REFLECTIONS / REFRACTIONS

University Lowbrow Astronomers Monthly Newsletter

June, 2025, Vol 49, Issue 6

Inside this issue:

INTERFLUX NEBULA WITH M81 & M82

BY BRIAN OTTUM

Several years ago, I became aware of a very faint "cirrus smoke cloud" that is up near Polaris. It is called the Integrated Flux Nebula (IFN). It is extremely faint and difficult to see visually.

The IFN is interstellar dust, plus a bit of hydrogen and carbon monoxide gas. It is concentrated away from the plane the Milky Way. Like globular clusters, the IFN is above and below the galaxy in the "high galactic latitudes."

Unlike the red nebulae we know and love, the IFN is not lit by the stars within it. The IFN is illuminated by the combined light of all the [distant] stars in the Milky Way.

The above image is the IFN near the well-known M81/M82. The big knot is "The Volcano". The bright star within the volcano is 24 Ursa Major.

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INTERFLUX NEBULA continues, ...

If you want more information, Google "Steve Mandel" who coined the IFN term and published the first great pictures of the IFN.

I've been trying to get pictures of the IFN for years. All fails. You need a wide field, a dark sky, and lots of exposures.

Finally, I got some good images a year ago up north in Glennie MI. Nice and dark there. I used my ZWO 2600 color camera, fast Canon 200mm f/2.8 lens, AM-5 motor drive, and a custom lens+camera holder from our friend Clay Kessler. Both images are about 70 minutes of total exposure, in 1-minute individual frames. ❑

Polaris and the IFN. It looks kinda like Halloween. Spooky clouds.

M13

BY DONOVAN DREW

Imagining details here:
https://app.astrobin.com/i/girgpj

OVER THE HORIZON

BY JACK SPRAGUE

I've relocated to the warmer shores of the south near Hilton Head Island. There is more sun and certainly more nights of clear skies but atmospheric dispersion is constant issue here in the high humidity lowcountry. Nevertheless, my nights at the Beagle Meadows Observatory just north of Dexter will always remain precious and vivid – especially the memories of startling deer in the dark on the walk back to the house!

Concerns for nesting loggerhead turtles (and occasional green sea turtles) in this area make my nights nice and dark at present. Who knew something under the surface could have such a profound effect on what is far above the surface?

All times and estimates are based on Ann Arbor location and time zone.

The June Snapshot

The early summer is an excellent time to impress the neighbors and excite family with sights from above. As many of you are shifting into EAA and AP work thanks to innovations such as the Seestar series, I'll focus on some summer stunners here: galaxies.

It was only in 1929 that Edwin Hubble - using the invaluable Henrietta Swan Leavitt's cephid variable star linear relationship between luminosity and distance – asserted the existence of galaxies outside of our own Milky Way. We're still not to the one-hundredth anniversary of galaxies. Amazing!

Here are some delightful targets for June which should be within reach of all of us due to their rather northern locations. If you take the time to gather a few frames even with 150mm focal length instruments, you can make out some of our stunners.

M 108 – NGC 5457 "the Surfboard Galaxy". Mag. 10. Location: UMa. Size: 8'42" x 2'12". Ra/Dec (as of June 15) 11hr 13' 0" x 52° 32' 24". Discovered by Pierre Mechain on 19 FEB, 1781, this beast is squarely in the EAA/AP league. It is nearly an edge-on galaxy though its slight inclination highlights the loosely wound arms. It is a lovely gem worth the effort. The location just below the "bowl" of the big dipper makes finding this beastie a pleasant exercise.

Observing: (all times EST)

Average Sunrise 05:57, Sunset 21:13.

The Moon Phases:

02 Jun	Monday	First Quarter	Rise 12:50
11 Jun	Wednesday	Full Moon	Rise 22:11
18 Jun	Wednesday	3rd Quarter	Rise 01:27
25 Jun	Wednesday	New Moon	Rise 05:40

The general appearance is "wrinkled" as if it was left on the floor of the laundry room when it failed to move to the dryer. Then, it dried on its own. Mag 10 is a bit of a reach for smaller scopes in direct observation but for EAA/AP this is no issue. The distance is around 47M ly. The center revealed an active black hole for the Chandra X-ray observatory.

