



Comet C/2020 F3 (NEOWISE) Photos
By Lowbrow Members

Joy Poling wrote “A heartfelt thanks to NEOWISE for making a socially distanced July tolerable. We desperately needed a relevant Astro topic that could remain fun while being discussed safely via email and include all levels of expertise. Thanks, NEOWISE, you really came through for us!” Below are a selection of member images.



Adrian Bradley July 18th.



Amy Cantu, Leslie Park, July 17th



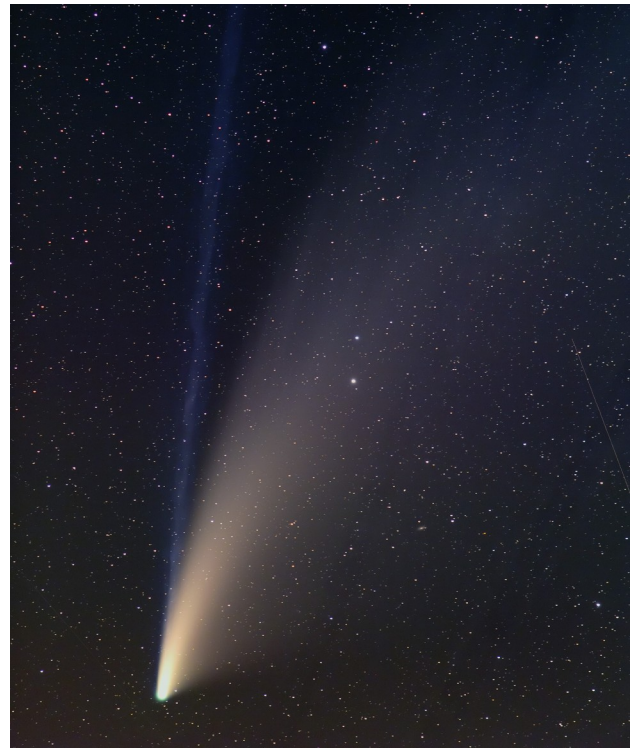
Awni Hafedh, Michigan Thumb



Barry Wissman July 12.th 4:45am



Brian Close July 12th 4:03am



Brian Ottum Ph.D. Headlands Dark Sky Park
July 20th 12:22am



Charles Steele Harsons Island,

(right)
Chris
Sarnecki
July 21,
10:15pm



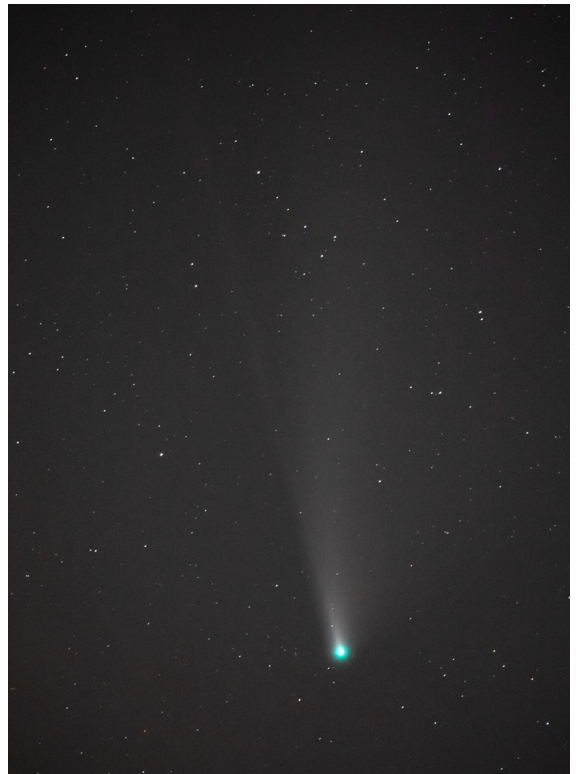
(left)
Clay Kessler
July 18th

(right)
Don Swetzig,





Doug Bock, Boon Hill Observatory, July 23rd



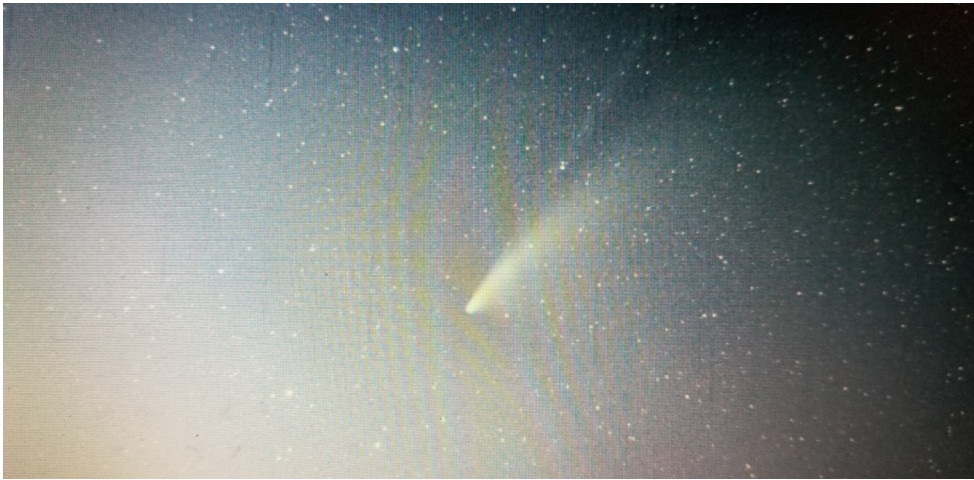
