact with iOptron Support. I'm going to mention right away that iOptron Support has been excellent for my two other iOptron mounts and has already been helpful with the SkyHunter.

My aim was to set it up in AZ configuration for solar use since any daytime polar alignment is approximate anyway. If you want to toggle between AZ and EQ modes, hold the middle (circle) button as you turn the mount on. When you see all of the LEDs blinking, release the button and it'll settle into the other mode: EQ mode shows what tracking speed you're at, while AZ mode shows nothing.

My first problem was simply seeing what LEDs were lit up: the LEDs are red and not very visible in daylight. The second problem was that in AZ configuration, the LEDs



face the ground, meaning you have to peer up under the mount. With the LEDs facing down, it was a tad hard to confirm what the mount was doing. After messing with it the next day, I figured out that it's best to put it into the mode you want before you screw it to the tripod.

On the initial day, I gave up on AZ mode and reconfigured the mount with the included wedge to start up and use EQ mode. EQ mode works like a dream! I used my cellphone's compass app to point to True North (it has settings for Magnetic and True North), and the alignment was accurate enough so that when I used the Goto function to point at the Sun, it left the Sun half inside my field of view. This is as good as my iOptron ZEQ-25GT or an iOptron AZ Mount Pro. Commander Lite has the ability to sync your cellphone's time and location with the mount, essentially using your cellphone GPS in lieu of including one on the mount.

The RA/Azimuth clutch was a little harder to lock in than the DEC/Altitude clutch. iOptron recommends using an allen key or small screwdriver to use holes in the mounting bracket to help tighten the clutch. This worked but was less precise than I'd expected.

The SkyHunter is undeniably a lightweight mount and is not nearly as solid as my ZEQ-25GT and the LiteRoc tripod, but for a mount that weighs only 12 lbs, including the counterweight and tripod, it was more than steady enough while in use. Notably, it was not affected any worse than the ZEQ by adjusting the stiff Lunt etalon. Even manual focusing produced only minimal jiggles, which impressed me for such a lightweight mount loaded with close to 9 lbs of its 11-lb capacity.

iOPTRON SKY HUNTER continues, p. 3

I spent \$45 at Harbor Freight Tools for their Apache 3800 hard case (see below). I dropped the original foam right in, leaving room for the pier extension that iOptron includes with the mount. I noticed the original foam requires you to dial back your latitude on the EQ wedge so that it fits into the foam slot. I'd prefer not to set that every time I use the wedge; on the other hand, it's a quick and easy adjustment to make.

So how'd it do? It was steady enough that I was able to use my finger to steady my cell phone to take a picture of the view through the eyepiece of the solar activity. That afternoon, there were a number of large prominences and numerous smaller ones. Below is the pic.

**Summary:** The iOptron SkyHunter is a great choice for a lightweight full-featured Goto mount. Yes, it has some evidence of cost-cutting, but it more than delivers on the features advertised. I bought the SkyHunter as a lightweight travel mount to use with my Lunt 60MT, which can be configured to be used as H-alpha or a traditional telescope for land or night use -- a wonderful compact, single choice of telescope. I'm looking forward to traveling with it instead of lugging a heavier mount and tripod. ■



## BEHIND THE EYEPIECE: SEEING COLOR VISUALLY IN DEEP SKY OBJECTS (DSOs)

BY ALEX SWARTZINSKI

In the 21st century, we are spoiled with incredible astronomy images everywhere. As you read this, a massive 6.5-meter telescope orbits 1 million miles into space, its instruments cooled nearly to absolute zero. The incredible James Webb Space Telescope (JWST) isn't the only instrument that shows us vivid color in deep sky objects. Amateurs with as little as a DSLR and startracker draw out the beautiful red California Nebula (NGC 1499), or the yellow and blue Heart Nebula (IC 1805). With all these wonderful photographs, it's no wonder that newer observers are eager to see color firsthand when they look through the eyepiece. But is it possible?

To understand color in DSOs we must understand the sensors used to process images -- our eyes. We have several sensors in our eyes that are designed to see different wavelengths of light. Short-wavelength cones see blue light, medium-wavelength cones see green, and long-wavelength cones see red. Our brain takes these inputs to form a color image, much like JWST takes pictures in different wavelengths and combines them. Our eyes can't use any of our wavelength-sensing cones during low light levels. At night, we need to rely on our rods which are not sensitive to color. Humans aren't nocturnal (except astronomers) and this means our night vision isn't very sensitive compared to our daytime vision. Beyond our eyeballs, those faint fuzzies we chase don't do us any favors in the quest for color.