M 101 – NGC 5457 "the Pinwheel Galaxy". Mag 7.90. Location UMa. Size: 28'48" x 26' 54". Ra/Dec (as of June 15) 14hr 4' 9" x 54° 13' 45.6". Discovered Pierre Mechain 27 Mar, 1781. [James O'Meara credits William Hershel with discovery in 1788]. This face-on spiral is a lovely target if the preceding M108 proves unsatisfactory. It is notably the host of a very recent supernova (SN 2023ixf) though the remains will not be visible today. Stunningly vivid in just a few stacked frames (try 90 second exposures at least to gather the contract evident in the dust of the arms which themselves are full of bright objects), this galaxy in particular with its imbalanced portrayal drives home the "nature" of objects in the night sky. These aren't Hollywood creations in perfect symmetry. The galaxy is roughly twice the size of our own Milky Way. The distance is around 21M ly.

M106 – NGC 4258. Mag 8.4. Location CVn. Size 18' 36" x 7' 12". Ra/Dec (as of Jun 15) 12hr 20'14" x 47° 9' 58". Discovered Pierre Mechain in 1781. This is a delightful large spiral galaxy at a modest inclination (20°). There is a fair degree of fluctuation in the light emitted from the various sections of the galaxy but you might require a lengthier exposure series with a fairly expensive camera then we'd commonly find in EAA to bring these out. I had the good fortune to view this beast emerging in a Planewave CDK14 and it was stunning. Of note, this galaxy is an excellent candidate for hosting a supermassive black hole in its nucleus due to a steep velocity gradient of objects rotating around the core. An article appearing in Nature in 1995 outlined the conclusion due to radio wave observations. The distance is around 23M ly.

OVER THE HORIZON continues, p. 4

O**VER THE HORIZON** continues …

M94 – NGC 4736 "the Croc's Eye Galaxy". Mag 8.2. Location CVn. Size 11' 12" x 9' 6". Ra/Dec (as of June 15) 12hr 52' 6" x 40˚ 49'. Discovered Pierre Mechain 22 Mar, 1781. If you are seeking this month's "trophy image", then you could do far worse than to image this particular gem. Arms which resemble long feathers from an intricately barred mythical bird wrap a central core easily resolved into shell layers itself. With a little color discrimination in post processing, this one can be worthy of a print for the wall. M94 is suspected of experiencing a massive explosion 10M years ago resulting in millions of solar masses of material being expelled from the nucleus. The distance is around 16M ly and the generous size and brightness reflect this close association.

M63 – NGC 5055 "the Sunflower Galaxy". Mag 8.6. Location CVn. Size 13' 11" x 7' 56". Ra/Dec (as of Jun 15) 13hr 16' 59" x 41˚ 53' 52". Discovered Pierre Mechain 14 Jun, 1779. A wonder spiral galaxy that rewards careful post-processing, the dust lanes in the long, unbarred arms form intricate patterns. These dusty arms are active star forming regions. The galaxy is gravitationally interacting with M51 (the Whirlpool galaxy). If you seek a galaxy whose fine structure can be revealed in a small telescope, this one is an excellent choice. Playing carefully with your fine focus will reveal layers of structures that otherwise we only see with EAA/AP techniques. The distance is generally quoted as 29M ly.

Caldwell 32 – NGC 4631 (the "Whale") and NGC 4656 (the "Crowbar"). A double treat for smaller telescopes at ½˚ of separation. Location CVn. Look to the Whale at 12hr 42' x 32˚ 32' and be prepared to search slightly around the coordinates to include the set of objects which will emerge. C32 as the whale is the larger of the pair at 14.7" x 3.5" and Mag 9.2. Often, finding this one allows for a careful repositioning to capture 4645 in the same eyepiece FOV. The distance to C32 is roughly 30M ly. William Herschel discovered the object in 1787. A mottled appearance is filled with active star forming regions. The Crowbar (or Hockey Stick) is much fainter at Mag 11 but makes for a more dramatic view with the pronounced bend. Tidal forces from 4631 and NGC 4627 (nearby and possibly revealed in the eyepiece as a small smudgy dot immediately "above" the whale) cause the pronounced distortion and thus contribute to the uniqueness of the sight.

