



REFLECTIONS / REFRACTIONS

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University Lowbrow
Astronomers

MAY 2015

VOLUME 39, ISSUE 5

Lowbrows *Invade* MSU!

By Charlie Nielsen
President and *Fearless Leader*

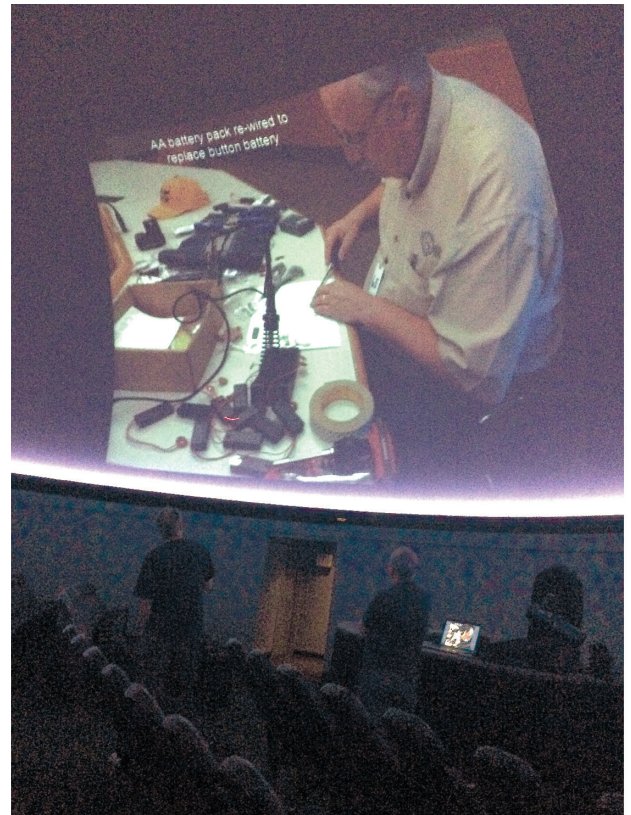
Perhaps an invasion is a slight exaggeration, but a team of Lowbrows did visit Abrams Planetarium recently. Abrams is located deep in the heart of the campus of Michigan State University...oh my!

Early this year I was contacted by the President of the Capital Area Astronomy Association, who asked me to do a presentation about the Ann Arbor District Library loaner telescope program, and our club's involvement in it. I agreed to do so, and I was pleased that another astronomy club was interested in the program. Perhaps this would lead to an effort to set up a similar program in the Lansing area. I often try to involve other club members in such activities, so I asked Jack Brisbin and Amy Cantu to go with me. Jack and I had created a couple of presentations and executed them together in the past and I knew he could easily take over my part in the event that work took me out of the trip. Amy is the person who originally presented the idea of a loaner telescope program to the AADL and our club. Amy works for the AADL and without her this likely would not have happened, and I would not be writing this article.

Over the last few months our team put together a modest sized Power Point presentation and decided who would do what parts. Amy preferred not to do the main talk, but to mostly take on questions. I expected that many or most of the questions would be about how the AADL set up and managed the program and Amy would have the best answers for those types of questions. She also brought one of the scopes in its carrying case with us so we could show off the real item.

On May 6 Jack left his home in Canton to pick up Amy on the north end of AA and then fetched me up at the park and ride lot at I-94 and Baker Road. We proceeded to East Lansing via I-94 and US-127. Our talk was to begin at about 7:30 PM, but we were invited to be there at 7:00 PM to see the planetarium show they do before their meeting. We decided to try to arrive about 6:30 PM in the event that traffic held us up. It turned out the trip was fine and we arrived at the target time. We could not get in the building until about 6:50 PM, so for about 20 minutes we stood around in front of Abrams wearing our Maize and Blue club T-shirts. Not only did we survive, we were pretty much ignored. Perhaps this was because it was not football or basketball season?