All the light from a star is emitted at a single stellar point. This differs from a distant nebula which has its light spread across light-years of space. Objects which have their light spread out over a large area have low surface brightness. Most deep space targets meet these criteria, making them quite faint. Our cones (daytime vision) will not be triggered because of the faintness observed in DSOs. Increasing the telescope size must be the answer then, right?

BEHIND THE EYEPIECE continues, p. 4

**BEHIND THE EYEPIECE** continues ...

Not exactly. Larger telescopes allow us to see more resolution at a given magnification, but they do not increase the actual surface brightness of an object. To put it simply, at 200x my 15" is producing an apparently brighter image than my 8" at 200x. This brighter exit pupil allows us to see more detail at any given magnification due to a larger image scale, but the object isn't actually brighter in a larger telescope. It just appears that way due to the increased image scale. Despite these limitations with surface brightness, you can see color in a select number of DSOs that are bright enough to trigger your daytime cones.

The mighty Orion Nebula (M42) has a very high surface brightness. This means the light emitted is quite bright because it's all concentrated in a small area. I can see vivid lime-green color near the core at low and medium powers with my 15" Dobsonian, and a fainter green can still be grasped in my 8" Dobsonian. Each observer will experience a different color scale when looking at the same object because our cones differ in sensitivity. In other words, my brain interprets light differently from yours. I've never seen pink in the Orion nebula, but many observers have at my aperture. Some observers have cones that aren't very sensitive, preventing them from seeing color in these bright-for-DSO but still dim objects.

The brightest planetary nebulae can also trigger our cones. The Blue Snowball (NGC 7662) is tiny but very bright, giving it a bluish-green hue to my eye. Other planetaries to try for are the Cat's Eye (NGC 6543) and the Saturn Nebula (NGC 7009).

To see color in a deep sky object, a longer focal-length eyepiece should be used. A 30mm eyepiece will give you more color potential than an 8mm. This is because of exit pupil. Say your dilated eye pupil is 7mm. If I use an eyepiece that matches your entire pupil, you will see a brighter image than if I'm only showing you 1.5mm of your entire pupil surface. On the Orion Nebula, you can experiment with this by starting with low power and working your way up. By 250x, I can't see any green, and the nebula looks white and black. There is more detail visible since I'm zooming in which increases the image scale, but I lose the color.

Another tip, don't use nebulae filters if you are trying to see color in an object. They lower the apparent



surface brightness by limiting what types of wavelengths make it to your eye. Filters are incredibly useful for seeing more detail by highlighting a particular wavelength, but they will block any of the natural colors. Dark transparent skies also make seeing color easier since the distant object isn't competing with artificial glow. All DSOs will look brighter at a dark site.

The eye isn't as sensitive as a camera sensor, but it does have some advantages over one. The best cameras can show a dynamic range of around 15 stops. Our eyes feature an incredible 21 stops. This increased dynamic range lets us perceive minute changes in the brightness of an object. We can see the trapezium stars and all of the various dust lanes near the core of the Orion Nebula. A camera will show a more colorful and brighter view, but the core will be blown out as a white hue since it doesn't have the range of our eyes to separate the different layers of brightness. The same can be said about globular clusters. We can see depth in a cluster giving it a 3D appearance. Cameras can't do this easily.

Even though most DSOs will be black and white in the eyepiece, there's something magical about seeing the live photons from a distant star factory or galaxy in real time. Despite our eye's limitations, it's a remarkable observing tool. Observing the deep sky is a lifelong skill. The more you observe, the better you will be at honing in on your dynamic range advantage to see fainter and more subtle features on deep sky objects. The more you look, the more you see! ■

The Moon Phases:

07 Dec	Wednesday	Full Moon	Rise 15:58 (6 <sup>th</sup> )	set 07:27
16 Dec	Friday	Third Quarter	Rise 00:10	set 13:08
23 Dec	Friday	New Moon	Rise 08:36	set 17:12
29 Dec	Thursday	1 <sup>st</sup> Quarter	Rise 12:27	Set 00:50 (30 <sup>th</sup> )

# OVER THE HORIZON

BY JACK SPRAGUE

Correction: Last month, the list of objects on the meridian wrongly listed M 52 in Andromeda. One of our distinguished readers caught the error and it has been corrected in the archive. M 52 is clearly in Cassiopeia. Apologies.

