



REFLECTIONS / REFRACTIONS

University Lowbrow
Astronomers

REFLECTIONS \ REFRACTIONS

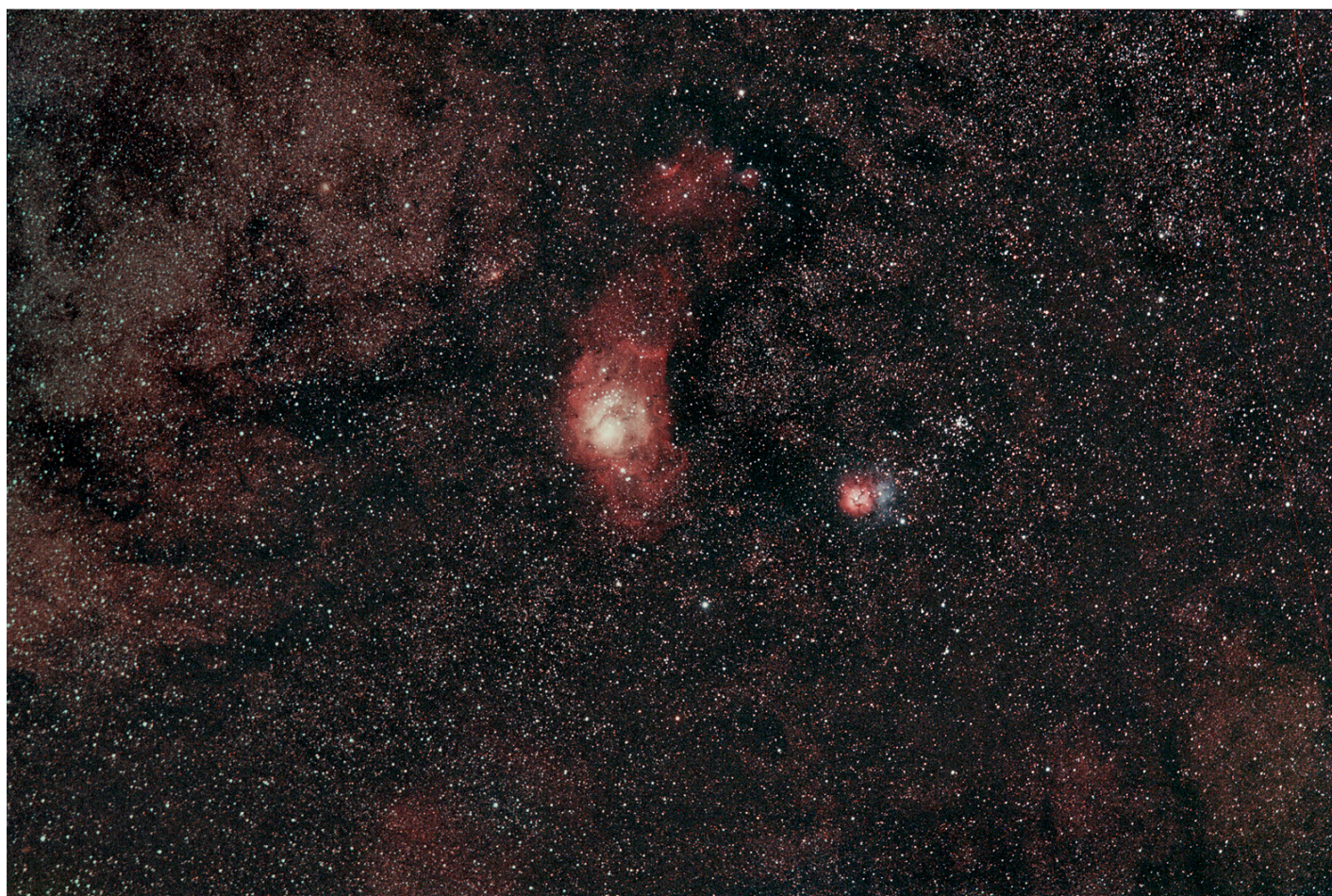
MAY 2014

VOLUME 38, ISSUE 5

Make Way for Summer

Lost In Space View of The Lagoon

By Clay Kessler



The astrophoto was taken with the Nikon 180mm f2.8 ED lens and my Canon 60Da. The field of view is 7.5 degrees by 4 degrees. The image is the compilation of 30 120 second exposures. The camera and lens were stabilized in a TSS piggyback guided camera adapter. This was clamped to the top of my Meade 10" SCT riding on my G11 mount. North is to the right.