When we entered the building we were greeted by their Planetarium Director and shown the way into the dome where we set up our laptop. Abrams is a 50 foot dome that was built in 1963 and has been renovated several times (inside and out) since then. It originally had a Spitz Intermediate Space Transit Planetarium projector installed, but in 1993 it was replaced by an Evans and Sutherland Digistar. Personally, I miss those old analog Spitz projectors. The new digital projectors have many more features and capabilities, but stars are square pixels, not round dots. My first exposure to a planetarium was Longway Planetarium in Flint back in the "60's", which used a Spitz. I even received some training and could operate it. The night sky it threw up on that dome was so realistic! Returning to the present day...Abrams recently



Charlie and Jack Brisbin project a slide onto the Abrams Planetarium dome of Clay Kessler swapping out 1x finders on one of the Ann Arbor District Library's Star Blast telescopes.
Photo: Amy Cantu

upgraded to a Digistar 5. The first thing you notice is what you do not notice. There is no projector on the floor in the middle of the dome! I finally had to ask and it was explained that the projectors (I think 4 of them) were hiding below the rim of the dome. You could not see them from the seats at all. Overall, I was impressed with the functionality of the system and the pixilation of the stars was not as obvious as some digital projectors that I have seen.

At 7 PM we were watching the planetarium show that the CAAA does before their monthly meeting. It was mostly about current sights in the night sky. Of most interest to me was an upcoming conjunction (in June I believe) of Jupiter and Venus. We should see both planets in the same telescopic field of view! That is rare. At 7:30 PM the club did their business meeting, which was very short. They had 10 members in attendance, which is about average. I was informed that if a dozen show for a meeting that is a good turnout. But consider that though this is low compared to an average Lowbrow meeting, they are a much smaller club (30 some members).

When we were introduced we were also thanked for our bravery for coming into "enemy territory". I was hoping for such a comment since I think college rivalries are fun. I started out and Jack finished our Power Point. We had targeted 30 minutes at most and I think we hit that pretty close. Then we got questions, a lot of questions. As anticipated Amy took the majority and handled them very well. I think the questions took about as long as the presentation and I would not be surprised if a loaner telescope program gets started in Lansing or East Lansing as a result. We also received some feedback that caused us to think about doing more to warn people about trying to look at the Sun with those scopes. After the meeting we were told that our presentation was excellent and appreciated. We were then invited to stick around another 42 minutes to enjoy a Pink Floyd planetarium show that they had just completed. We were the first group to ever see it. It was set to the album "Dark Side of the Moon" and showed off the special effects the systems is capable of.

I think Amy, Jack and I represented our club very well. Everything worked well, except that our slides were on the dark side because I did not think about any compensation for projecting onto the dome itself. We could have tried adjusting the brightness, but it was not too bad and when I apologized for it no one suggested we adjust it. We had a great time visiting our friends to the north and we all agreed it was a worthwhile and fun trip. As we were walking to Jack's car we noted a very clear sky to the west and Venus shining brightly. We tried to spot Mercury but did not succeed. It was a beautiful deep BLUE twilight sky that capped off a fine day.

Taking Your Best Shot (On A Cloudy Day)

March 20 Solar Eclipse From the Faroe Islands



Mike Meade gave a fascinating presentation to the club on Solar Eclipses at the April monthly meeting. Sailing to the far north, midway between the British Isles and Iceland, our intrepid traveler gave his best shot at capturing an image of the March 20 Total Eclipse of the Sun.

This was taken by Mike with a Sony ILCE-6000, E PZ, F 3.5-5.6 OSS. Settings: f/5.6, 50mm, 1/80 sec, ISO 100

The rest of the details can be found here:
<https://www.flickr.com/photos/mikemeade/16920978421/>

Photo Copyright Michael Meade

Lowbrow Monthly Meeting Minutes

April 17, 2015

Minutes of the General Club Meeting on April 17, 2015.

