REFLECTIONS / REFRACTIONS

University Lowbrow Astronomers Monthly Newsletter

June 2022, Vol 46, Issue 6

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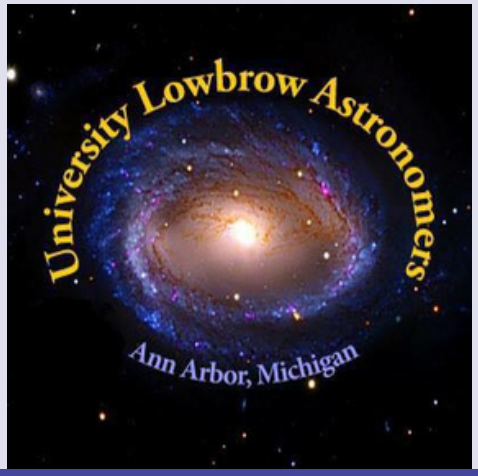
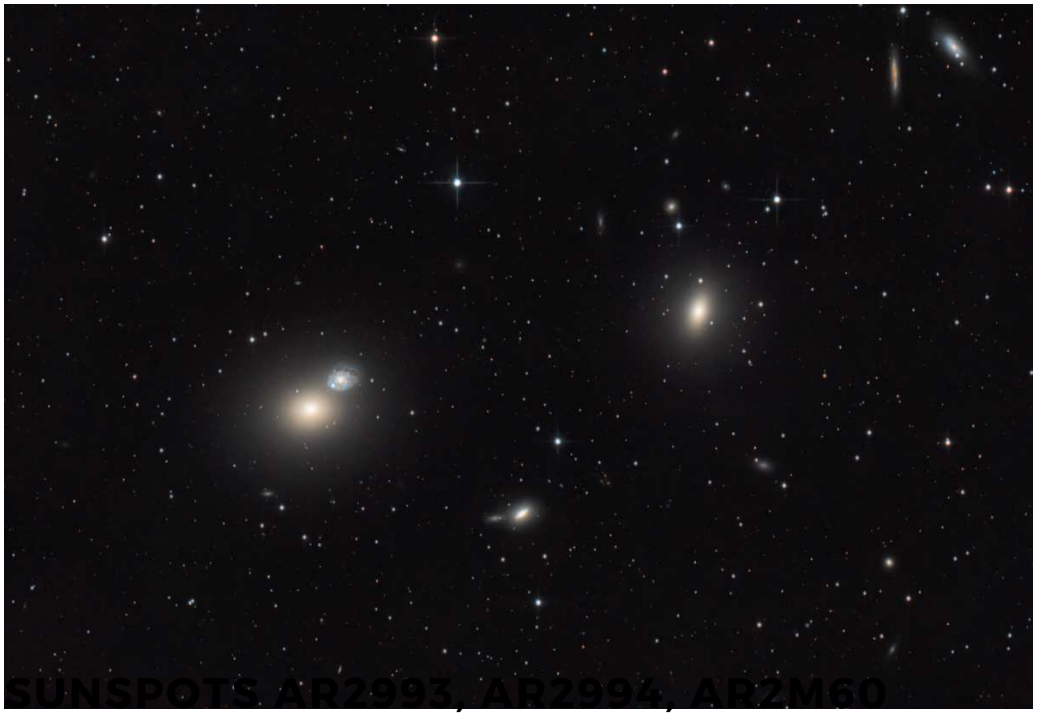




SUNSPOTS AR2993, AR2994, AR2M60

M60 & COMPANION, WITH SUPERNOVA BONUS

BY DONOVAN DREW

I was able to image M60 and its companion NGC4647 over the course of two nights. This was 8 hours worth of 120s exposures -- which is 66% of the total data I collected.

A type IA Supernova (SN2022hrs); which was discovered in April of this year, is easily seen in the cropped image [at right]. It is the bright, blueish dot at the 7 o'clock position of NGC 4647.