Minimal processing in Photoshop for contrast by the editor.

Wandering Around the Lagoon

By Jim Forrester

There are many deep sky objects additional to M 8 in Clay's photograph. This chart of the area around the Lagoon Nebula and its open cluster labels some of the deep sky objects you can sweep up with a limited pan of your telescope. The chart field of view is about the same as the central portion of the photograph. Here, north is at the top.

You may wonder, "Why feature M 8 in May, when it doesn't transit until 03:30?" While a few of these objects are some of the brightest in the summer sky (M 8 can often be sighted naked eye), others will challenge any scope. Seeing them will require the darkest skies possible, and in southeast Michigan those skies happen in the hour or two before the beginning of astronomical twilight.

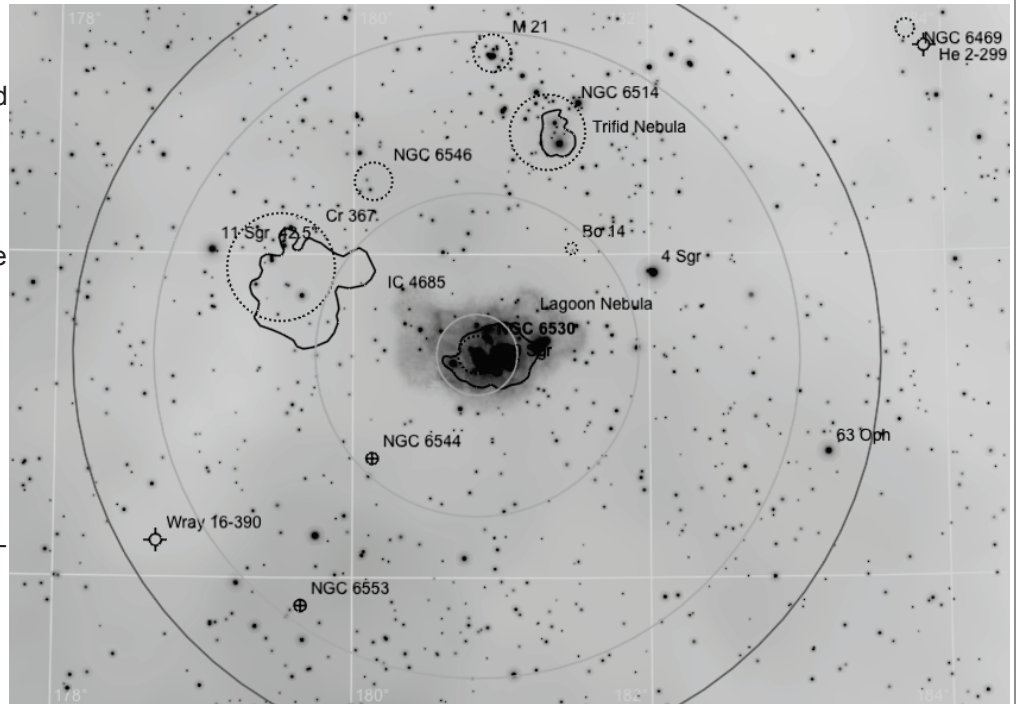


Chart drawn in Sky Safari

A bit over a degree to the right of M 8 is M 20, the celebrated Trifid Nebula. A smaller scope favorite, picking up the three lobed appearance of the object is quite a thrill to see when struggling with our local not so dark skies. The young, hot and bright stars entangled with the nebula were formed by it and their high energy radiation has blown the gas cloud into a 10 lyr diameter object that is no longer forming stars. One half degree up and to the right is another Messier object, the open cluster M 21. This cluster is tight and bright (6.5 mv) and easily seen in binoculars most nights.