1. Elections

Club president Charlie Nielsen wrote the proposed officer slate on the blackboard. John Causland's name was briefly in the President position and then removed. After this change the following slate appeared:

President - Charles Nielsen

Vice Presidents - Ken Ruble, Don Fohey, Dave Snyder, David Jorgensen

Treasurer - Doug Scobel

Newsletter Editor - Jim Forrester

Observatory Director - Jack Brisbin

Observatory Director Emeritus - Percival Lowell (deceased)

Webmaster - Krishna Rao

This list is the same as the existing officer list. The club approved the officer slate as written.

2. Mike Meade (club member) gave a presentation entitled "Northern Exposure: A Total Solar Eclipse Over the Faroe Islands."

Mike talked about

1. The Timing and Geometry of Solar Eclipses.
2. His latest solar eclipse trip (March 2015) which included a stop in Paris (where Charles Messier made his observations), Copenhagen and finally a boat trip to the Faroe Islands.
3. The Faroe Islands are where he planned to observe the solar eclipse of March 20, 2015. Unfortunately Mike got clouded out and could not observe the eclipse.
4. A Web site to record eclipse observations.
5. Some upcoming eclipses. Most significant is a solar eclipse on August 21, 2017. This eclipse will pass over the continental US. Club members may want to put that date on their calendars.
6. He handed out a list of eclipse resources. This list was scanned and appended to the end of these minutes.

3. President Charlie Nielsen:

Charlie handed out NSN Pins. Three pins were given out, one each to Dave Snyder, Jim Forrester and Jack Brisbin.

Tomorrow (April 18) is an open house at Peach Mountain.

There was a discussion of Meeting Speakers and lack thereof.

Next Saturday is Astronomy Day. The Lowbrows will be setting up on the sidewalk – South Ashley Street between Washington and Huron in downtown Ann Arbor.

There will be an event at the Leslie Science Center on June 27.

4. Vice President Dave Snyder: Next month's speaker will be Emily Rauscher from the U-M Astronomy Department who will talk about "Peering into the atmospheres of exoplanets."
5. Vice President Don Fohey: Nothing to report.
6. Treasurer Doug Scobel: We have 123 memberships and \$4811.00 in the kitty.
7. Newsletter Editor Jim Forrester: The newsletter queue is empty. Jim needs articles. The transplant Center earned \$1800 last fall by raffling off a "night on Peach Mountain." The winner is entitled to come to Peach Mountain but the exact date hasn't been determined. A few Lowbrows will be needed to help out with this event.
8. Observatory Director Jack Brisbin: Jack needs a couple people to take trees out; this will improve the horizon around the McMath building.

The idea of bringing the 17.5" to Ashley St. Astronomy Day event was discussed. However as downtown Ann Arbor is very light polluted, bringing a large telescope was unnecessary.

The dew shield for the 24" mirror of the McMath was discussed. On a recent visit to Peach Mountain a broken wire was discovered on the dew shield, this meant it didn't work at all and needed to be repaired.

Jack and Don Fohey replaced that cord with a heavier cord and the broken wire was repaired. Don realized the three resistors in the dew shield only put out 5 watts of power. Don made a change to the dew shield so it now puts out 20 watts. While 20 is bigger than 5, it still isn't much heat. The issue will require further study.

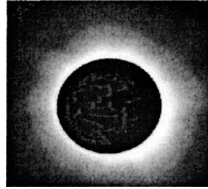
Jack, Charlie & Amy Cantu will be making a presentation at Abrams Planetarium (located on the campus of Michigan State University).