M63
The Sunflower Galaxy
(*Wikipedia***)**

I hope your summer nights are filled with wonder and awe. Please don't forget: when in need of something inspiring for those visitors only casually interested in the night sky, the Moon makes a wonderful object with only a little preparation (where Armstrong walked is always a favorite in my experience). ❑

JUNE 10, 7 PM

You're invited to Dean Regas' next online class

TOPIC: The Sun - Online Class with Astronomer Dean Regas

Learn all about our Star Attraction: The Sun. Dean takes you in for a close look at features of the Sun and the latest highlights from the many solar space missions. Plus investigate safe ways you can view the Sun.

Lowbrow members can use this link and pass to join that night for free.

Link: https://us06web.zoom.us/j/88121302601?pwd=NJ3lfmY8AsSGBuPlEP3lpGQ5c8Lda8.1
(Pass: 577335)

As usual, I will record the session and make that available to you the next day. Please let me know if you have any questions and hope to see you there.

Dean Regas, Your Astronomer
Host of the Looking Up podcast
https://www.astrodean.com

IS ASTRONOMY BECOMING TOO TECHNICAL?

BY ADRIAN BRADLEY
(a failed visual astronomer)

Colorful sky over Lake Hruon (Photo by Adrian Bradley)

Yes, you read that right. I'm a failed visual astronomer. I confess.

I learned about the night sky from a number of Lowbrows who were well-versed in how to spot faint fuzzies in the night sky. Their keen eyesight and huge instruments were pointed at the sky towards objects both bright and dim. They were heavily armed with expensive eyepieces, filters, clutches to stop telescope movement, motors, power setups with portable batteries, mirror fans, collimating devices, and lasers, and big optical tubes that might be confused for giant cannons. Motorized scopes slewed to objects in the sky, and the observer would look in the eyepiece, gently turning the focuser, until the stars were as sharp as they could get it. Then they would positively identify whatever object they were after… or they would search for it and not see it. Techniques like averted vision were used to try and identify a faint wisp of light from an object. If those techniques failed, the observer might still proclaim to have seen something anyway.

The 'smartest' that a telescope got -- back when I learned the night sky – was if it was polar-aligned correctly so that when an object was punched into a hand controller, the telescope 'knew where to look' and slewed directly to the object that was selected. It made for a wonderful observing experience, because once trusted, a telescope could whizz around to a number of different objects, and the visual astronomer could see something for the first time and compare it with other similar objects in our night skies.

Fast forward a 'few' years and suddenly…

We point things to the night sky with cameras. Some are dedicated to doing astronomy, and others were bitten in the neck to become vampires (meaning, they were converted to nighttime-only photography by removing the Ha filter, allowing light in those wavelengths to be captured and given a color we could see). These cameras could pick up a lot of faint fuzzies in the sky, showing even more detail than could be seen visually through those telescopes. The astrophotographers came heavily armed with laptop computers, wires, hefty computerized mounts on sturdy tripods, fast astrographs, refractors, the aforementioned cameras, polar scopes, and tents/covers for the light their laptops would shine into the darkness of the observing field. If they didn't, the visual astronomers from the first paragraph would demand that they TURN THOSE LIGHTS OFF! I am sure I'm missing many other tools in use – especially bright white flashlights to troubleshoot what the heck is wrong with the gear if it doesn't get up and running at first.

Motorized scopes and cameras slewed to the object of interest in the sky. The imager would look at the first image, verify focus, and determine if all is well. Upon determining this, the imager points at a particular object of interest. They may or may not know if they got the image – until they look at the first few frames. When they see that they are successful, they leave the rig to do the gathering of data. At star parties with RVs and tents, many imagers go back into those RVs or tents and go to sleep. They'll check things out in the morning. Back to the visual astronomer…

"I have an OIII filter in and am observing planetary nebula NGC 7293 in Aquarius at 200 power!"

The astrophotographer?

"I am imaging something new. My buddy told me to try an object called 'Caldwell 63' so I'm going for it. I'll gather 240 1-minute subs at unity gain; 60 each for Ha, OIII, SII, and LP. I'll stack each set of images, then combine them all, process in PixInsight (let's face it, PixInsight is DESIGNED for this), and tweak the final image in Lightroom Classic."