## Holiday Edition.

Hosting the holidays with close friends and relatives often involves the question “what have you been looking at lately?” Instead of mumbling some glaze-inducing description of elliptical bulges and H-alpha glow (ask me how I know the glazed look), you have options.

This month’s suggestion is a “grand tour” of your own construction from the meridian objects below. As a bail-out, there is always the reliable M 31 Andromeda, M45 the Pleiades, and a special look at Mars.

I caution against creating a digital slide show of your captured glories. Yes, I would very much enjoy sitting on your couch with popcorn listening to the observation reports and the details of your capture. Non-astronomers will liken a full-fledged image reveal in the same light as vacation snaps or worse: wedding pictures.

Conduct your own open house.

Set up your gear and give the folks a chance to see something astounding. EAA works well. Eyepiece observations also work well.

**Of course, experience shows the youngest observers will be most delighted observing one specific object above all others: the moon.** The lunar cycle poorly agrees with the holidays this year. We’ll have to make do with Mars which crosses the meridian at 23:09 on December 21 while rising at 15:28, and setting at 06:50 on the 22nd. I mention the 21st as that is about as soon as most grandcubs might arrive.

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

**Observing:** (all times EST)

Average Sunrise 07:57, Sunset 17:04.

## Meridian Constellations as of 15 December – 22:00 hours.

(-), (--) represent a positional modifier to constellations and objects east of the meridian by less than an hour and more than an hour. (+), (++) represent a positional modifier to objects west of the meridian by less than an hour and more than an hour, respectively.

I mention here a few objects contained in the constellations which I find meaningful. The list is in no way comprehensive!

--Southern Horizon--

Fornax

Fornax A NGC 1316 / Arp 154 interacting galaxy

Fornax Dwarf Galaxy PGC 10074

C 67 – galaxy (stunningly beautiful object).

Eridanus

A grand design galaxy NGC 1232 / Arp 41

Eridanus A group NGC 1407 – elliptical galaxy

Cetus

M 77 / Arp 37 - galaxy

Taurus

Merope Nebula NGC 1435 – reflection nebula in the Pleiades cluster

Aries

The Northern Fly – asterism (defunct constellation)

(-) Perseus

M 34 large open cluster

M 76 Little Dumbbell Nebula (planetary)

C14 Double Cluster NGC 884 / NGC 869

Cassiopeia

C 18 dwarf spheroidal galaxy

C 17 dwarf spheroidal galaxy

NGC 281 (sh2-184) Pacman Nebula – emission nebula

C 13 Dragonfly cluster/Owl cluster – open cluster

C 8 open cluster

Cepheus

C 1 open cluster

Draco

NGC 5907 Splinter Galaxy

--Northern Horizon--

Have a great tour and a wonderful holiday! ■

# CLEANING OPTICS

BY THOMAS RYAN

A little while ago, Mark Deprest offered some of his telescopes for sale and I was fortunate enough to be able to buy two of them; a TPO 12" F/4 Newtonian and an 8" F/6 Newtonian that he christened "Goldie."

Being the mechanical nerd that I am, I disassembled both scopes before even looking through them. I'll discuss the 12" in a future article, but this article is about the 8" F/6 "Goldie." My intent was to familiarize myself with the scopes and to fix anything that might need fixing.

There were indeed some screws missing, but nothing serious. However, since "Goldie" had been in the hands of a superlative observer, it had gotten a lot of use on many dewy nights, and dew and dust had dried on the mirror.

Every amateur astronomer should know that cleaning optics usually does more harm than good. The dirt and dust particles on the surfaces are usually a lot harder than the optical coatings, and wiping them off will just give you permanent scratches that can reach right through the coatings into the glass substrate and therefore never go away. Indeed, Mark took the intelligent approach and left the mirrors alone, but that left me with a very dusty 8" mirror.

Since I was starting anew, I removed the 8" mirror from its cell and considered having Spectrum Coatings simply recoat the mirror. However, I recently designed an industrial optical system that used diamond-turned, gold-coated aluminum mirrors that had to have some machining operations done on them after coating. The machine shop was trying hard not to touch the coatings, but that was not working out so I searched for a strippable coating and found a product through Edmund Optics called First Contact.