According to an email from Charlie: "The Maize and Blue will be on our Lowbrow shirts as we do a presentation on May 6 for the Capital Area Astronomy Association, at Abrams Planetarium. They would like us to enlighten them on our involvement in the AADL telescope loaner program, which they read about in Sky and Telescope. My we get around, eh? One of our club members, Amy Cantu, works for the AADL, and if not for her none of this may have happened."
9. Webmaster Krishna Rao asked if anyone in the club was using Instagram. A couple people raised their hands. Krishna was thinking of setting up a club Instagram account.
10. Jim Forrester: A brief discussion about using Sky safari on an Android smart phone or tablet to control a telescope. He mentioned that Southern Skies (which is the company that makes Sky Safari) has a Yahoo group that is useful for people with questions on this issue.
11. Doug Scobel: If new members want to join see Doug Scobel.
12. Brian Ottum: A group of Lowbrows, including Brian and Doug Scobel recently did an all nighter. They used a remotely-controlled telescope in the New Mexico desert to image the complete Messier catalog of 110 objects in a single night. Using these images Brian created a poster with all of the Messier objects. Brian plans to print copies at EMU and sell them to Lowbrows. He will send out an email, there will two different sizes of poster.
13. The meeting was adjourned.

Submitted by Vice President Dave Snyder on May 3, 2015. Revised May 4, 2015.

(See Page 5 for a copy of the handout Mike provided.)