Type IA supernovas are important in distance measurements. They are useful for measuring distance in the range of 1Mpc to 1000Mpc (1Mpc = ~3.26 light-years). The technical data is available at https://astrob.in/x5bmim/C/ ■

PEACH MOUNTAIN OBSERVATORY, OPEN FOR CLEAR SKIES

BY JACK BRISBIN

The Observatory was reopened on the night of May 23-24 for a members-only observing session. During the 2 ½ years the observatory was closed, club members did a lot of building maintenance work on the Observatory, which was built in 1959. We started by scraping the rusted roof support system. We then scraped and sanded the roll-off roof and painted both structures with the same blue rust-proofing paint. We afterward used a special primer paint used for Elastomeric Paint. This paint is designed to stretch with the concrete block and repel water. The paint has now been through two winters and looks great.

At our members' night open house we had a couple of new members who were interested in the Observatory. The 24-inch McMath telescope has a different focusing system than the rack and pinion eyepiece focusers that are on most telescopes. The McMath is focused by moving the secondary mirror with a control knob on the side of the telescope. The Moon and planets -- Jupiter, Saturn, and Mars -- were not visible that night until the morning sky. We set the scope on the star Arcturus and practiced focusing on that star, we then moved over to the M3 globular cluster. As the night got darker, you could see the stars become more visible. Later we moved to M51, a 7.9 magnitude spiral galaxy; but because the sky's transparency was changing to a light grey, we could not see all of the spiral arms. We closed the Observatory at midnight.

But wait, there's more! You just have to come to the next Open House.. ■

MEMBERS NIGHT, MONDAY, MAY 24

BY DON FOHEY

I have been waiting all spring for a clear night to observe and I was excited when Jim announced a members' night at Peach Mt. All afternoon and early evening it was cloudy, but the weather forecast promised to clear so I loaded up my telescope and headed out. At the hill were myself, Jim Forrester, Jack Brisbin, Alex Swartzinski, and Steve and Matthew West. Steve and Matthew watched inquisitively as we set up and collimated our scopes on the Radio Dish field. Alex set up his 15" Obsession; Jim his 12-1/2" Starmaster; and I had my 14-1/4" Big Blue DOB. After setup, I walked Alex, Steve, and Matthew -- the three had never been to Peach Mt. -- to the McMath Observatory. Jack had opened the observatory and I enjoyed the wide-eyed looks from the three when they first laid eyes on the telescope. Jack gave a wonderful introduction and answered lots of questions. As stars started to appear, he offered views through the telescope.

I rejoined Jim at the top of the hill to find that two large flood lights mounted on the Radio Telescope support building were illuminating the entire field. We moved our vehicles to provide some shade to our telescopes so that we could observe.

The evening was delightful, I was pleased to hear that the Barred Owl still claimed the nearby woods. The sky was not very transparent -- some thin clouds also passed by -- but it was still great to be observing. I decided to abandon all planned observing lists and just tour my favorite objects of the spring sky that I had not seen in a long time.

My telescope has digital encoders, I align Sky Safari with two stars, and I can then "Push-To" any Sky Safari object. Meanwhile, Jim had forgotten his Telrad! With no further need for my Telrad, I loaned it to Jim who is the best point and look observer I know.

It was a bountiful evening. It started in Leo (with M66, M65. M95, M96, M105), then moved to the Virgo Cluster (too hazy to enjoy). M64 (Alex had me use averted vision to see the eye), NGC4559 (Needle) M51, M101 (nope, too hazy), M3, M53, M104 (Sombrero), M10, M12, M92, M13 (I smile at it whenever I see M13), NGC6207, NGC6210 (planetary), Izar (barely split), M57 (ring), Epsilon Lyrae (barely split) back to M14 and M107, then M80, M4, and Rho Ophiuchi. There may have been a few others.

I was pleased that the rework I had done on the 18-point mirror support for my 0.7" thick quartz mirror had solved my astigmatism. My images and resolving were almost as good as Jim's Carl Zambuto mirror.