There are several more open clusters this photograph, but picking some of them out from the dense star field requires patience and a night of above average seeing and transparency. Easiest is eighth magnitude open clusters can be difficult anywhere in the sky, but NGC 6546 can be tricky, despite being easily seen in Clay's photograph. Comprised of mostly 10th magnitude or fainter stars, three 9th magnitude stars on its southern edge and its position as the apex of an isosceles triangle with M 20 and M 21 make it an object most scopes can find.

Collinder objects are sometimes easy to make out, like the famous "Coathanger", Cr 399 in Vulpecula. Not so with Cr 367. It's 6.4 mv of light is scattered over 40' of sky, but with only 10 stars actually identifying it at the eyepiece will be a challenge. IC 4685 visually overlaps Cr 367, but may take a UHC or OIII filter to see. There is some question as to what, exactly this object is. Does it stand alone, illuminated by the eclipsing binary V3903 Sagittarii, or is it part of M 8 itself, the gap between the two simply obscuring dust? By the way, the views of M 8 and M 20 will be enhanced with either filter. Toward the extreme left of the photo is NCG 6469, an 8.19 mv open cluster. It is fairly tight at 7', so a clumping of 70 mag 10 and fainter stars may pop out. The planetary nebula Henize 2-299, at 13.69 mv, will likely appear stellar, and from Peach Mt., an 8 inch scope or larger will be needed to see it.

Seen as two almost stellar soft glows in the photograph, globular clusters NGC 6544 and NGC 6553, similar in brightness (7.76 mv and 8.06 mv) and size (2.4' and 2.1') should show up in most telescopes. Wray 16-390, a planetary at 13.69 mv brightness and 6" in size, will be a challenge for any member's scope.

So good luck and enjoy these gems of the deep sky.

You Have a Scope, But Will You See Anything?

A Lowbrow DIY Finder

By Jim Abshier

One of the problems that I have had in using a telescope is getting the scope pointed close enough to an object to see it in the finder scope. The finder scopes on my telescopes have a limited field of view (about 5 degrees), and I usually have to sight down the telescope tube to get it aligned close enough to see the desired object in the finder scope. This sighting down the tube is often difficult, especially when observing near zenith. There are a variety of devices that solve this problem including the Telrad finder and various red-dot finders. Most of these devices are, in my opinion, rather expensive for what they do. Quite a few years ago, I bought a BB gun red-dot sight for about \$15 that I have used on various telescopes. The price of this sight was more to my liking, but it had the disadvantage of not being able to see a star very well through the finder. I suspect that other finders such as the Telrad have the same problem to some extent, but I don't know for sure because I have never used them.

This article describes a 1x finder that I built recently that does not require looking through a reticle when viewing stars or other objects. It utilizes a split lens that allows viewing a sighting device through the lens while also viewing a star above the lens. The design of the finder is based on a sighting device that was used in a World War II astro-compass. Most of the materials used in constructing my finder were laying around in my basement, so its cost was minimal.

Figure 1 shows my home-made finder mounted on one of my telescopes. As seen in the figure, the finder consists of a split lens at one end and a sighting device at the other end. The sight consists of a rectangular notch and two white lines angled at 45 degrees on each side of the notch. The width of the notch is about 4 millimeters, which subtends an angle of about 4 degrees when viewed through the lens. The sight is located in the focal plane of the lens causing the sight to appear at infinity focus when viewed through the lens. This allows viewing both the sight and a star or other object at infinity focus. The 4 degree width of the notch is slightly smaller than the 5 degree field of view of my finder telescopes and provides a means of estimating how accurately the finder must be aligned to ensure that the desired object will appear in the finder telescope.