Solar Eclipse Resources



NASA

<http://eclipse.gsfc.nasa.gov/solar.html>

Great American Eclipse of 2017

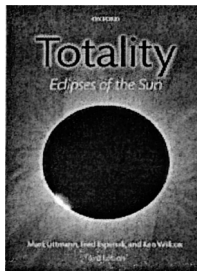
<http://www.greatamericaneclipse.com/>

Astrocon

<https://astrocon2017.astroleague.org/>

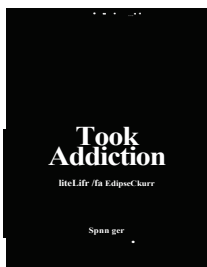
Eclipse Chasers

<http://eclipse-chasers.com>



Totality: Eclipses of the Sun

By Mark Littman, Fred Espanek, and Ken Wilcox
2008



Total Addiction: The Life of an Eclipse Chaser

By Kate Russo
2012

A Few

Observing Highlights

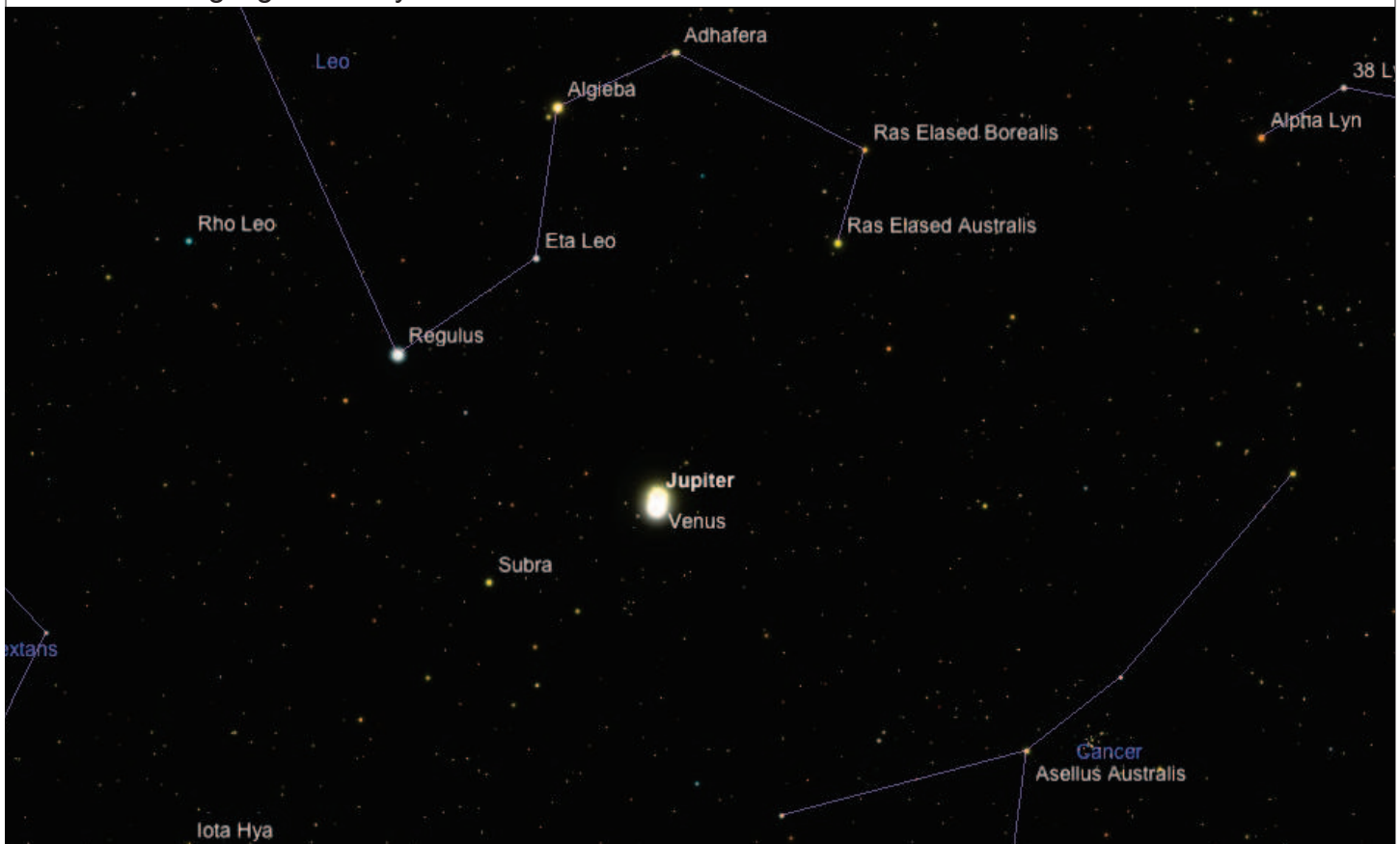
Now until Tuesday May 19 may be your best remaining chance to see **Mercury** in the evening sky. It will be just 14-11 degrees above the horizon in the west at sunset. But what goes around, comes around and the fleet planet will at its highest point in the eastern sky June 24. About an hour before sun rise will be your best time.

Jupiter Double Shadow Transits: May 20 beginning at 8:06 PM; May 27 beginning at 10:01 PM; June 3 beginning at 12:58 AM.

Saturn is at Opposition May 23. It will climb to just 29 degrees above the horizon about 1:33 AM local time. This is also the date of our second May Open House at Peach Mountain!

Venus is at Greatest Elongation June 6 and therefore at its brightest at about mag 4.5.

Jupiter and Venus on June 30 are 20' apart at sunset, about 23 degrees altitude. This is the celestial highlight of early summer.



Jupiter and Venus are less than the width of the Full Moon apart June 30 in the western sky at sunset June 30 . Chart drawn with Sky Safari.

More Digital Setting Circles

By Jim Forrester and Dave Jorgensen

Dave Jorgensen took Don Fohey up on his offer to help with installing and programming digital setting circles. Dave writes:

I have this old (year 1999) Celestron NexStar5 "GoTo" scope that was advertised by Sky Safari to be compatible with their program. I bought the components recommended by Sky Safari personnel and gave it a try. Well after several extensive email conversations with Celestron and Sky Safari, it was concluded that these 2 devices actually were not compatible and I was told by Sky Safari they no longer could help with this issue.

Then I reviewed the form of the data being transferred between these two devices. To make a long story short, I discovered a mistake in the way the data was communicated between the devices and how they interpreted the data. This I forwarded to Don. He agreed with this understanding of the problem and said he could correct the malfunction with an Arduino interface system.

Don designed and built an Arduino system, including unique programming, which has allowed these 2 devices to now correctly understand the data transferred between them. The result is terrific. This old scope now accepts precise "Goto" instructions from Sky Safari, and provides Sky Safari with appropriate data to display the proper orientation of the scope's location on my Android device. Wow!