I had a delightful evening, Jim and I were the last on the field, and Jim locked the gate at 2:05 am. ■

UPCOMING MEETING SPEAKER SCHEDULE

JUNE 17: Dr. Zachary A. Constan, MSU. Topic: ***"(almost) 14 Billion Years of Nuclei"***

JULY 15: Norb Vance, EMU Observatory Director. Topic: **Pending**

AUGUST 19: Professor Karim Jaffer, John Abbott College. Topic: **Pending**

SEPTEMBER 16: Note: Meeting Cancelled: Professor Nicolle Zellner, Albion Physics Dept, will be at Astronomy at the Beach

OCTOBER 21: Associate Professor Elena Gallo, U of M Dept of Astronomy. Topic: ***Seeing and Hearing Black Holes, (big and small)***

NOVEMBER 18: Professor Neil Cornish, Montana State University. Topic: **Pending**, but about ***Gravitational Waves***

DECEMBER 16: Fred Schebor. Topic: ***The Artsy-Meaningless Slide Show***

OVER THE HORIZON

BY JACK SPRAGUE

The Moon Phases:

07 Jun	Tuesday	1st Quarter	Rise 13:31	Set 02:40 (8th)
14 Jun	Tuesday	Full Moon	Rise 05:45	set 23:02
20 Jun	Monday	Third Quarter	Rise 01:36	set 12:53
28 Jun	Tuesday	New Moon	Rise 05:19	set 21:21
06 Jul	Wednesday	1st Quarter	Rise 01:05	Set 13:31

June with its warm evenings represents a perfect time to enjoy observing.

Our 'Horizon format changes a bit this month as the details previously featured in the Observing section are usually available in *Astronomy* or *Sky and Telescope* and so are of little added value here in *Reflections*. Instead, we'll reveal the constellations on the 15th of the month appearing along the Meridian at midnight for Ann Arbor. We'll present some exceptional objects located in and near this set of constellations to aid in members' session planning.

Our Low Power Lovely features a delightful asterism completely in the spirit of June and its many nuptials: The Engagement Ring.

Lastly, our Optical Challenge is a two-time (!) member of the Arp list of peculiar galaxies: once as Arp 25 for its unique asymmetrical "heavy" arm and once for membership with the elliptical galaxy NGC 2300 which interacts in Arp 114. Surely a two-time Arp member offers some distinction in the observing notebook.

Observing: (all times EST) Average Sunrise 06:55, Sunset 20:15. (See moon phases above.)

Meridian Constellations as of 15 June – Midnight.
(-), (--) 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.

From the southern horizon to the northern horizon along the meridian:

--Southern Horizon--

Lupus
Scorpius (-)
M80 – (NGC 6093) Globular Cluster.
M4 – (NGC 6121) Globular Cluster. (Very near Antares)
NGC 6144 – Globular Cluster.(1° from M4 so discretion is needed).
IC 4592 – Reflection Nebula. "Blue Horsehead Nebula".
Libra (+)
NGC 5897 – Globular Cluster "Ghost Globular Cluster".
Ophiuchus (--)
M107 – Globular Cluster (very rich field at higher magnifications).
M9 – Globular Cluster.
M14 – (NGC 6402) Globular Cluster. (Excellent binocular target).
M10 – (NGC 6254) Globular Cluster. (Mag. 6.6 and nearly resolvable by eye).
M12 – (NGC 6218) Globular Cluster. (Loosely packed it benefits from solid 75x magnification in Jack's experience).
IC 4665 – (also Collinder 349) Open Cluster. "Summer Beehive Cluster". Mag 4.2. (Very loose).
Serpens
M5 – Globular Cluster. (Stunningly beautiful under generous magnification and good seeing conditions).
Corona Borealis
Hercules (-)
M13 – (NGC 6205) Globular Cluster. "Great Globular Cluster in Hercules".
M92 – (NGC 6341) Globular Cluster. Discovered by Bode.
Bootes (+)
NGC 5676 – unbarred spiral galaxy. A small (4.0' x 1.1 ') asymmetric galaxy bright in IR for those performing astrophotography with powerful magnification. Stunning.
Draco
C6 – (NGC 6543) Planetary Nebula. "Cat's Eye Nebula" at Mag 8.1 and size 5.8'.
Kemble 2 – (Mini-Cassiopeia). Asterism.
Ursa Minor
The Engagement Ring – Asterism.
Camelopardalis
NGC 1502 – Open Cluster. "The Jolly Roger Cluster". Kemble's Cascade flows "into" this cluster.