Doug Scobel, Lake Hudson ,
July 24th 10:36pm



Glenn Kaatz, M-14 & Curtis Rd.
July 14 10:31PM



Jack Brisbin, Staebler Park July 14th 3:59am



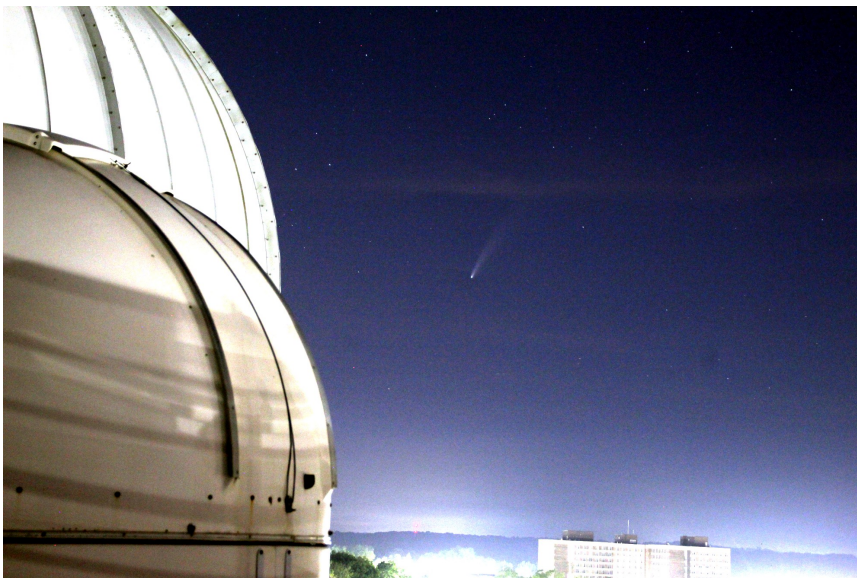
(left)
Ken Rubel
July 22



(left)
Nathan Murphy,
Denver,
July 20 9:55PM



Yogesh Chavarkar July 12 4:27am



(left)
Norbert Vance,
EMU
July 16 11:26pm

Comet C/2020 F3 (NEOWISE)

Brian Ottom Ph.D. Instagram Page

<https://www.instagram.com/p/CDcQLhEj1Rq/>



Here's a close-up of Comet NEOWISE, as it starts to zoom out of our solar system at 144,000 miles per hour. I took this July 29, when the comet was 70 million miles from Earth, and a bit less from the sun. You can see the green halo around the 3 mile in diameter nucleus, basically a dirty snowball. The top tail is lightweight ions blown back from the sun. The bigger tail is bigger particles of dust and ice. It was fun while it lasted.