Thanks Don for pulling this all together.

My own adventures continue. Russ Vente is also getting help from Don and Russ pointed me to a different power supply for a telescope. Of late demand has arisen for the charging of mobile devices at remote locations and the market has responded with compact batteries that can charge your phone or tablet sized from a lipstick to a tablet. Russ found Anker products (there are many others, but Anker reviewed well) and a little more research turned up the Anker Pro 2 20000mAh.

You read correctly, **20000mAh and it the size of a 7 inch tablet and not much heavier**. There is a USB port (5V/2A) for charging phones and tablets and a barrel socket outlet that switches between 12V/4A, 16V/3.5A and 19V/3A.

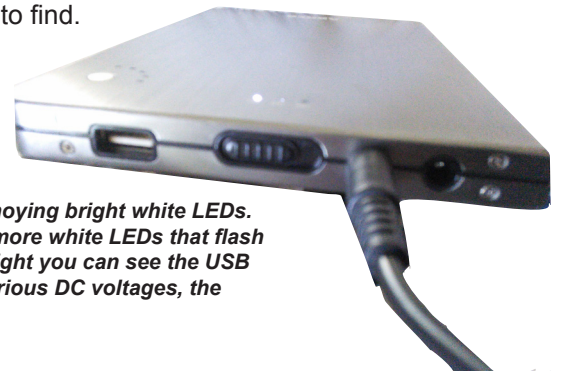
It does have annoying white led lights that tell you the battery is charging and which output is being used. But that can be solved with some red tail light repair tape (or turning the battery on its face).

Don was gracious enough to add a barrel socket to my power inputs and I was good to go. The battery got its first work-out at the Camp Hazelwoods event May 13. It and Don's Arduino unit performed very well, making short work of mag 11.5 galaxies in skies that would have had me star hopping half the night to find.



The bright white spots in the photos are the annoying bright white LEDs. The arc of dark spots in the left illustration are more white LEDs that flash sequentially while the unit is charging. On the right you can see the USB port, the selector switch to shift between the various DC voltages, the power output and the unit's charging port.

Photos: Jim Forrester



I also expect the battery to support the scope's fans and dew heaters. But if I'm just operating the Arduino, Bluetooth and my tablet, I could spend a week in the wilderness without having to hook up to the grid to charge the Anker.--Jim Forrester

Lowbrow Calendar

Friday, May 15, 7:30 PM--Monthly Club Meeting--Room G115 Angell Hall, University of Michigan, 435 South State Street, Ann Arbor, Michigan--Emily Rauscher (Assistant Professor/Postdoctoral Presidential Fellow, Astronomy, University of Michigan). "Peering into the atmospheres of exoplanets." Meetings of the University Lowbrow Astronomers are free and open to the public.

Saturday, May 16 and Saturday, May 23--Open Houses at Peach Mountain--Begin at sunset, may be cancelled if cloudy.

Friday, June 19, 7:30 PM--Monthly Club Meeting--Room G115 Angell Hall, University of Michigan, 435 South State Street, Ann Arbor, Michigan--Topic TBA.

Saturday June 13 and Saturday, June 20--Open Houses at Peach Mountain--Begin at sunset, may be cancelled if cloudy.

Saturday, June 27, 8:30 PM--Public Observing at the Leslie Science Center

SCIENCE YOU CAN DO

Light Pollution Survey

Reflections rarely runs material directly from the internet, but George Ferrier sent a heads up about the **Globe At Night** effort a few weeks ago and your Editor believes as many people as possible should participate in this data gathering effort. Most of you are probably familiar with programs like Galaxy Zoo and the Christmas Day Bird Count: If enough reports are made, a fairly good idea of what is happening (that galaxy 3bn ly away really is elliptical, there are fewer nut hatches this year than last) can be obtained.