--Northern Horizon--

OVER THE HORIZON continues, p. 5.

OVER THE HORIZON continued from p. 4 ...

Low Power Lovely

The Engagement Ring asterism features the astrophotographer's most familiar star Polaris as the diamond in a celestial ring.

Starting at Polaris and moving in a counterclockwise rotation, a ring of nine stars form a somewhat irregular ring that with a little imagination looks very much the brilliant setting of a traditional Tiffany-style engagement ring.

The stars involved provide an excellent opportunity to become acquainted with some of the star catalogs which include the brightest of our observational objects.

HD in the stellar designation represents the Henry Draper catalog originally published between 1918 and 1924. Mr. Draper was an amateur astronomer who performed early work in spectroscopic classification. After his death, his widow funded the earliest formal classification effort at the Harvard College Observatory, thereby continuing her late husband's passion. This catalog originally contained 225,300 stellar objects.

SOA in the stellar designation represents the Smithsonian Astrophysical Observatory Star Catalogue created in 1966 holding 258,997 stars. These range to the 9th magnitude.

HR represents the Bright Star Catalogue of general stars above observed magnitude 6.5 or those roughly visible to the naked eye. Originally, this catalog held 9110 objects.

For the engagement ring, the principal members (in counterclockwise order from Polaris) are:

HD 14369, HD 17376, SOA 508, HD 14718, HD 12364, HD 8395 SAO 223, SAO 214, HR 286

Consulting my *Cambridge Star Atlas*, I find none of the stars in the engagement ring notated with identifiable reference marks. If you are consulting your *Atlas*, the engagement ring lies closer to Polaris than Caldwell 1 -- the open cluster NGC 188 which is nearest the celestial pole -- and is visible through binoculars at magnitude 8.1.

With moderate field gasses, I find the engagement ring asterism easy to identify. I hope you too find it thus on a clear spring evening.

Optical Challenge

The challenge object this month features a galaxy appearing twice in the *Arp Atlas of Peculiar Galaxies*.

NGC 2276 is a smallish dim object which requires a sound optical array to resolve. The relative size of this distinctive asymmetrical spiral with its "heavy" arm runs approximately 2.8' x 2.7' with a magnitude of 11.8.

At this time of year, NGC 2276 also requires a fair tolerance for late-night observations as the galaxy is east of the meridian at midnight on 15 June high in the constellation Cephus.

The visual description of this galaxy can only hint at the loveliness of its form. Captured by Hubble Space Telescope, NGC 2276 displays a significant offset in its galactic core by as much as 40% from what would be an ordinary symmetrical spiral galaxy. Dust trails in the arms display a veining effect that highlights bright areas of star formation.

Its asymmetric display is responsible for the designation Arp 25. The interaction with its neighbor elliptical galaxy NGC 2300 results in the second Arp entry as Arp 114.

NGC 2276 was first discovered by a noted comet hunter Friedrich August Theodor Winnecke in 1876. Notably, we know Winnecke today for the Winnecke Catalog of Double Stars which – no doubt – those possessing optical assemblies capable of resolving NGC 2276 have previously consulted. ■

The lopsided galaxy NGC 2276.
(Hubble Space Telescope, www.nasa.gov)

(Wikimedia Commons)

TWO VIEWS OF THE MILKY WAY

BY ADRIAN BRADLEY

Over the Au Sable River

From early morning, May 7, 2022

Lake Hudson Dark Sky Preserve

From the beach area, early morning, May 31, 2022

SUMMER READING

BY JACK SPRAGUE

Years ago, I was having a grand time in a sort of summer institute for junior mad scientists. Most of us were pursuing research into topics supporting our Westinghouse Prize submissions while being compelled to engage in some structured education to convince us pure science held career possibilities beyond engineering.

This classwork had as part of its form a reading list which we students were obliged to consume, internalize, and formulate into meaningful discussion on themes that ran through a broad sample of works. Needless to say, there was very little sleep during those golden months.