Battling Light Pollution

By Jeff Kopmanis

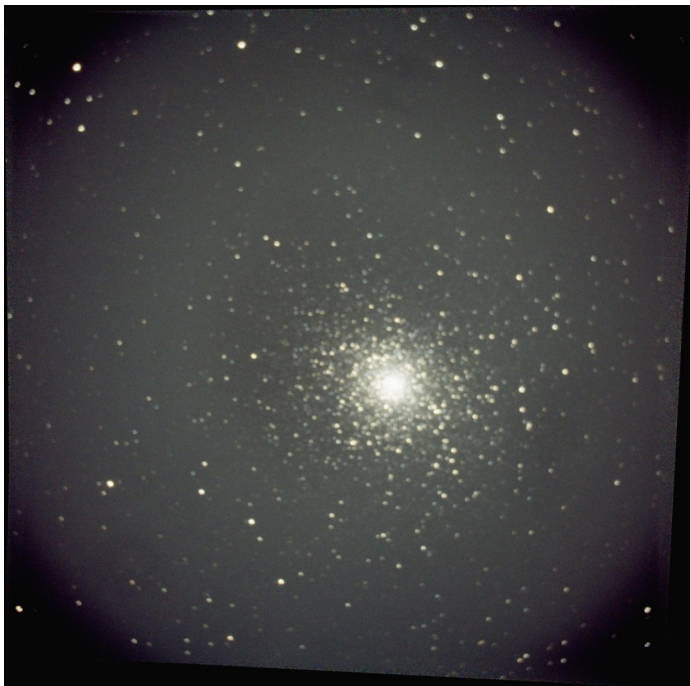
kopmanis@gmail.com

I haven't gotten into the habit of taking flats or darks. No excuses, really, I just haven't gotten into the habit. Behind this bad behavior is that I've found some pretty good tools to use in post-processing that take care of much of the problem. You also have to understand that I'm a bit of a windmill-tilter, pushing my equipment and techniques to the limit. Blame my Dad for that, as he instilled this sense of "pushing the limits" in both my brother and I.

My equipment is a Celestron 8" SCT (f/10), an iOptron AZ Mount Pro and ZWO ASI294MC-Pro camera (for DSO work). My DSO stacker/processor software, **AstroPixelProcessor** (APP) prefers FITS, so I tilt towards them over TIFF. I use an f/6.3 focal reducer, but for this experiment, I left it off to reduce the vignetting to concentrate more on light pollution. I shot **M5** on the nights of June 14 and 15, so I had a nice selection of good image material to work with. The shot was taken at 10:47pm, and consisted of 30 frames of 26.25 seconds each, with a gain of 289 (unity gain on the camera is 120).

Did I mention that most of my imaging is done from my driveway in Ypsilanti's light-polluted, soupy skies?

APP has built-in light pollution, vignetting removal, star and background calibration tools that do a great job, leaving some minor cleanup in Photoshop (or work-alike, like GIMP or PhotoLine32). I've reviewed **Astronomy Tools** by ProDigital Software (\$22) and **Gradient XTerminator** by Russell Croman Astrophotography (\$60). I have Photoshop 2020 to test these two tools, and I'll include all of the URLs at the end of the article.



Stacked Image

Since a stacked image is pretty much our starting point, I used APP to stack the image, which includes alignment, calibration and normalization. The image to the left shows pretty even distribution of light pollution haze and the expected round vignetting. Note that the stars are nice and round and even show some color. APP specializes in mosaics, so you can see some of the seaming of the images to compensate for rotation or other shaking as it aligned them.

