

Night Visions

2018 August Issue

Newsletter of the Baton Rouge Astronomical Society

Monthly Meeting Monday, August 13th at 7PM at HRPO

(Monthly meetings are on 2nd Mondays, Highland Road Park Observatory).

Presenter: Steven Tilley will speak on Comet and Asteroid Observing

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President's Message

The highlights of July were:

- the Great Martian Opposition of 2018, the closest pass of Mars in fifteen years.
- ALCON 2018 (Astronomical League Convention) was held in Minneapolis, Minnesota. It was four days and nights of great talks, workshops, stargazing, and opportunities to meet people from around the USA who share our passion for astronomy. I took a few site photos (right), and you can watch a short video here: <https://alcon2018.astroleague.org/>
There will be a write-up in AL's quarterly **Reflector Magazine**, which BRAS members should be getting in the mail as a benefit of membership.
- I would like to extend congratulations to BRAS member Coy Wagoner on being presented the Master Observer Award in person at the ALCON convention (see his write-up in the Member's Corner).



The Sylvia A Casby Observatory Dome



ALCON 2019 will be July 25 – 29 next year, to mark the 50th Anniversary of Apollo 11, and will include a tour of Kennedy Space Center and a Dark Sky Cruise to the Bahamas. Start making plans now if you wish to go, note a passport will be required.

REMINDERS:

- ❖ The BRAS Business Meeting will be Wednesday August 8th and the BRAS Monthly Meeting will be Monday August 13th. Both will be at HRPO at 7 PM.
- ❖ If you have not reserved your member pin yet, please come to a meeting to pick one up.
- ❖ Please check with Ben Toman if you are willing to help with our Outreach Requests. Remember, Outreach to our community is a lot of what we do.
- ❖ Our astrophotographers (or members wishing to learn) should check with Scott Louque about BAG (our new acronym stands for BRAS Astrophotography Group).

NOTICE: We still need to fill the role of Secretary. If you already attend the monthly and business meetings, it's not much more of a stretch to fill in as Secretary at least until December. Any member willing to take on this role PLEASE let me know. Yes, BRAS needs you! *(But you must speak to our editor about this image, it was not my idea.)*

Clear Skies

Steven M. Tilley, President

UNCLE BRAS NEEDS
YOU!



Secretary's Summary of July Meeting

President Steven Tilley called meeting to order at 7:02pm.

- Steven asks for any volunteer to be the secretary – no takers. Steven then asked for a one-time volunteer – still no takers. Steven assigned John Nagle to take the minutes of the meeting.
- Steven then reminded BRAS members to pick up their member pin.
- Scott Louque explains that due to illness at the last minute, our scheduled speaker could not be here.
- Scott then introduced Craig Brenden, who talked about outreach observing. Material discussed included the following: telescope types; how to observe; magnification; type of eyepiece; filters; pointing out things to guest observers; and to keep an eye on your equipment.
- Chris Desselles talked about the next meeting of the Astrophotography Group to be at his house.
- Chris Kersey mentioned the explorative committee in the state legislature for Daylight Savings Time.
- Chris Kersey also mentioned the following: Night Sky Magazine (from Centennial Media) issue on Explore the Night Sky; Alerts about 3 comets breaking magnitude 10 and requesting BRAS members to confirm that they could be seen; Mars Opposition on July 26th (Thursday) at HRPO from 6:30 PM to 12:30 PM, with HRPO closed on Friday, the 27th; 10 to 15 media outlets for BRAS; and on the 31st of July (Tuesday) the closest approach to Earth by Mars at about 2:51 AM CDT.

Meeting adjourned.

Steven holds a raffle with books, as coffee and brownies are served.

Two new (prospective) members present.