A single piece of fiction occupied the reading list: Sir Fred Hoyle's first science fiction work: **The Black Cloud**. (1956).

Professor Hoyle is a somewhat controversial figure in astronomy having been passed over for the 1983 Nobel Prize in favor of William Alfred Fowler for work on the theory of nucleosynthesis in stars. Hoyle first published this concept with Fowler as a co-author in Modern Physics in 1957 though Hoyle was publicly quite wrong on some other topics in cosmology and thus missed out – for whatever reasoning the committee chose – on the recognition in Stockholm.

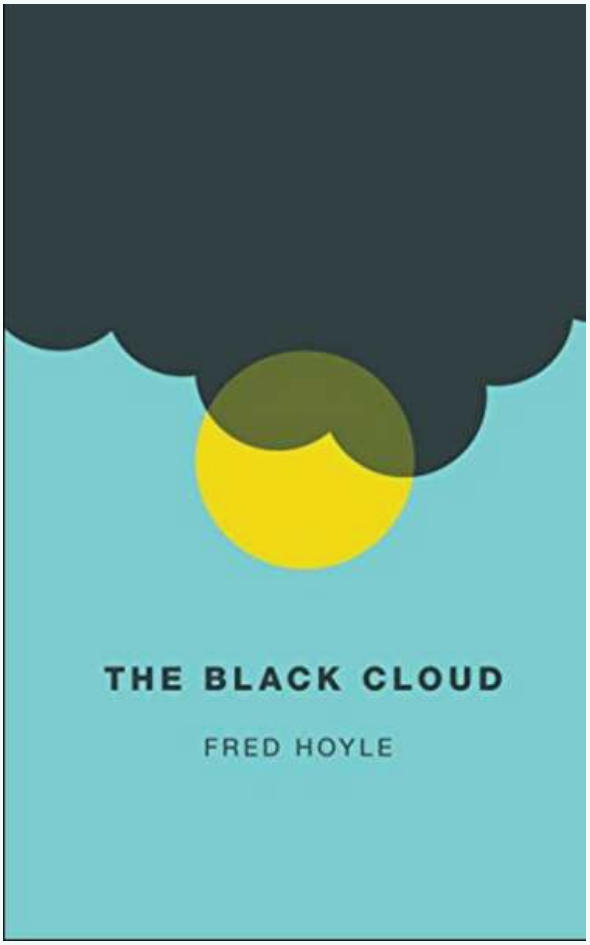
Hoyle once coined the term "The Big Bang" during a radio interview regarding the origin of everything though he did so derisively as a proponent of a "steady state" universe.

The fictional work **The Black Cloud** is however an excellent summer yarn for astronomers as it involves the arrival in our solar system of a large body – a cloud – which produces a number of abrupt changes in society as well as in the physical environment of our eight planets orbiting the sun.

The protagonists are largely astronomers employing some very understandable methods to investigate the changes that come upon them.

Hoyle goes to pains to point out the science behind the actions of his characters and in doing so imparts a great deal of knowledge about the earliest efforts of computational astrophysics explaining our solar system. His deft touch at the explanations inspired other writers of scientific arts such as Michael Crichton though, in Hoyle's case, his subsequent works do not read as well as his first.

If you are in the mood for an astronomical summer read, **The Black Cloud** is available from Amazon in serval formats from Valancourt books. It is well worth the effort and if it results in an all-night session in your summer cabin when you are simply unable to put it down, you can blame me. I re-read the work last winter and it had the same fascination in that session as it held forty years prior. ■



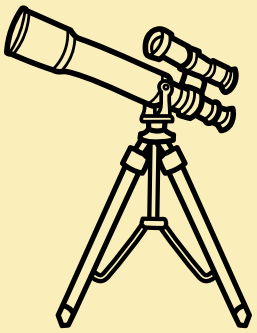
SUNSET IN THE WAKE OF A SEVERE THUNDERSTORM

BY JIM FORRESTER

Taken from near our motel outside Sioux Falls, SD with an iPhone 8+ and processed with Lightroom.