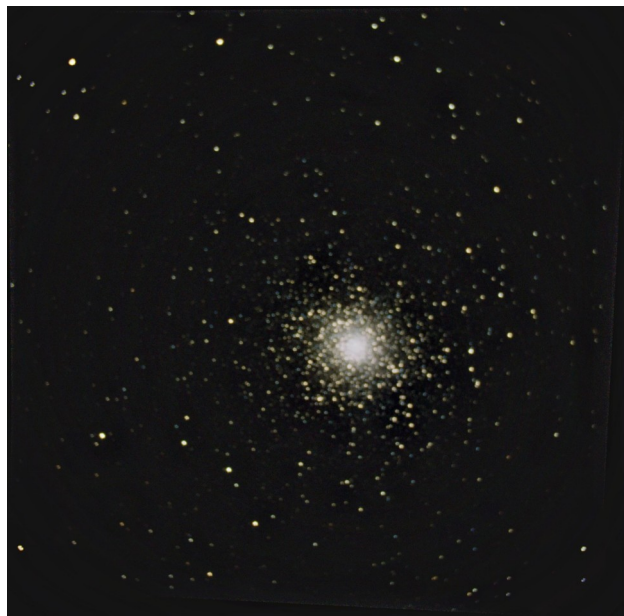
The challenge will be to keep the center object intact and get rid of the haze.



Astronomy Tools' Light Pollution action

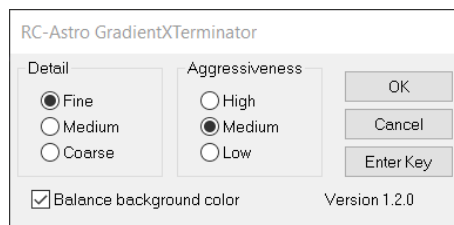
Astronomy Tools is a set of 30+ actions (read: macros) that install in Photoshop. Basically, you select the action you want to run, then punch the Run button and the tools will guide you through the Photoshop panels. Included instructions tell you how to interact with your image to achieve their action's result. It's a little weird at first, but once you do it a few times, it's pretty simple.

As you can see, the results turned out pretty good, and it got rid of all of the light pollution! I did find that some of the background stars disappeared, but there's enough adjustments in the Dust & Scratches tool and the Curves tool, that I think with enough practice, one could avoid the problem. For this image, I didn't do a whole lot of other touchup in Photoshop, but much more is available to give the stars a bit more color, etc.



Gradient XTerminator

Gradient XTerminator installs as a Filter and appears at the bottom of the Filter menu under **RC-Astro**. It consists of a single dialog (below) where you choose levels of Detail and Aggressiveness. Hit OK and a panel with a progress bar shows you how it's doing.



I found that the High Aggressiveness setting produced a “black hole” around an absurdly over-processed cluster