Minutes submitted by John Nagle

2018 Officers:

President: Steven M. Tilley
 Vice-President: Scott Louque
 Secretary: ---
 Treasurer: Trey Anding

BRAS Liaison for BREC:

Chris Kersey

BRAS Liaison for LSU:

Greg Guzik

Committees/Coordinators:

Light Pollution:

John Nagle

Newsletter:

Michele Fry

Observing Notes:

John Nagle

Outreach:

Ben Toman

Webmaster:

Frederick Barnett



www.lunarbaboon.com





BRAS Outreach Report

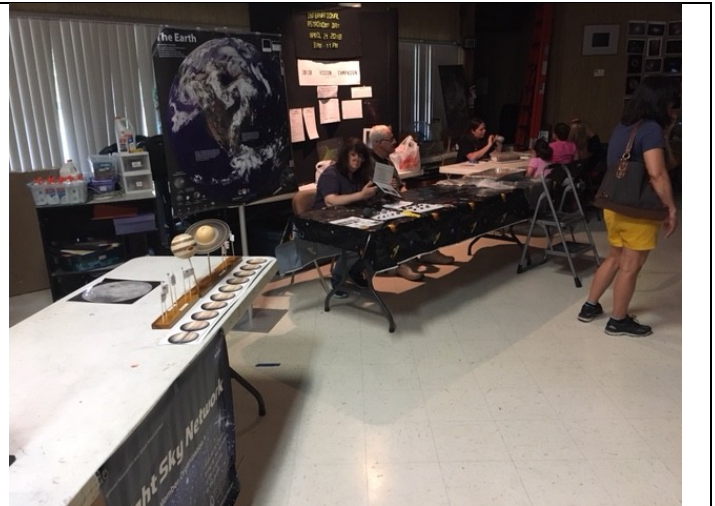
Hi Everyone,

Well, it's been a hot Summer, but even so we've managed to get outside and do some outreach.

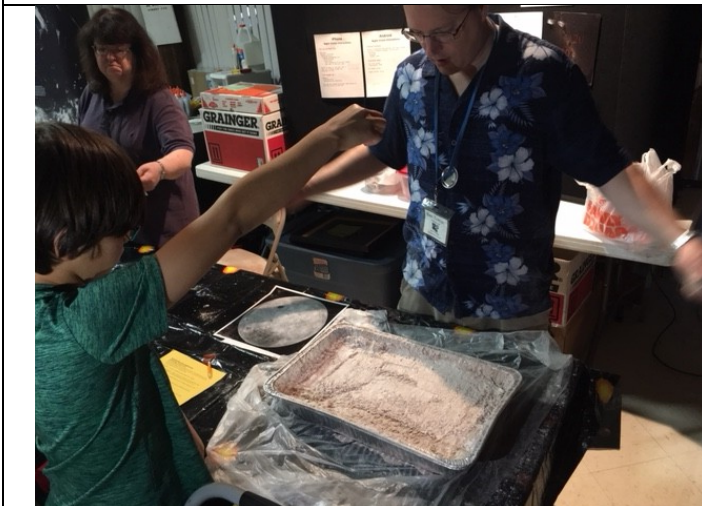
Asteriod Day: A great public showing at the Observatory and thanks to all the volunteers who helped make that happen. I believe this is a new club record for the most demonstrations going on simultaneously. We had our Light Box showing people the difference between good and bad light fixtures, the Scale Model Solar System for the Night Sky Network, our Meteorites and Meteor-wrongs! display also from the NSN, a newly put together Crater Making Kit (a simple pan filled with flour and cocoa powder to let people make their own craters by dropping in rocks of various sizes), a coloring station to color some asteroid pictures, and of course some telescopes outside for viewing celestial objects.



John N. and Juan C., (helping with presentations)



Roz and Craig "a table", (ready to demo).



Ben with the crater making kit demo, (playing as usual.)

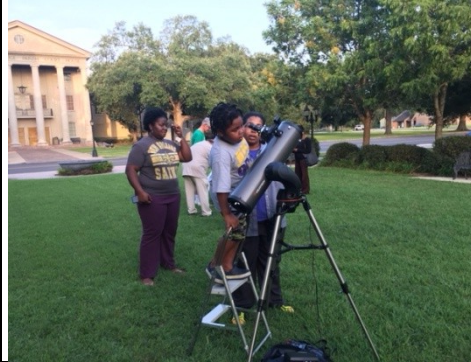


Viewing pad outside (unknown subject)

EBRP Library and KidCam Presentations: Kudos to Chris Kersey for his hard work presenting at the various library branches. He also led several outreaches at the various KidCam camps this past week.

National Guard Camp in Bunkie, LA - Chris Raby and his wife once again headed up this evening of outreach with some student campers. Word has it that this event may be moving down to the Lamar Dixon Center area next year so maybe we'll get some more volunteers to help out next time.