Driving east on I-90, we had planned to spend the night in Mitchell, SD, but the power was out for the entire region. We saw 9 semi rigs that had been blown off the road along with a couple of campers. The highway was shut in a couple of places between Mitchell and Sioux Falls, possibly blocked by rigs that didn't quite end up in the ditch. ■

UPCOMING TOPICS FOR THE OBJECTIVE LENS



BY JACK SPRAGUE

The electronic photo roll of the "Objective Lens" and its annual collection Backfocus are progressing nicely thanks to the submission of the Lowbrows.

We'd like to remind everyone that all images are welcome and while we have a monthly theme, we love candid shots of members in action.

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.

July – The Milky Way (widefield, dark nebulae, nightscapes, reflected images, constellations within... the whole ball of wax).

August – Cluster Month! Globular clusters, open clusters, galaxy clusters, and even planetary clusters if the conjunctions allow will all be perfect on-theme topics. If you consult the objects outlined in the Observing section of this month's "Over the Horizon" you'll see cluster season is upon us in June.

September – Lunar Photos! Craters, phases, the terminator, the whole moon, conjunctions with other bodies, nightscapes, reflections, moons other than Earth's own – the works! Astrophotographers spend a fair effort planning "around" our moon to acquire specific images. Let's celebrate the moon this September. ■

University Lowbrow Astronomers

Monthly Club Meeting Minutes

20 May 2022, 7:33 pm, Room G115 Angell Hall & Individual Live Connections via Zoom/YouTube

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

Speaker

Who

Professor Rudi Lindner

Subject

The Michigan-California Axis in Astronomy

A Q&A session on spectroscopy occurred afterward. Charlie thanked our speaker for the presentation.

Business Meeting

Name	Topic
Charlie Nielsen, President	● We filled our November opening for meeting speaker. It will be a remote session. ● Bro Guy will be speaking at our meeting in January. ● Doug Bock, John Wallbank, and Awni Hafedh are due NSN awards.
Doug Scobel, Treasurer	We have 182 memberships. This count also includes 14 memberships that would have expired but for grace extended due to COVID-19 pandemic considerations. ● We have $12,938.16 in the treasury. ● Since our April meeting we spent: ○ $24.10 for printing and mailing paper copies of the May newsletter. ○ $15.85 for our AT&T open house "hotline" for May. ○ $182.00 for our Green Road PO Box for the coming year. ○ $60.00 to sponsor our Peach Mountain Clear Sky Chart for the coming year. ● Coming up this month: ○ Solicit memberships/renewals in the Astronomical League. Their dues are $7.50 for July 2022 through June 2023. ○ eFile our annual Federal "ePostcard"
Adrian Bradley, V.P.	● Continuing to do outreach with Karim Jaffer at Explore Scientific's Global Star Parties ● GLAAC will be having an in-person AATB this year.
Amy Cantu, Newsletter	● Will send out a reminder for contributions to the June issue of the newsletter as well as the new feature, the Objective Lens.