Figure 1 Home-Made Finder on Refractor Telescope *Photographs by the author.*

The finder was made from available aluminum L stock and flat stock that were purchased from local hardware stores in the past for other projects. The lens is one half of a plastic lens that was removed from the viewer optics of a Polaroid camera before it was discarded. I don't usually throw things out that have usable optical components in them without first removing the optics. The Polaroid viewer lens is rectangular, and has a focal length of about 55 millimeters. With this focal length, one millimeter distance in the focal plane is about 1 degree. The lens was sawed in half using a thin hobby saw and the cut edge was filed smooth with a small file. Both halves of the lens are usable, so I have a spare in case the finder lens becomes damaged. The notched sight was made of 1 inch wide hobby brass available at many hardware stores. This brass was also used to make a clip that holds the lens in place. The notched sight was painted black, and thin adhesive label strips were used to make the two white lines. The only parts that I had to purchase were two thumb screws that are used to lock the sight in position after alignment.

To use the finder, the eye pupil is positioned so that the notched sight is seen in the lens and telescope is moved to where the star or other object of interest is seen directly above the lens. If the eye is moved up, more of the sky is seen and less of the notched sight is seen. If the eye is moved down, more of the notched sight is seen and the star may disappear behind the lens. If the eye is moved closer to the lens, more of the sight will be seen. If the eye is moved back from the lens, less of the sight will be seen. The eye should be positioned about 2 to 4 inches behind the lens for good viewing of the sight and star. When the eye is correctly positioned and the finder is aligned on a star, the top of the notch is near (but not in) a fuzzy region at the top edge of the split lens, and the star is seen above the fuzzy region. The two white lines on each side of the notch are used to position the star above the sight. The finder is aligned so that

the star appears at the point where the lines would intersect if extended above the sight.

In the light polluted skies of my location (Novi), the sight is readily seen against the sky background. The white lines can also be seen, but not very well. Against a dark sky, it would be difficult to see both the sight notch and the white lines. To view the sight in a dark environment I use a small red flashlight to illuminate the sight. When this is done, the white lines stand out very well against the blackened sight. The illumination level can be adjusted by moving the flashlight closer to or away from the sight.

The finder has two L shaped mounting brackets that allow tilting the finder in both azimuth and elevation. Thumb screws provide a simple



Figure 2. Home-Made Finder on SCT

means of locking the finder in position when it is aligned with the optical axis of the telescope. The bottom L bracket is threaded with a $\frac{1}{4}$ 20 thread and thus can be installed on the camera mount of the telescope. Figure 1 shows the finder mounted on a refractor telescope, and Figure 2 shows the finder mounted on a Schmidt Cassegrain telescope. Because of its small size, it can easily be used on a small refractor. Figure 3 shows the finder mounted on a small home-made refractor using a C channel bracket and rubber bands.



Figure 3. Home-Made Finder on Small Refractor

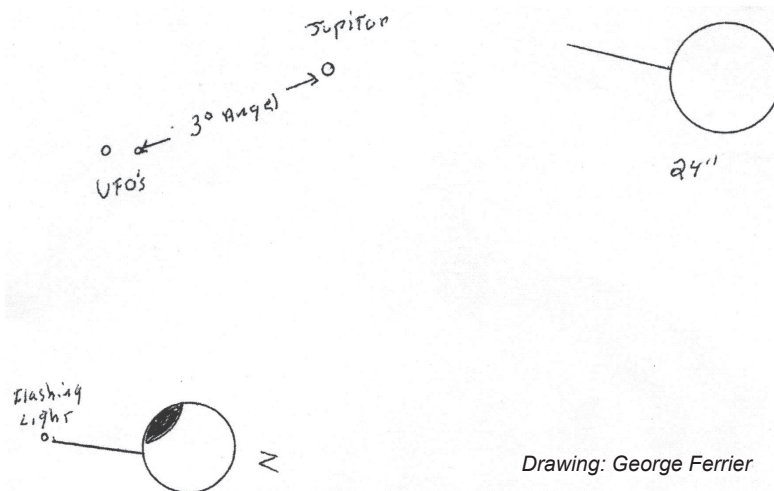
Lowbrows Spot UFOs!