IS ASTRONOMY BECOMING TOO TECHNICAL? continues, p. 6

I'm sure I'm leaving a little more detail out of the visual astronomer's response – like I said, I'm a FAILED visual astronomer. 200 power might be too much for NGC 7293 anyways because it's a pretty big object in the eyepiece. And again, I know I left out details on the astrophotography side because astrophotography can get way more technical with exposure settings and guiding along with tracking, as well as applications that tell the astrophotographer how long their intended target will be in the sky. Not to mention the various tools, workflow, and terminology during post-processing, such as dithering.

SO, WHAT IS THE POINT?!

Aside from picking two different catalog definitions for the same object in the night sky, I wanted to highlight my concerns with our grand hobby of astronomy. Namely, how intimidating it can be for a newly interested person to get their feet wet in the hobby.

Why so intimidating? Well, part of the allure of astronomy is the technical aspect of doing it. In other words... GEAR! Many astronomers love gear and love knowing enough about it to be dangerous. At some point in our journey, we love to show up at star parties around sundown and the start of civil twilight because it takes us over an hour to set up the gear and get it going. If someone comes by and is impressed with the setup, we will talk about it and espouse its virtues.

But what about the night sky? Yes, the very thing you brought all of this gear out for?

WHEN IT DOESN'T WORK, THE NIGHT SKY GETS 'LONELY'

Here you are, whether you are a visual astronomer who can't seem to get GoTo working right, or an astrophotographer who can't seem to get Goto working right (yes some maladies affect both camps). Anyway, you go into troubleshooting mode and begin flashing red lights, looking for the problem. "What the heck is wrong NOW?" becomes a common phrase. If the answer isn't found within the hour, more colorful phrases are uttered. The bright lights may even start coming on as we get more and more frustrated with this 'gear' that we were bragging about just 1½ hours ago. More hours pass, and finally you fix the problem! AHA! I got it working!

Abandoned rescue station at Pointe Aux Barques Lighthouse Park, April 2025 (Photo by Adrian Bradley)

Then you look up, only to realize that your target for the night has now set, and you're not sure what else there is to look at now. You planned to be in your tent while your rig was happily capturing frames, or you intended to try that new filter wheel to see if you could finally visually identify NGC 2359. It's gone, and Leo, Virgo, Corvus, Cancer, and Crater are nothing but mostly galaxies. Scorpius is scraping the horizon, not fully up yet. (visual) Now what can I use this filter for?! (astro) What can I image that will be multi-colorful and help me show off my skills as an astrophotographer??

Well...

The night sky waits for no one. It got lonely so it left. Well, technically it 'right ascended.'

IT'S ABOUT THE NIGHT SKY ITSELF

When we are there to use our gear for capturing or observing objects in the night sky like the Helix Nebula or Thor's Helmet, we focus a little less on it and more on making sure we can image or observe our intended targets. When we are asked about our gear, we share why we picked the gear we have, and how it helps us gather the photons we're after that night. We explain just enough about it in case the person asking is a fellow imager or visual observer who wants more information about it, but we don't let the discussion of gear deter us from enjoying the night sky with its celestial objects that we intend to discover for ourselves.

IS ASTRONOMY BECOMING TOO TECHNICAL? continues, p. 7

IS ASTRONOMY BECOMING TOO TECHNICAL? continues ...

Sometimes we are testing our gear to see how well it works with different parts, or different techniques in using it. That's perfectly fine and should be done often so that when we set out to view or image something we haven't seen for ourselves yet, we are ready to handle it. We know how our gear works, we know our process, and we are ready to troubleshoot quickly in case something goes awry. And we should have a plan B for our night session. In other words, don't forget to have extra batteries for our gear, tools on hand to help us fix the issues, shades we can draw down and use to cover the light we will be kicking out, and maybe even a backup camera or set of binoculars. Because if I can't get done what I'm doing tonight, well at least I'll observe and enjoy the night sky in binoculars! I'll see if I can fix this thing later and try again on the next clear night!