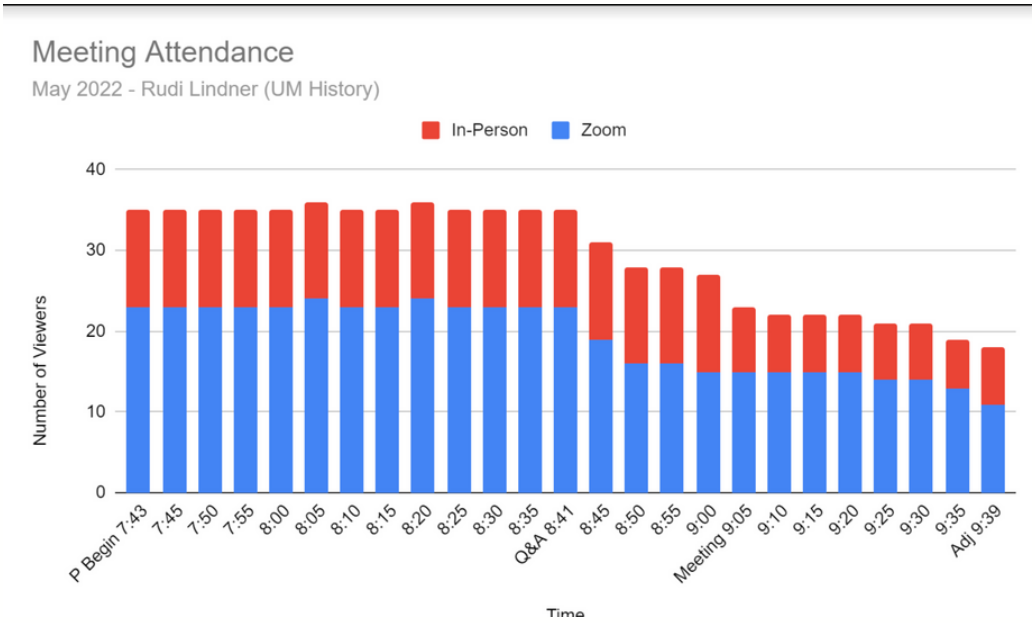
Jeff Kopmanis, Communications	● Looking into Wordpress hosting for updating our website. Working with Krishna Rao, Webmaster.
Dave Snyder, VP	● Sent email concerning his connections with Buddy Stark, planetarium director at the U of M Museum of Natural History
Jack Brisbin, Observatory	● The Observatory is ready for Public Open House events and there has been no Grafffiti on the Observatory building walls. ● The Michigan Math and Science Student (MMSS) group is scheduled for Monday, August 1 and a rain date of August 3 at Peach Mountain ● We need to assemble/test the club's 17.5 Dobsonian for the MMSS event. Astronomy at the Beach, and there is a Lowbrow group that wants to take the scope to Okie Tex star party in October. Next week I will send out an Email to the group that has been working on the club's 17.5 Dob to assemble/test the telescope. Clear Skies!
John Wallbank, G.L.A.A.C. President	● Wanted to get the word out that COVID-19 was still spreading (as he experienced from another live event he attended), and that we must still be very mindful of the pandemic. ● GLAAC will be asking for a donation of $300-$400 from member clubs for the upcoming AATB ● GLAAC is well funded to run AATB this year.

Addendum

Attendance for tonight's virtual meeting: 24 via Zoom/YouTube, 12 in person.

Adjourned
09:18:00 PM

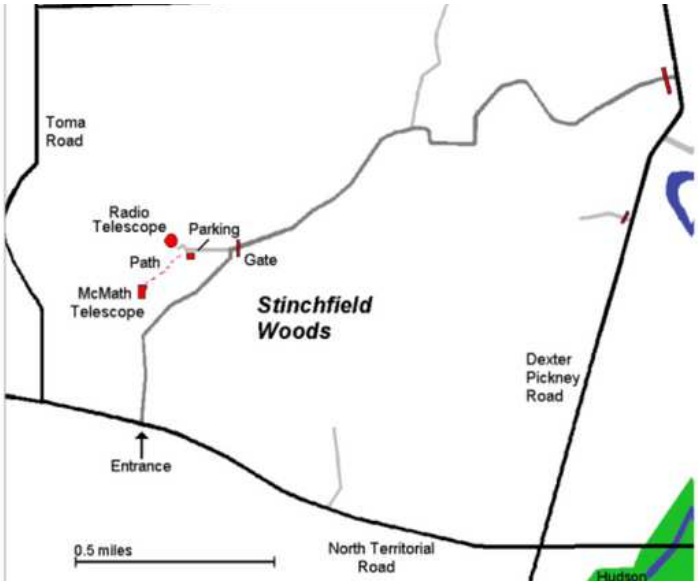
Minutes were taken and transcribed by
Adrian Bradley



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.

MEMBERSHIP

Annual dues are $30 for individuals and families, or $20 for full time tudents 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 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 - $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 to discuss format. Announcements, article, and images are due by the 1st day of the month as publication is the 7th.

Telephone Numbers:

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	Brian Ottum
	Dave Snyder
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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.

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

Email to all members
Lowbrow-members@umich.edu

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STAMP