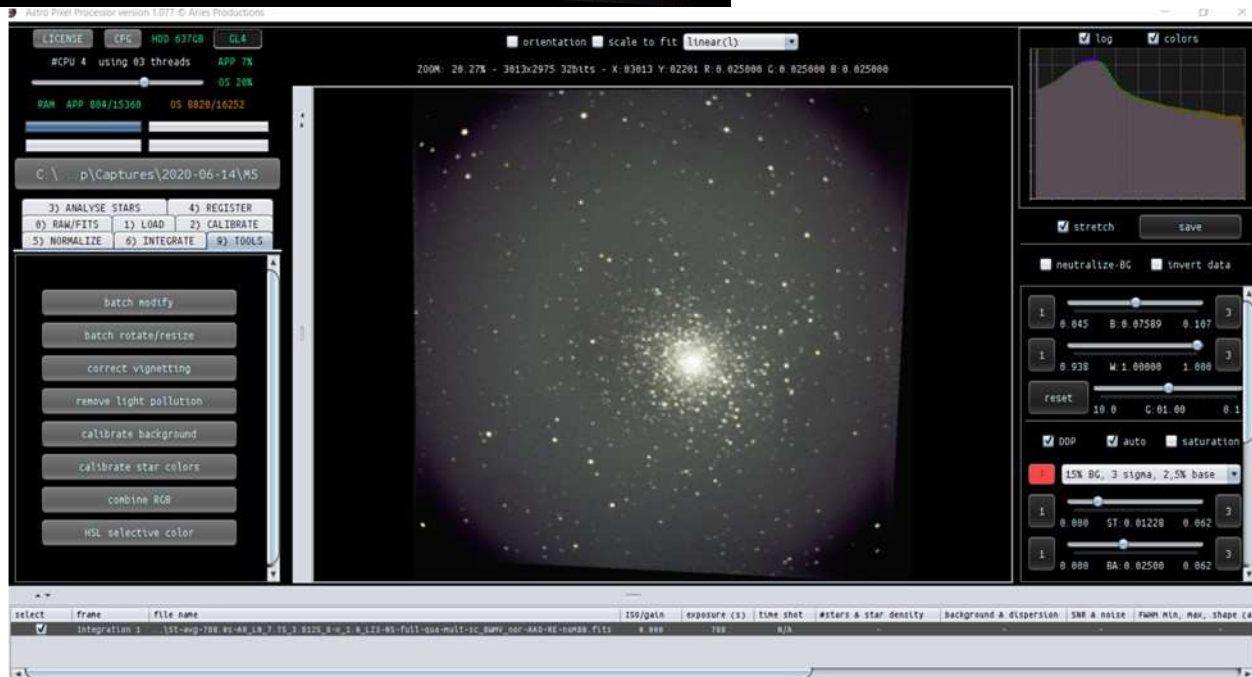
In playing with Gradient XTerminator, I found that it behaves like other Filters in Photoshop, in that it works better if you take it easy on the settings and do multiple runs. The image above was accomplished with about 3-4 runs on the Medium aggressiveness setting. You'll notice a very dark “ring” around the center of the cluster where the “black hole” effect still peeks out at you. But overall, it worked well and preserved the colors of the stars



AstroPixelProcessor (APP)

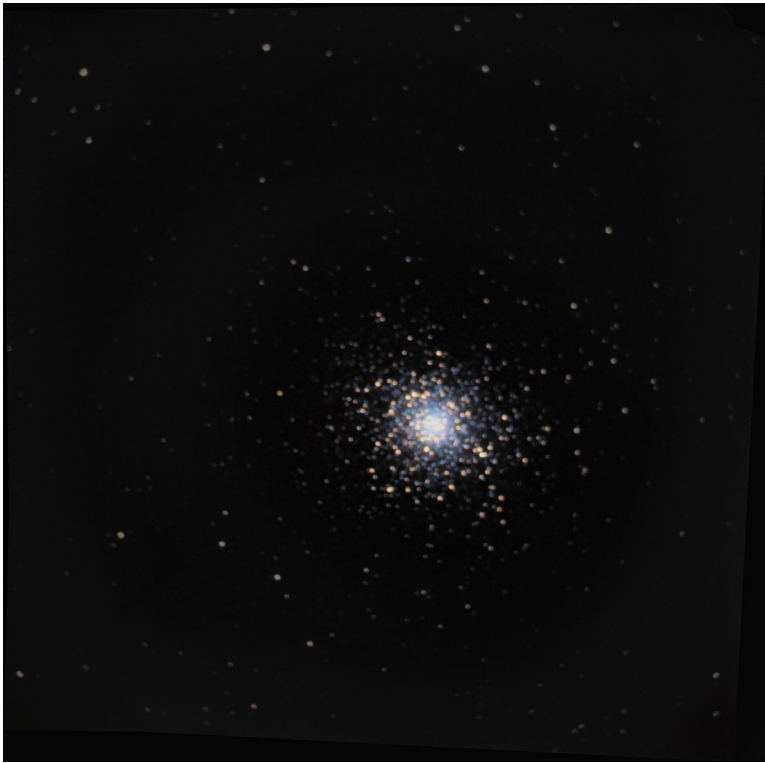
APP has a pretty unorthodox user interface. All of the tabs are numbered and generally easy to understand, but there are a million settings that you can tweak at each step. “Integration” (aka. stacking) is the last tab before you get to the “Tools” tab, where your post-processing job begins.