By George Ferrier

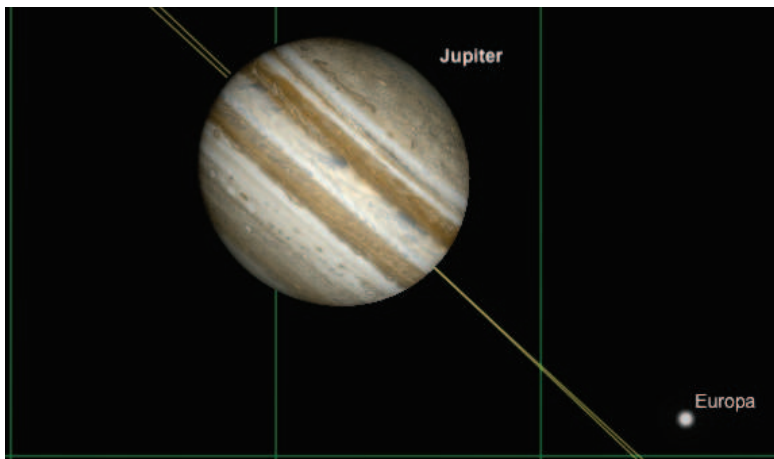
On Saturday April 19th, I attended a Lowbrow **ACNO** (Any Clear Night Observers) observing session at John Causland's home. John, Mike Radwick and Jim Forrester were there and Yasu and Yumi Inugi showed up later. While setting up the scopes and looking for stars to align on, Mike brought our attention to what appeared to be two bright stars in the south about 3.5deg from Jupiter. A bit brighter than the gas giant, they were the brightest objects in the sky at about 50 degrees altitude. After observing the objects for about 30 minutes, it did not seem they changed direction or altitude.

We then viewed them through telescopes. While looking through John's 24" dobsonian, we saw the objects were circular with a kind of antenna or wire extending from them. Flags coming from them reminded us of a used car lot. At lower magnification we noticed flashing red lights at the end of the antennas.

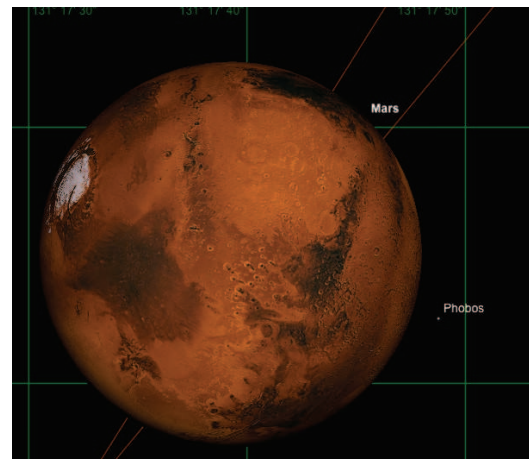
We received several calls from Lowbrows informing us of an international, high altitude balloon launch and the objects we were observing had been set aloft by the University's Aerospace Engineering Department. At 60,000 feet and rising, the balloons were headed for the edge of space.



After all the excitement, we spent time observing Jupiter. Steady, clear conditions allowed us to see a storm cloud on one of the northern bands.