The idea is simple: Look up and count stars and report what you see. Most of you have likely counted stars in the Great Square of Pegasus or the Hercules Keystone to get an idea of a particular night's limiting magnitude. This is pretty much the same thing. From their web site: www.globeatnight.org/

Five Easy Star Hunting Steps:

1. Use the Globe at Night website to help find your constellation in the night sky.
2. Use the Globe at Night website to find the latitude and longitude of the location where you are making your observation.
3. Go outside more than an hour after sunset (8-10 pm local time). The Moon should not be up. Let your eyes become used to the dark for 10 minutes before your first observation.
4. Match your observation to one of 7 magnitude charts and note the amount of cloud cover.
5. Report the date, time, location (latitude/longitude), the chart you chose, and the amount of cloud cover at the time of observation. Make more observations from other locations, if possible.

Compare your observation to thousands around the world!

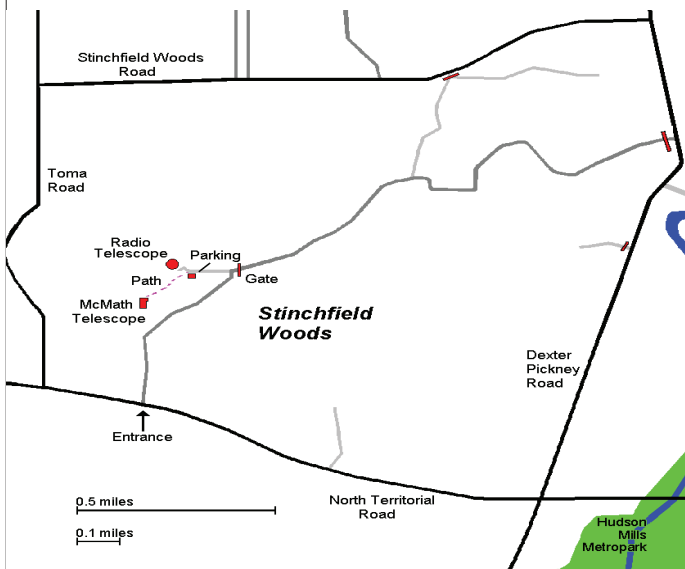
The screenshot shows the 'Globe at Night' website interface. It features a star chart for the constellation Leo, with stars labeled like 'Regulus', 'Deneb', and 'Rosharun'. The chart includes a magnitude scale from 1 to 6.50. Below the chart is a form with several sections:

- 1. When did you make your observations?** Fields for Observation Date (2012/04/12), Observation Time (21:12), and a link to 'Submit to Lightmap server'.
- 2. Where did you make your observations?** A map showing the location in Eastland, Michigan, with fields for Latitude (42.232843807876), Longitude (-83.717137008118), and Elevation (262.77 meters).
- 3. How dark was the sky that night?** A selection of seven star charts representing different sky conditions.
- 4. What were sky conditions like that night?** A text box for 'Sky condition comments' with a note: 'E.g., cloud reflections, star trails, aurora, moon cover? Number of observable magnitude stars? (Only magnitude 6.50 and brighter stars count.)' and a 'Submit' button.
- 5. Did you use a Sky Quality Meter (SQM)?** Fields for 'SQM reading' and 'Serial Number'.
- 6. Ready to send us your data?** A 'SUBMIT DATA' button.

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 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. A club observing session at the Peach Mountain Observatory, weather permitting, often follows 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, maintained and operated by the Lowbrows. Located northwest of Dexter, MI; the entrance is off North Territorial Road, 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 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 \$30 per year for individuals or families, \$20 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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	Don Fohey	
	Ken Ruble	
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Lowbrow's Home Page

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Reflections & Refractions



Website

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Driving home from work just before dawn April 16, Mark Deprest saw the moon in his rear-view mirror, pulled over and used his phone to take and send us this picture of the lunar waning crescent.



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