Here’s a shot of the APP screen: (left)



I left the Tools tab showing, as those are the main functions for doing the processed cleanup. The right-hand side of the screen are basically tools that do stretching, sharpening, saturation, etc like you would in Photoshop, which I’ve found to be pretty effective. If I stick with those, I might only have to do a few minor touchups in Photoshop and add the labeling.

The image above went through a complete APP regimen and as you can see, it looks nice, but the light pollution and vignetting are still very much visible and in need of some cleanup using our Photoshop tools....



AstroPixelProcessor + Astronomy Tools + Gradient XTerminator + Photoshop

For this final image, I used the “best of” approach and used the tools to clean up those aspects that they did best at. I started with the stacked image from APP, as I didn’t want to introduce complications and vignetting.

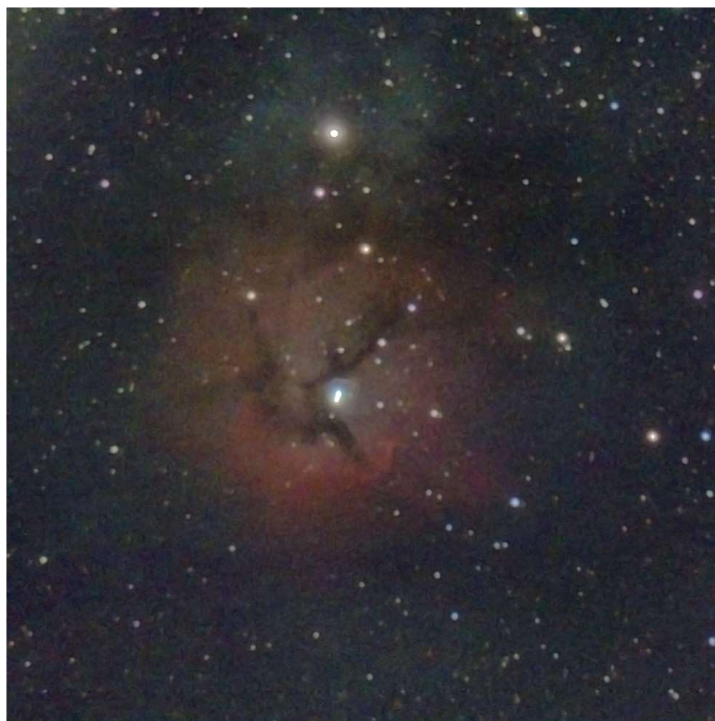
I first did a Curves stretch to get rid of anything excessive and managed to get a pretty even “foggy” background for Astronomy Tools’ Light Pollution action to work on. Because I knew that Gradient XTerminator has that black hole knack, I lassoed around the center of the cluster, then did a Select>Invert so that the tools would ignore the center. Brian Ottum had once suggested to

Feather the edges, so I did that so that the boundary wouldn’t be terribly obvious. Next, run the XTerminator filter one time to get rid of the remaining “circle haze” that was left, and then finish up with a couple of rounds of the Curves tool. The result turned out well, with decent star coloring and a reasonable number of stars in the background.

Conclusions

As much as I’d have loved just one of these tools to do the job, it’s just not the case. I’m very happy with APP and for DSO-work, it does a really nice job. While its interface is a little quirky, it’s well-worth the price (\$30/year “rent”, or \$160 “own”). Astronomy Tools is a total bargain for \$22, as the sheer number of helper-actions that it gives you to make light work of Photoshop chores is worth the meager price. Gradient XTerminator is a good package, but given the “black holes” it creates, and the lack of fine-control (3 settings!?), I think I’ll let the free-trial lapse.