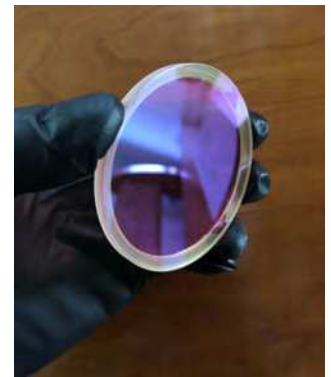
We applied First Contact to the gold mirrors, let it dry, did the machining operations, and stripped off the coating. It worked out well, except that the First Contact coating left some strange markings on the surface. The marks weren't nearly as objectionable as what happened to the optics during machining without the coatings, but they happened.

Overall, I was happy with the way First Contact performed, since it basically saved the project.



First Contact is advertised as a tool to remove dust and grease from an optical surface, and it certainly did that for my gold mirror and IR silica window project. So I wondered if it could remove the dirt from the 8" mirror?

I tried it on a small area of the 8" mirror's surface, and First Contact removed some of the dirt and dust from the mirror, though not all of it. But it did make the surface better.



What it left was a frost pattern on the mirror. I've seen this pattern before on really old aluminized mirrors, and I assumed that the pattern was some kind of oxide growth on the aluminum coating itself. I then got distracted and didn't immediately send the mirror to be recoated, but instead just left it covered by a cookie dish cover to keep the dust off it and to protect the surface from house hazards.



CLEANING OPTICS continues, p. 7



First Contact has a very distinctive smell, and while applying it I, like Proust and his madeleine soaked in a decoction of lime-flowers, experienced a remembrance of things past of my time spent in a former life as a mold-maker for auto manufacturers. We used a product called Partall #10 which formed a strippable release barrier between mold surfaces, and Partall #10 smelled exactly like First Contact, so I wondered if the two products were the same and if so, could I use Partall #10 to clean the 8" mirror?



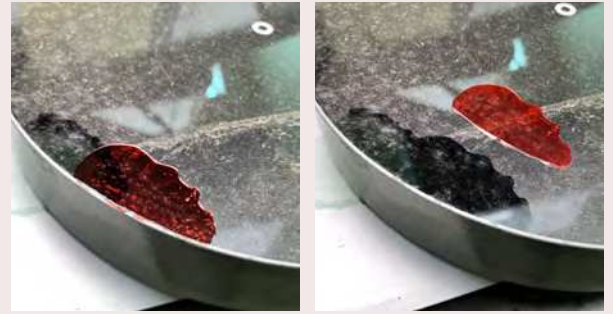
The reason I was curious about this was that First Contact costs about \$171.00 for 73 ml, or about one-third cup, and Partall #10 costs about \$36 per half gallon.

Hey, I'm cheap. I admit it.

So, I decided to try it. Since this was an opportunity to learn something, I decided to compare the performance of the two liquids by cleaning Mag-Fluoride-coated glass lenses, a relatively new aluminum mirror coating (the 8" mirror) and a very old mirror coating on a 1.5" diagonal mirror.



I also wanted to see if a second application of First Contact would further clean up the mirror surface that I'd already treated once, so I applied the First Contact film to cover both the original, untreated surface and the formerly treated area.



I was disappointed to find that when I removed the First Contact film from the area on the 8" mirror and set it next to the treated area, I could see that First Contact had once again removed some dust, but not all of it.

On the other hand, the Partall #10 took off every piece of dust, grease, and dirt on the surface and basically left it looking like the mirror came straight out of the coating chamber. In the pictures, First Contact was applied to the area on the left, and Partall #10 to the area on the right of the mirror.



Next, I removed the two dried films that I had poured on an old aluminized coating on the diagonal mirror, and the Partall #10 seemed to produce a cleaner surface than the First Contact film, and the First Contact film actually removed some of the aluminum coating along one edge of the mirror.



**CLEANING OPTICS** continues ...

In all fairness, the aluminum film on the diagonal was very old and might have had lower adhesion to the glass on the First Contact side of the coating; but then again, the aluminum film's adhesion on the two sides of the mirror might have been equal.

More testing was required.