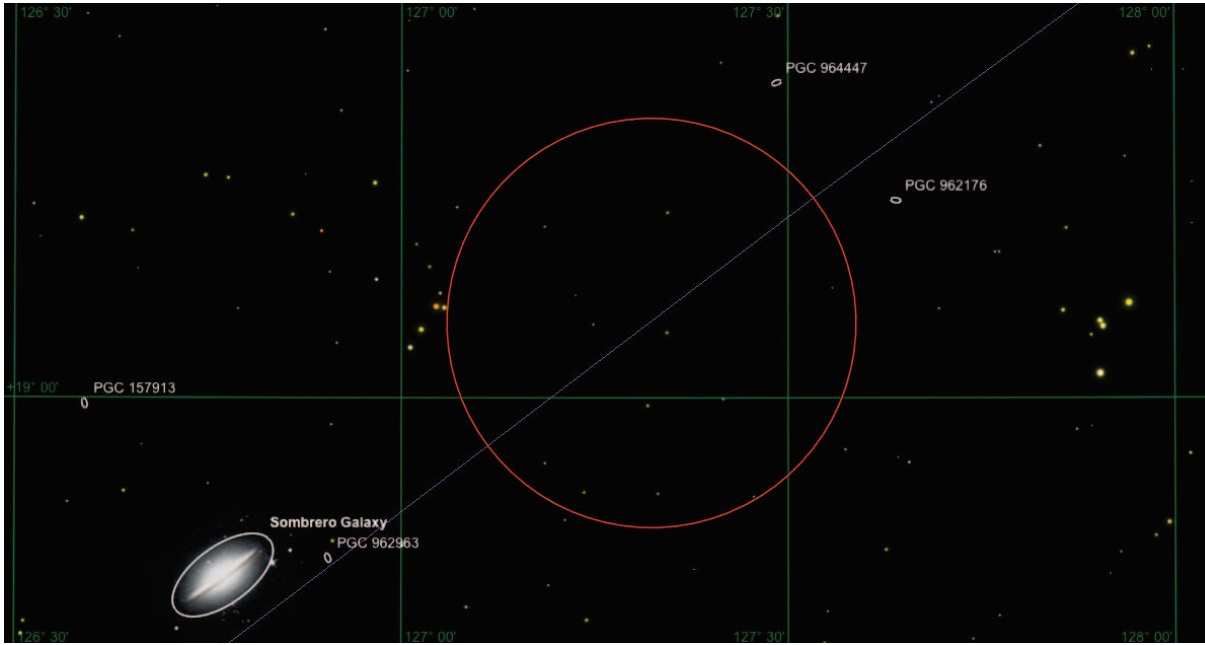
Jupiter as it appeared at 21:00, April 19, 2014



Mars as it appeared at 21:00, April 19, 2014

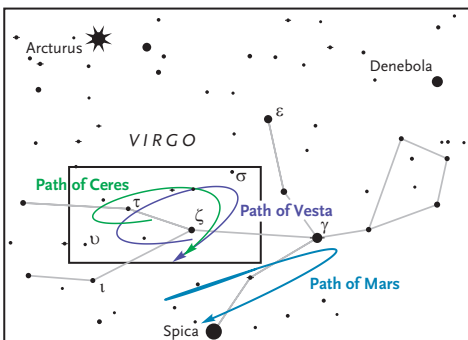
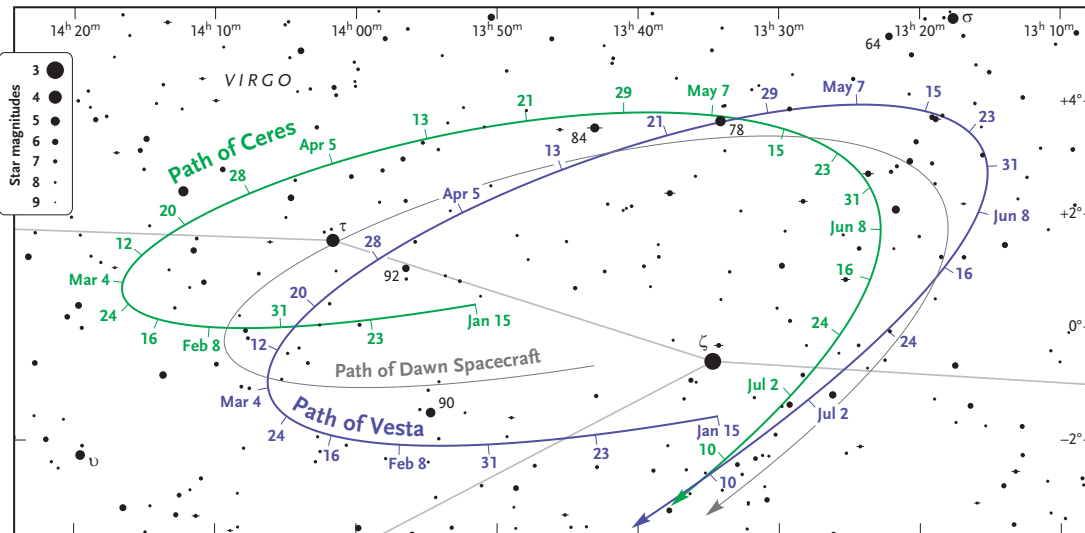
Illustrations taken from Sky Safari