Finally, if you think I’m a little nuts for doing DSO’s on an alt-az mount and pushing the software pretty hard, you’re probably not very far off, but, I’ll leave you with a Trifid Nebula image (next page) where I only took 15 frames of at some ridiculous exposure time (around 15 seconds, I think), which Brian Ottum tutored me in Photoshop for a few hours over a Zoom meeting, and we came up with the following...



Web Resources

Orange Can Astronomy page
<https://facebook.com/orangecanastronomy>

AstroPixelProcessor
<https://www.astropixelprocessor.com/>

GIMP
<https://www.gimp.org/>

Adobe Photoshop
<https://www.adobe.com/products/photoshop.html>

PhotoLine 32
<https://www.pl32.com/>

Gradient XTerminator
<https://www.rc-astro.com/resources/GradientXTerminator/>

Astronomy Tools Actions
<https://www.prodigitalsoftware.com/AstronomyToolsActions.html>

The July meeting was recorded and can be viewed on you tube

<https://youtu.be/x4Wfw5XWGmA>

Upcoming Events

Note June thru September Open House and other events have been canceled.

DATE	EVENT	LOCATION	
Friday Aug. 21st 7:30 pm	Monthly Meeting	By Video Conference. Instructions will be emailed to members,	Guest Speaker: UofM Professor Elena Gallo "Super Massive Black Holes "

Observatory Scrape and Paint

Jack Brisbin and Doug Nelle

We (myself and Doug Nelle) started working on the observatory Saturday July 18 we got the about 9 am and stayed until about 2:40 pm. We scraped and painted the north wall approx. 25 feet long by 8 foot high. We used a gallon of primer paint because the concrete block is so porous and pitted. We used rollers and paint brush. The primer paint is Behr Multi surface stain blocking paint, white. The finish coat is Behr Elastomeric Masonry Paint white. The primer coat looked good..... thanks to Doug Nelle for helping with the scrape and paint.



Noth Wall after scraping and after painting, Doug Nelle standing by wall.



Doug Nelle wrote "One more wall done with the primer. 2 left."

University Lowbrow Astronomers

Monthly Club Meeting Minutes

17 July 2020, 7:35 pm, Individual Live Connections via conferencing tools

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

Speaker

Who

Jim Shedlowski

Subject

The Evolution of Giant Telescopes

A Q&A session occurred afterward with audience members using multiple formats to ask questions. Charlie thanked our speaker for the presentation.

Business Meeting

Name	Topic
Norbert Vance (1:49:18)	Highlights of tonight's sky events.
President Charlie Nielsen (1:50:04)	Officers are still working on bylaw amendments. Asked if anyone had strong opinions about holding an online election upon completion of the new bylaw additions or, seeing how far past April we are now that it should just be postponed.
Vice President Jim Forrester (1:52:09)	The bylaws proved to be more complicated than anticipated. As a result, the previous bylaw author, Kathy Hillig, was brought in.
Newsletter Editor Don Fohey (1:53:15)	The newsletter was 18 pages in July instead of the typical 10 pages. The printing and postage cost for the additional pages was only a few dollars extra. In the future when content requires, extra pages will be added.
Treasurer Doug Scobel (1:54:25)	Report emailed and read during the meeting: "In case I am unable to tune in tonight, here's my report: <ul style="list-style-type: none"> • We have 149 memberships. • We have \$7911.12 in the treasury. • I sent dues for 27 Lowbrows to the Astronomical League for July 2020 thru June 2021. That's up from 19 Lowbrows who were A.L. members last year."
Observatory Director Jack Brisbin (1:55:08)	Tomorrow he and Doug Nelle will paint the Observatory. Norb Vance questioned the state of the road. Lousy was the reply, as funding has yet to be approved.
Vice President Adrian Bradley (2:00:03)	A reminder that GLAAC is looking for all clubs to put together some form of online content for Virtual Astronomy At The Beach. David Levy is the speaker for Friday, and Brother Guy is lined up for Saturday. Any way that you could assist would be appreciated.

Addendum

About 38 devices attended tonight's virtual meeting.