When we shift our focus towards enjoying our views or captures of the night sky, we are then able to share to others a brief synopsis of how we do it, followed by the all-important 'WHY' we do it. We can then focus on talking to our guest(s) and finding out what they are hoping to do during this visit to a star party or open house. Do they want to become astrophotographers? Do they want to see the rings of Saturn? Have they seen a bunch of images of the Milky Way and now want to see the Milky Way for themselves? And, do they have a lot of information that may not be accurate about space and need to have some of those things debunked? Ultimately, that is where we can actually USE our gear to make a real difference.

Who cares about yet another image of the Rosette Nebula or Horsehead Nebula that will get looked at on the internet for about 4 seconds? Ditto for that overprocessed Milky Way image over a lagoon (a lagoon on earth, not M8 the Lagoon Nebula). And why do you keep slewing your big scope to the same globular cluster, galaxy, or planetary nebula (M13, M27, M57, M51... and maybe M101?) May as well call 'em the Rat Pack of space!

Unless ...

... there is someone out there who has never seen these objects, and upon seeing them, they get very excited start asking questions about what it is and how it got there, start asking if it's real or not, or maybe even burst into tears.

These are the very people who may, upon seeing the beauty of such a night sky, join the fight with us in looking for ways to stop the sprawl of light pollution. They will learn why we should regulate the number of satellites in space, or fight to save NASA's budget for space missions year after year. They will fight for the right to have their children and their children's children see the same things they did. They may find something that they can get involved with and make a difference. At the very least, but still important, they find a hobby that they can turn to and reduce their stress levels, reconnect with nature, and get away from whatever is going on in their lives, even if it's for a couple of fleeting hours looking in a telescope eyepiece or someone's tablet showing an image of one of these magnificent deep space objects in our universe.

You can't do that if all you're focused on is the gear ❑.

UPCOMING SPEAKER SCHEDULE

June 20: Adam Kall (Kall-Morris, Inc.)

Topic: What's up with space debris?

July 18: Kristina Collins

Topic: Citizen Science Project to Monitor the Ionosphere

August 15: CLUB PICNIC

September 19: Sebastián Garcia

Topic: Telescopius Website and App

October 17: Professor Gregory Tarle

Cosmologically Coupled Black Holes

November 25: Jeff MacLeod, NASA/JPL Solar System Ambassabor

Topic: The Gemini Missions

SKY-WATCHER SAM

BY TOM RYAN

A few years ago, I needed a telescope mount that could track celestial objects, and which could be taken in a suitcase to remote places in the world. Lowbrow Brian Close had a Star-Adventurer mount that he liked and recommended, and when I went to buy that model, I noticed that they had a slightly smaller model which had a WiFi upgrade, so I bought that instead.

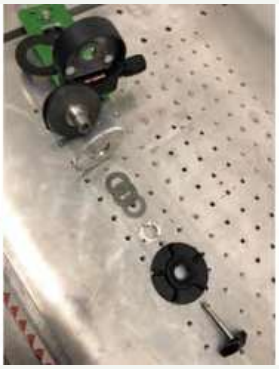
The mount is quite small, but it can hold my 35mm cameras and a 4" Russian Maksutov adequately, and I've used it over the years to take solar eclipse pictures whenever a solar eclipse passed over some interesting and accessible spot on the Earth's surface.

It has an amazing number of features, including a polar scope and fairly good tracking (but not guiding) abilities and a WiFi iPhone application that lets it track both north and south of the equator. It also breaks down into many smaller parts and it fits into my suitcase, along with the Maksutov and a little tripod, with room left over for a pair of socks and a toothbrush. So, that's all good. However, the mount does come with some drawbacks.

When I first got it, I didn't understand how the polar alignment scope worked, and in trying to install it, I broke a plastic part that allowed the scope and the mount to work together without any modifications. Unfortunately, I couldn't figure out how that had ever worked, so I used a brute-force approach and just re-machined the green-anodized declination slider so the crosshair-illuminator could fit on the end of the polar scope without interference.

I also took that opportunity to insert a steel shim in the dovetail to move the declination slider to the centerline of the mount.