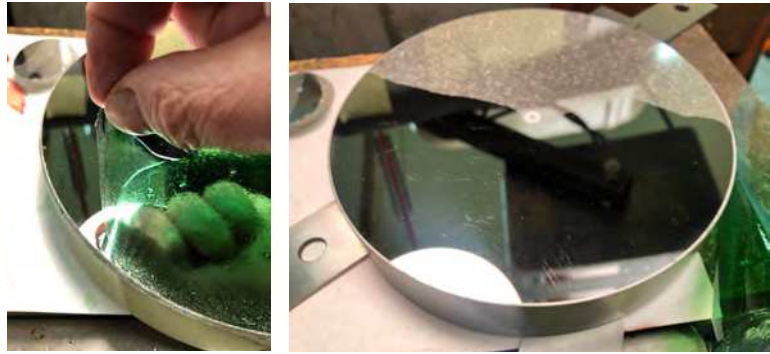
I repeated this comparison test with the Mag-Fluoride coatings on a round holographic grating and on a Fused Silica lens, and in both cases, the Partall #10 seemed to do a better job of removing dirt, grease, and Old Sin. Neither product harmed the anti-reflection coatings.



Ok, so now I'm thinking that I'm just going to use the Partall #10 to try to clean half of the mirror, including the part that the First Sense had twice failed to clean. The only apparent difference in application between First Contact and Partall #10 was that First Contact dries in about 1-2 hours, and Partall takes two to three times longer to dry. I helped along the drying process with an old filament light bulb, because I not only want it cheap; I also want it now.

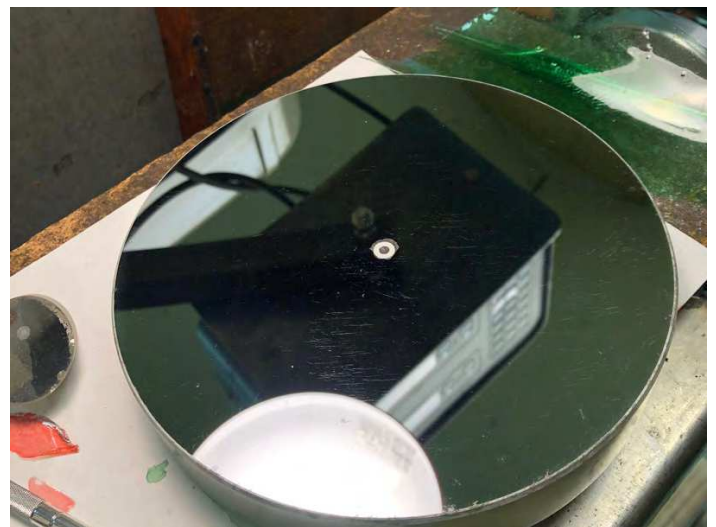


I peeled off the Partall #10 film, and it perfectly cleaned up everything that it touched, including the areas that the First Contact had failed to clean.



Yet all was not joy in Mudville, my friends. Yes, the Partall #10 did a fantastic job of safely removing every speck of dust and every greasy fingerprint on all of the optics it touched, and the coating on the 8" mirror looks like a newborn babe, but the coating had scratches. They weren't a result of this cleaning process, but rather were revealed by it, since they all went in the same direction, exactly as you'd expect if you carefully soaked the mirror in liquid detergent at some point to soften the grease that holds the gritty abrasive dust, then rinsed with running distilled water, carefully dragging a clean paper towel once across the surface, as per the best cleaning instructions available to date for telescope mirrors. And you still got scratches.

But heck. The scratches in the coating are minor and don't really matter that much. We now have a better method of cleaning optics, and I'm using this particular mirror just as it is. ■





# FROM THE DESK OF THE NORTHERN CROSS OBSERVATORY

BY DOUG BOCK

This past month, I put the 10" f/8 RC back on the mount in the observatory to work on some galaxies and comets, with a nebula thrown in there for good measure. This telescope has a focal length in the range of 2000 mm, so its field of view (FOV) is about 40 x 27 arc minutes with the camera I use, which is the ZWO asi2600mc PRO.

I typically collect data all night using the automation I set up 6 years ago. This allows the system to not rely on a human using Sequence Generator PRO, PHD2, and FocusLock to manage the acquisition, guiding, and focusing automatically.