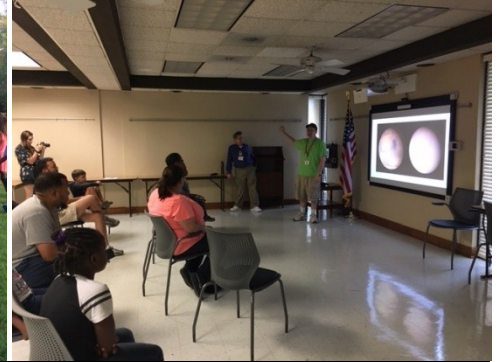
West Baton Rouge Library: Finally, we had a great showing at WBRL on July 19th. It was a testament to just how much great telescope observing can be done in daylight when you have a well placed 1st quarter Moon and planets. At one point, we had one telescope (filtered) looking at the Sun, another on the Moon and another on Venus. We even found Jupiter in the blue sky and actually, I've never seen the Great Red Spot so prominently!



Chris R. in background with people looking at Scott C.'s scope in foreground



Scott C scope, Ben w/scope, Chris R with scope



Ben giving Mars presentation inside the WBR Library

Outreach Superstars for July: *Chris Kersey, Chris Raby, Roz Readinger, John Nagle, Scott Cadwallader, Scott Louque, Steven Tilley, Susan Miller, Trey Anding, Ben Toman, Krista Dison, Craig Brenden,* and I'm sure I've forgotten someone, but you know who you are! (Thank you all!!)

We currently have only one request on the books for August, so be sure to take a look at it and let me know if you would like to come help out.

Upcoming Outreach

Thursday, August 23rd
 3:45pm-6:00pm
 HYPE After School Program
 First United Methodist (930 North Blvd. Baton Rouge)
 NSN demos, etc. I believe this is an indoor event so no telescopes outdoors.
 4 volunteers (or more) would be nice



Chris and Terry Desselles' Back Yard





BRAS Astrophotography Group (BRAG) - July 14th Meeting

Scott L submitted this meeting summary:

We had a fantastic fourth meeting at the home of Chris Desselles. With his huge back yard (photo above) and dark sky, it turned into a miniature star party! There were 9 people and 7 telescopes with sizes ranging from 14" to 6". Krista got fellow BRAS member, Charles Genovese to come out, and he brought the 14 inch scope. Talk about a beast! Most of the attendees tried their hand at imaging a planet. Saturn and Jupiter received the most attention, and Mars poked it's dusty nose out about when everyone started to pickup. Scott L and Scott C. tried their hand at imaging deep sky objects, resulting in the two photos below.

Scott L. tried imaging the Trifid Nebula but was hampered by equipment issues and a pesky tree that got in the way. However, he did manage to pull off two 4 min subs before running into problems. Krista got to try her hand at planetary imaging with her new telescope, an 8 inch Nexstar SE. James Ernest was there with his C11 which provided a fantastic image of Jupiter and the Great Red Spot. Despite the humidity, everyone had a great time. A big thank you to Chris Desselles and his wife Terry for hosting this event and cooking a big pot of jambalaya and desserts.

Let Scott L. know if you plan to attend a future BRAG event. Time and place TBA: slouque@att.net





Scott C further describes the meeting:

In every introduction to astronomy book I've ever encountered, there is a short blurb somewhere that explains that everyone interested in astronomy should consider joining some sort of astronomy club. There, it is said, they will be able to exchange ideas and information with local individuals of all levels of experience from the astronomical community that can help them to develop their own skills and in turn learn how to be of benefit to others. The reason for such was finely exemplified by the July 14th meeting of the newly formed Astrophotography Group at the home of Chris Desselles. There were members of all levels of expertise, ranging from the merely curious to the veteran astrophotographer, with many shades in-between. What emerged was what was thought to be the largest gathering of telescopes in Livingston Parish ever, and which was certainly the largest star party for the Baton Rouge Astronomical Society (outside of a weekend retreat) in recent memory. With only seven scopes divided among the nine members present, such a statement was by no means overwhelming when compared to the larger gatherings hosted all across the country, but it was much more significant in that it was our party, for our members, who just decided to get together on a Saturday night to point some scopes up and look around for things to see. Mostly, it was just a chance to socialize with like minded people in a relaxed atmosphere and show each other how its done. The evening began with a repast worthy of any great event, the traditional jambalaya and salad that is the staple of the best Louisiana gatherings. Soon, the plethora scopes were set up. The field itself had been perfectly arrayed for the occasion, having been meticulously constructed into three work stations each having an independent power supply and neatly arranged along the lines of the compass to aid in directions. To assist with the location of targets, a large star atlas set slightly off from the field under a small red lamp had been provided. Shortly after dark the first prime twilight targets emerged and most everybody found their way to Venus and the Moon, before moving on to their next targets, some lingering just a little while longer than others while they learned to frame and photograph each object, which was the ostensible reason for the gathering in the first place. As the evening went on, people began moving from scope to scope, each checking out the view from their neighbors equipment and expressing either suggestions to improve or admiration for their setup, but most importantly, sharing the experience of what