Another feature that the mount has is a manual declination axis gear, which allows me to make fine adjustments in pointing the telescope. However, after a year's worth of use, the little rubber gasket which helped grip whatever you mounted on the Dec axis came loose. Truthfully, it had never worked all that well, because I was unable to ever sufficiently tighten down the central screw to hold the Maksutov in place. If I pointed the scope in certain directions, the Mak would tend to slide on the gasket, which would require setting everything up again.



SKY-WATCHER SAM continues, p. 9

SKY-WATCHER SAM continues, ...

I fixed this by hard mounting an Arca-Swiss dovetail holder to the Dec axis with two .250-20 UNC screws. I had to take apart the Dec axis to ensure that I didn't drill through something that shouldn't be drilled through, but I marked everything as I disassembled it and it all went back together again. It now works the way I imagined it should.

One final complaint I have about the mount is actually a problem that Brian's mount doesn't have. It's the WiFi.

The iPhone app is fine and it adds a lot of functionality to the little mount, but running the mount requires that the iPhone be connected to it by WiFi. This was not a problem until I discovered that my Canon RP camera also has a Bluetooth app that allows me to trigger the shutter using my iPhone. A wireless shutter is a great thing when doing astrophotography, until you discover that using one app disconnects the other app. So, I could set up the mount to track and get that working fine, and connect to the camera to take a picture, but once I took a picture, the mount stopped tracking.

This is hugely inconvenient, and it might be a problem only because I have no idea how to solve it, or it might not have a solution for my particular combination of equipment. But either way, it's a pain.

Interestingly enough, Brian's Star Adventurer mount doesn't have WiFi and it doesn't have this problem, so if you are computer illiterate, as I am, and you need a travel mount, consider buying the non-WiFi version of SAM over the WiFi version. Or buy an intervalometer for your camera. That would work, too.

Brian's mount has actual, physical, switches and dials on it for setting everything. Personally, I like that.

I think that the SAM mount would be better if it had guiding capabilities, but since I use it for solar observations (very short exposure times) and wide-field (very low focal length) pictures, the lack of guiding isn't a problem for these activities.

At right above, a picture of a solar eclipse I took with the SAM mount and the Maksutov. Below is a picture of the Milky Way, taken with the SAM mount and the Canon RP using its 24-105 Zoom lens. ❑

University Lowbrow Astronomers - Meeting Minutes May 16, 2025 7:30pm - Revised

Our meeting at the Detroit Observatory was called to order by Charlie Nielsen at 7:34 PM.

Lowbrow Jim Shedlowsky gave an interesting talk entitled "The Many Dimensions of Russell Porter," a prolific artist, author, surveyor, architect, and inventor. He is arguably one of the founders of amature astronomy in the United States having started both the Springfield Telescope Makers, and their Stellafane Convention. Jim wrote and performed his song honoring Russell Porter: "Let Them See" set to a possibly recognizable Beatles tune.

Jim reported the McMath Hulbert Astronomical Society is working with the State of Michigan to have the McMath Hulbert observatory, also located on Peach Mountain, added to the National Register of Historic Places.

Our business meeting began at 8:38 PM

Charlie gave a summary of the May 15th Officers meeting:

1. Our Clubs' online presence.
2. Frequency of our Newletter.
3. Night Sky Network recognition pins.
4. Social media outreach improvements
5. Possible internet service at Peach Mountain.
6. Seestar equipment loan program.
7. Donation of a refractor to the club.

We are looking for a person to be our webmaster. We are also looking for more people to help online coordinator Jeff Kopmanis with our social media presence, he also manages our websites, zoom meetings, and recordings. Jeff wrote down the different tasks he does to support our social media outreach and online content.

The officers decided to let the Editor decide when to publish the newsletter. There is still a monthly deadline, but we will publish when there is enough content or a special event.

Charlie announced that Doug Nelle, Ken Cook, John Wallbank, Gary Nichols, Amy Cantu, and Matthew West would receive NASA Night Sky Network (NSN) pins in recognition of their outreach activities and support of astronomy.