And then to Corvus to observe the Stargate asterism, which was very nice. I had to leave at 10:30 PM, but those who stayed watched Ceres and Vesta.



The "Stargate" asterism is on the right, with another asterism, "Little Saggita", just left of center and M 104 in the lower left corner.

Color chart drawn with Sky Safari



Charts courtesy of Sky and Telescope ©

Ceres and Vesta January 15 – July 10, 2014

The tick marks are for 0 hours Universal Time on the dates indicated. This moment falls on the evening of the previous date in the time zones of the Americas.

First Light!



Photographs: Mike Radwick

If you build it, they will come:

Carly, our latest young astronomer views Jupiter through the club's newly built 17.5 inch telescope.

The club's 17.5 inch telescope saw first light at the Saturday, April 26 Open House on Peach Mountain. The first views though a new instrument are always apprehensively awaited and the scope did not disappoint. In addition to great views of Jupiter and Mars, M 82 displayed great detail, including the waning super nova at mag 14.2.

Since the Open House, the electrical wiring has been completed, the optical finder tested and mounted (it's very nice), the struts reduced about 3/8" to allow longer focal length eyepieces to come to focus and weights added to balance the scope with the heavy front end load. The rear light baffle is yet to be made and hopefully the digital setting circles will be installed by the next Open House May 24.

The scope is to be stored in the Peach Mountain McMath Observatory, but some house cleaning needs to be done to make room. **Saturday, May 17 there will be a work party at the Observatory** to toss old furniture and other debris and possibly level the entrance area with limestone aggregate. Reserve the date and watch your e-mail.



Laid out and ready to assemble.



O. D. Jack Brisbin installing struts.



Jack and Doug Nelle preparing to place the mirror in its cell.

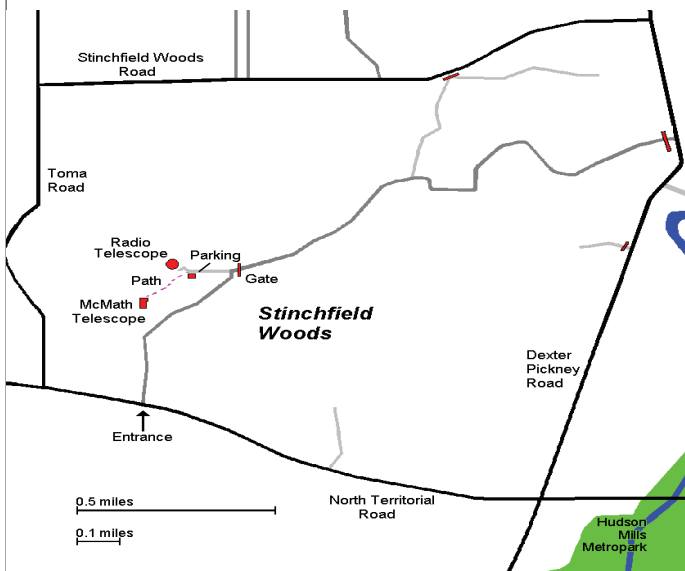


Jack and President Charlie Nielsen apply the finishing touches.