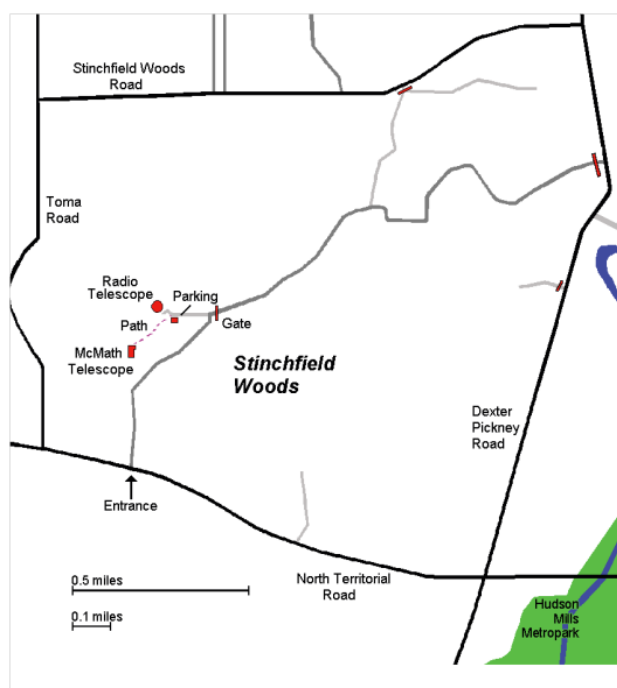
Adjourned 9:22 pm

Minutes were taken and transcribed by Joy Poling

Places & Times

Monthly meetings of the University Lowbrow Astronomers are held the third Friday of each month at 7:30 PM. The location is usually Angel 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 radio telescope, 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 cancelled if the forecast is for clouds or temperature below 10° F. For the most up to date info on the Open House / Star Party status call: (734) 975-3248 after 4pm. 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. Evening can be cold so dress accordingly

Lowbrow's Home Page

<http://www.umich.edu/~lowbrows/>

Membership

Annual dues are \$30 for individuals and families, \$20 per year for students and seniors (age 55+) and \$5 if you live outside of the Lower Peninsula. Membership entitles you online access to our monthly Newsletters and use of the 24" McMath telescope (after some training). A mailed copy of the newsletter can be obtained with an additional \$18 annual fee to cover printing and postage. Dues can be paid by PayPal (contact the treasurer to find out how) or by check made out to "University Lowbrow Astronomers" and mailed to:

The University Lowbrow Astronomers

P.O. Box 131446

Ann Arbor, MI 48113-1446

Lowbrow members can obtain a discount on these magazine subscriptions:

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

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

For more information about dues or magazines 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: Don Fohey donfohey@gmail.com to discuss format. Announcements, articles and images are due by the 1st day of the month as publication is the 7th.

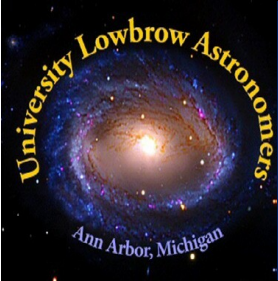
Telephone Numbers

President:	Charlie Nielsen (734) 747-6585
Vice President:	Adrian Bradley (313) 354 5346
	Jim Forrester (734) 663-1638
	Joy Poling
	Dave Jorgensen
Treasurer:	Doug Scobel (734) 277-7908
Observatory Director:	Jack Brisbin
Newsletter Editor:	Don Fohey (734) 812-3611
Key-holders:	Jim Forrester
	Jack Brisbin
	Charlie Nielsen
Webmaster	Krishna Rao

A NOTE ON KEYS: The club currently has three keys each to the Observatory and the North Territorial Road gate to Peach Mountain. University policy limits possession of keys to those who 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



University Lowbrow Astronomers



Member Club



Astronomical League Member Society
#201601, Great Lakes Region

University Lowbrow Astronomers
P.O. Box 131446
Ann Arbor, MI 48113

STAMP