The objects this month are:

- NGC 2146 – November 26, 2022 – 52 x 120 second frames
- M 74 – November 23 and 26, 2022 – 173 x 120 second frames
- NGC 7814 – November 1, 2022 – 51 x 300 second frames
- NGC 7331 – October 28, 2022 – 49 x 300 second frames
- NGC 147 – October 29, 2022 – 51 x 300 second frames
- M 78 – October 29, 2022 – 21 x 300 second frames
- Comet C/2020 v2 – November 2, 2022 – 4 x 120 second frames
- Comet c/2020 v2 – November 23, 2022 – 3 x 120 second frames ■



During this next few months there may not be much in the way of clear nights, but I will endeavor to capture some winter objects, if not too cold.

## UPCOMING MEETING SPEAKER SCHEDULE

**DECEMBER 16:** Fred Schebor, long-time club member

Topic: *The Artsy-Meaningless Slide Show. (In-Person Only!)*

**JANUARY 20:** Dr. Guy Consolmagno, Director of the Vatican Observatory.

Topic: *What's Surfacing About Bennu -- An Asteroid That Doesn't Make Sense*

**FEBRUARY 17:** Ken Bertin, Warren Astronomical Society.

Topic: *The Birth, Life, and Death of Stars.*

**MARCH 17:** TBA

**April 21:** TBA

**May 19.:** Buddy Stark, Planetarium Manager, U-M Museum of Natural History.

*(Visit to the U-M Museum of Natural History Museum Planetarium)*

## UPCOMING TOPICS FOR THE OBJECTIVE LENS

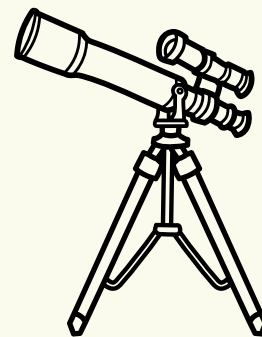
BY JACK SPRAGUE

All images are welcome and while we'll have a monthly theme, we'll love any submission. Images submitted will be included in "The Objective Lens" and in the annual Backfocus compilation without any rights transfer beyond your permission to allow The University Lowbrow Astronomers use of your image for inclusion in these two documents.

**January** – Stars! After all, aster-onomy! Doubles, triples, quads, double-doubles, multiples! We'd love to see short frame captures of stars in groups. This is also a real chance for eyepiece AP work as stars lend themselves well to short-exposure improvised pictures. Eyecups work best for me when improvising with a cell phone snap though they are hardly required. Just be careful of the eyepiece! With the "continuous focus" features of most cameras, amazingly clear central image shots are quite possible especially with 82° or better wide-field eyepieces. Please share! Multiple submissions are certainly allowed. Adding a catalog number of at least one of the stars, magnitude, and separation all would be extremely helpful.

**February** – Frozen Observations. The theme this month is evidence of those uniquely Michigan observation events. DSLR on a tripod by the snow mound at the end of the driveway? Snowman seemingly interested in DSO capture? Parka-clad observers practicing ACNO (the "c" stands for "cold" here)? Warming pit gathering (some of us use a Solo stove for winter obs) with parka, snow boots, hot coffee, and fresh cookies? Observatories covered in inches (feet?) of white stuff? Our treasurer in front of a palm tree? All of these are welcome images.

**March** - Mobile observations and observers observing outside of the home environment. Make sure and take snaps from Joshua Tree, the west side of Florida, Costa, the Namibian Safari, and your sojourn to Kuai. [Peach Mountain counts ... barely.] ■



# Lowbrow General Membership Meeting Friday November 18, 2022.

Transcribed by Dave Snyder

Charlie Nielsen (President):

Charlie introduced Neil Cornish (Professor of Physics, Montana State University).

Neil Cornish:

Prof. Cornish gave a talk “The Dawn of Gravitational Wave Astronomy,” followed by questions and answers.

Charlie Nielsen:

We need to work on speakers for 2023. We currently have the following:

February – Ken Burtin  
June – Jim Shedlowsky

Also Adrian Bradley has two presentations prepared.

We have an observing request for December 8 from one of the area STEAM schools. They have an event that starts at 5:30 and would like to have observing from 6:00 to 6:30. Don Fohey is interested as is Charlie (though Charlie was concerned he might have conflicts). Charlie will send an email out.

Jeff Kopmanis (Online Coordinator)

There were 18 max attendees for tonight’s meeting on Zoom, 9 in person.