Dmitri Tsahelnik will produce videos for the club social media. One video to introduce the people to the club, and another to highlight observing, the 24" scope, and the observatory. These videos will help draw new members. This summer he plans to post, with permission from the members, selections of our current content: photos to instagram, articles to X and Facebook. The club has a Seestar S50 available for loan to members. Please contact Amy Cantu if you are interested in borrowing it. Jeff Kopmanis (and Don Fohey?) are updating the guide to help borrowers operate this advanced automated scope.

The U - M ITS department asked what our uses would be for internet service at Peach Mountain and our observatory. We have not heard anything since, and have no information on their progress installing internet on the mountain. Don Fohey will investigate obtaining a Verizon 5G hotspot to provide internet service at the observatory. The would allow surveillance cameras, environmental data logging, and member internet access.

Dr Stan Watson has donated a ZWO 107mm F/7 apochromatic refractor with mount and other accessories to the club. Doug Brisbin pointed out that we are a social club and not a charitable not-for-profit organization, and therefore donations are not tax-deductible. The club will contact Dr Watson to ensure he understands this stipulation before we accept his donation.

Our open house and event schedule is filling up and we need more members to volunteer.

Every member in the area should attend at least one open house or public event each year. You don't need a scope to help, although extra scopes are great. Just come out and help our in-the-dark guests find their way at night. There are many roles to fill and VP Don Fohey is working on a guide to opening, conducting, and closing an open house.

Operating the 24" McMath is an additional set of activities to running the open house. Observatory Director Jack Brisbin will probably offer a class to members on how to run the observatory and operate the McMath. Jack visited the observatory and everything is ready for open houses.

Online Coordinator Jeff Kopmanis discusses all the online tasks needed to help the club. Pointing out the need for more members to get involved. We need an active Webmaster, and regular, periodic, social media posts.

We are looking for multiple members to help with the following

1. WordPress/Website Content Management:
   Move content from the old umich website to the new one.
   Move YoungAstronomer.org to our new site.
   Update existing content and/or styling.
   Upload member photos to Photo Gallery with tags and proper categories.

2. Social Media posts
   Regular, consistent Instagram, Facebook, and Twitter/X posts and updates.

3. Marketing
   Public announcements of our outreach, events, meetings and speakers.
   Create a Detroit Observatory lobby banner for our monthly meeting.

4. Zoom Meeting Tech
   A/V assistance for hybrid meetings.
   Online attendance logging during meetings and producing a graph for the newsletter.

Treasurer Doug Scobel reported via email:
   We have 212 memberships.
   No expenses beyond our usual monthly payment to AT&T for our Open House

"hotline". -------

No report from VP Ken Cook, nor Newsletter Editor Amy Cantu.

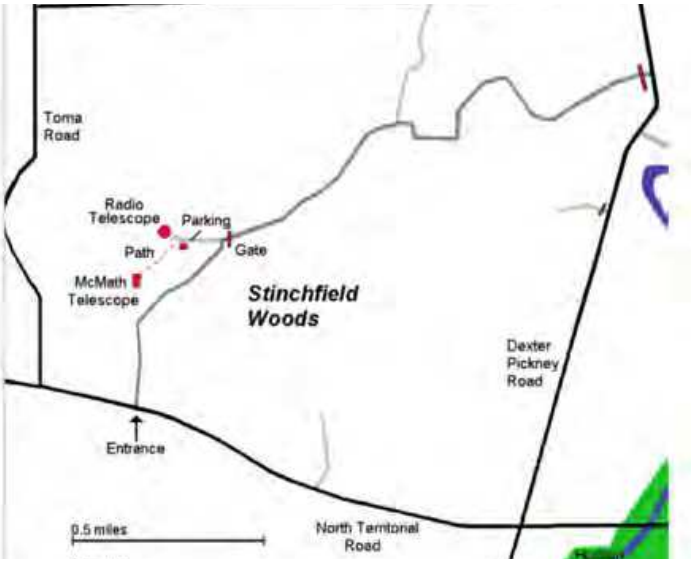
At 9:02 PM Ken Cook made a motion to adjourn with support from Jack Brisbin.

Minutes respectfully submitted,
Ken Cook, VP

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.

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

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
Vice President:	Don Fohey
	Brian Ottum
	Ken Cooke
	Dmitri Tsahelnik
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.

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

Email to all members
Lowbrow-members@umich.edu