Places & Times

Dennison Hall, also known as The University of Michigan's Physics & Astronomy building, is the site of the monthly meeting of the University Lowbrow Astronomers. Dennison Hall can be found on Church Street about one block north of South University Avenue in Ann Arbor, MI. The meetings are usually held in room 130, and on the 3rd Friday of each month at 7:30 pm. During the summer months and when weather permits, a club observing session at the Peach Mountain Observatory will follow the meeting.

Peach Mountain Observatory is the home of the University of Michigan's 25 meter radio telescope as well as the University's McMath 24" telescope which is maintained and operated by the Lowbrows. The observatory is located northwest of Dexter, MI; the entrance is on North Territorial Rd. 1.1 miles west of Dexter-Pinckney Rd. A small maize & blue sign on the north side of the road marks the gate. Follow the gravel road to the top of the hill and a parking area near the radio telescopes, then walk along the path between the two fenced in areas (about 300 feet) to reach the McMath telescope building.



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 Mountain observatory, but are usually cancelled if the sky is cloudy at sunset or the temperature is below 10 degrees F. For the most up to date info on the Open House / Star Party status call: (734)332-9132. Many members bring their telescope to share with the public and visitors are welcome to do the same. Peach Mountain is home to millions of hungry mosquitoes, so apply bug repellent, and it can get rather cold at night, please dress accordingly.

Membership

Membership dues in the University Lowbrow Astronomers are \$20 per year for individuals or families, \$12 per year for students and seniors (age 55+) and \$5 if you live outside of the Lower Peninsula of Michigan.

This entitles you to the access to our monthly Newsletters on-line at our website and use of the 24" McMath telescope (after some training).

A hard copy of the Newsletter can be obtained with an additional \$18 annual fee to cover printing and postage. Dues can be paid at the monthly meetings or by check made out to University Lowbrow Astronomers and mailed to:

The University Lowbrow Astronomers

P.O. 131446

Ann Arbor, MI 48113

Membership in the Lowbrows can also get you a discount on these magazine subscriptions:

Sky & Telescope - \$32.95 / year \$62.95/2 years

Astronomy - \$34.00 / year or \$60.00 for 2 years

For more information contact the club Treasurer at:

lowbrowdoug@gmail.com

Newsletter Contributions

Members and (non-members) are encouraged to write about any astronomy related topic of interest.

Call or Email the Newsletter Editor: **Jim Forrester (734) 663-1638** or jim_forrester@hotmail.com to discuss length and format. Announcements, articles and images are due by the 1st day of the month as publication is the 7th.

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	Dave Jorgenson	
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Lowbrow's Home Page

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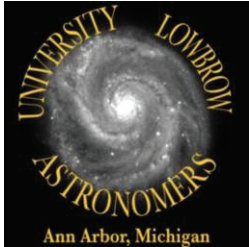


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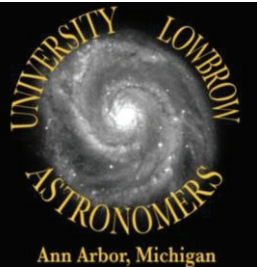
lowbrowdoug@gmail.com

Reflections & Refractions



Website

www.umich.edu/~lowbrows/



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Lowbrow Calendar

Tuesday, May 13 (rain date May 14)--*Observing at Camp Hazelwood.* Next to Mt. Holly. Arrive 8:00 PM.

Friday, May 16--Lowbrow Monthly Meeting. Dr. Claude Pruneau, Wayne State, "The Perils of Asteroids". 7:30 PM.

Room 807 Dennison **NOTE ROOM CHANGE!**

Saturday, May 17--McMath Observatory Clean Out, 10:00 A.M.

Friday, May 23--Public Observing at Brighton Recreation Area, 8:00 PM. Exact location TBA.

Saturday, May 24--Open House at Peach Mountain. Begins at sunset, may be cancelled if cloudy.

Saturday, May 31--Open House at Peach Mountain. Begins at sunset, may be cancelled if cloudy.