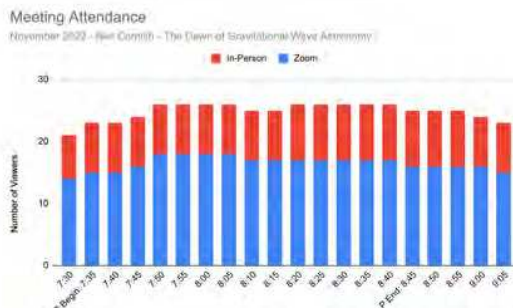
Jim Forrester (Vice President)

A proposed open house schedule for 2023 was sent out a couple months ago. We could try to finalize it in January.

Dave Snyder (Vice President)

Dave attended a private open house at the Detroit Observatory on Thursday. He talked with both Gary Krenz (Director of the Observatory) and Austin Edmister (Assistant Director for Astronomy). This is a possible location to hold club meetings in the future (instead of Angell Hall) if the club is interested.

Charlie Nielsen – Amy Cantu (Newsletter Editor) emailed Charlie and said she had no report.



(Minutes continue on next page.)

Jack Brisbin (Observatory Director)

We plan to move the 17 ½ inch dob into Dave Jorgensen's garage; we'd like to do this before Christmas. There is a question on what shape the batteries are in. There were problems with tracking, have ordered some new equipment for the dob.

John Wallbank (President of GLAAC, Great Lakes Association of Astronomy Clubs)

We will be resetting the board of directors, the officers and the planning committee of GLAAC at the January meeting. If things hold out, this meeting will be held January 12, 2023, the 2<sup>nd</sup> Thursday. It will be on Zoom.

We are always looking for people who want to participate in the planning committee or even better for someone to take an officer position.

The only officer set for next year is Adrian Bradley (Treasurer). Other current officers are Jeff Kopmanis (Secretary), John Wallbank (President), Tim Campbell from the Ford Club (Vice President), Brian Ottum (Communications Director).

The event itself will be 22-23 Sept 2023. A lot of work, but very rewarding.

Charlie Nielsen – Amy Cantu (Newsletter Editor) did not attend. Adjourned the meeting

After the meeting, Adrian Bradley (Vice President), who was not present at the meeting itself, sent this email addition:

My apologies for not stating that I was otherwise preoccupied with a charity event in downtown Detroit.

I continue to do outreach every Tuesday that the Explore Scientific Global Star Party is held. The next one will be Tuesday November 22nd. I have prepared a short presentation on the McMath that includes Dmitri's video that he made at our last open house.

Doug Scobel (Treasurer), also not present at the meeting itself, sent this email addition:

We have 194 memberships.

We have \$13367.78 in the treasury.

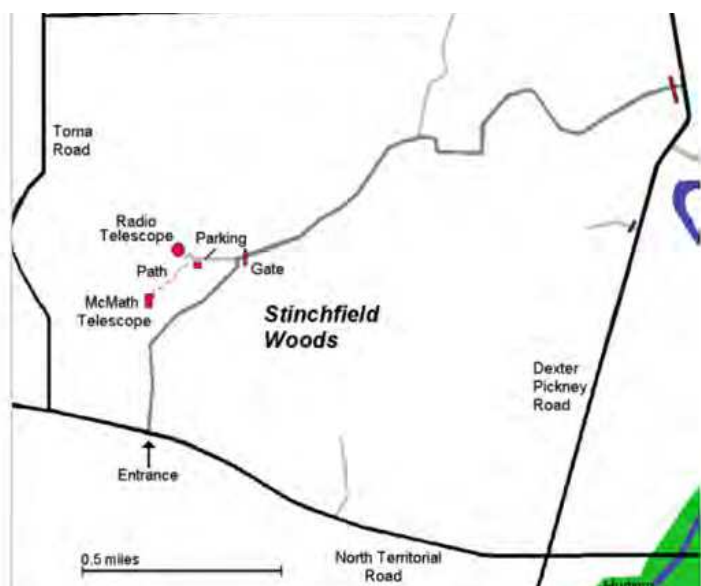
In September I ordered 20 each of the 2023 RASC Observer's Calendars through the Astronomical League. They will be available to members on a first-paid/first-reserved basis. Contact me regarding how to order/reserve yours. Items will be delivered to Jim Forrester for distribution in December. As of this writing there are 7 calendars and 8 handbooks available to reserve.

Besides our usual monthly costs for the Open House "hotline" and printed newsletter printing and mailing costs, our only recent expenditure was to mail a Lowbrow cap to October guest speaker Elena Gallo.

## 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). 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



[www.youngastronomer.org](http://www.youngastronomer.org)