can be a very isolating hobby. Before long, the prime targets for the evening were well in view, and most everybody found their way to Jupiter, Saturn, and Mars. A couple of the members even framed up some deep space objects, managing to capture a few frames of the Trifid and Eagle nebulae. As with many a summer night, the evening crept into morning before we knew it, and the crowd dispersed back to their various homes, doubtless to look forward to future parties such as this. And the wait shouldn't be too long, as Mr. Desselles has again offered up his home for a future party in the Fall, when the nights might be a little longer in the early evening and the temperatures a little more moderate.

Here are two photos taken recently:

	
<p>Scott L's M31</p>	<p>Scott C's 20 minute exposure of the Eagle Nebula</p>



BRAS Light Pollution Committee Report

This committee meets at 6:15, same day as the 7:00 BRAS Business Meeting (which normally takes place on the Wednesday before the Monthly Meeting)
Everyone is welcome to join in.

Meeting called to order by John Nagle
No new members, with 8 members in attendance
June minutes were published in the July newsletter

Old Business:

1. Codes, distributed on thumb drives, had not yet been reviewed by committee members.
2. Write up about the first use of the Light Meter almost finished, and will be placed on the Dark Sky Advocacy web pages. More information about Light Pollution, from IDA, will be written and also placed on the web pages.
3. Nominations for the BRAS Good Lighting Award – USPS General Mail Facility on Bluebonnet Blvd. has been nominated.
4. Consultation with Lawyers on the UDC lighting requirements – the Long Law Firm has been suggested for contact.

5. IDA representative, reviewing the Unified Development Code – Lighting chapter for the city/parish has not gotten back to us yet.
6. Daylight Savings Time – we were informed that a study group has been formed in the state legislature. The LPC will draft a letter with BRAS’s position on this subject, to be sent to the members of the study group.
7. Two ideas were proposed to more graphically demonstrate Light Pollution:
 - A. Set up portable lights to create glare and blind spots.
 - B. Make up posters of pictures that demonstrate glare and blind spots.
8. At the National Association of Neighborhoods meeting, Chris Kersey was able to address the group, and some individuals talked to him after the meeting.

New Business:

1. Went over list provided by Thomas of possible groups/organizations to contact about enlisting assistance on fighting Light Pollution.
2. LPC to draft a letter to BREC on the progress and status of their Environmental Sustainability Program.
3. Agreed to put links about Light Pollution (IDA, etc.) on the Dark Sky Advocacy web pages.
4. Chris Kersey announces a second Annual Natural Sky Conference in November.
5. Chris Kersey will contact the Young Astronauts Clubs and enlist them to help in the Globe at Night program.
6. Chris Kersey will try to contact the LSU professor that investigated the “Safety of Nighttime Roadway Lighting” a few years ago, and inquire about possible contacts and/or data the LPC could use.

Meeting adjourned.




John R. Nagle

John Nagle, Chairman



P.S. Every year BRAS presents a Good Lighting Award to a company that uses BEST outdoor lighting practices. If you notice a business in EBRP that uses Full Cutoff lighting fixtures, please jot down and send their Business name, address, date and description to me at jonagle@cox.net. This would be much appreciated.

The Progression from Bad to Best Lighting Fixtures that decrease Light Pollution

No Cutoff - BAD	Partial Cutoff - BETTER	Full Cutoff - BEST
		



Free The Milky Way Campaign

used to be the 20/20 Vision Campaign, recently renamed by the Light Pollution Committee.

This campaign's goal was to raise the SQM measurement at HRPO's back viewing pad to 20.0 by November 2020. We decided to keep the effort going until the goal is reached, however long that takes.



Recent Entries in the BRAS Forum

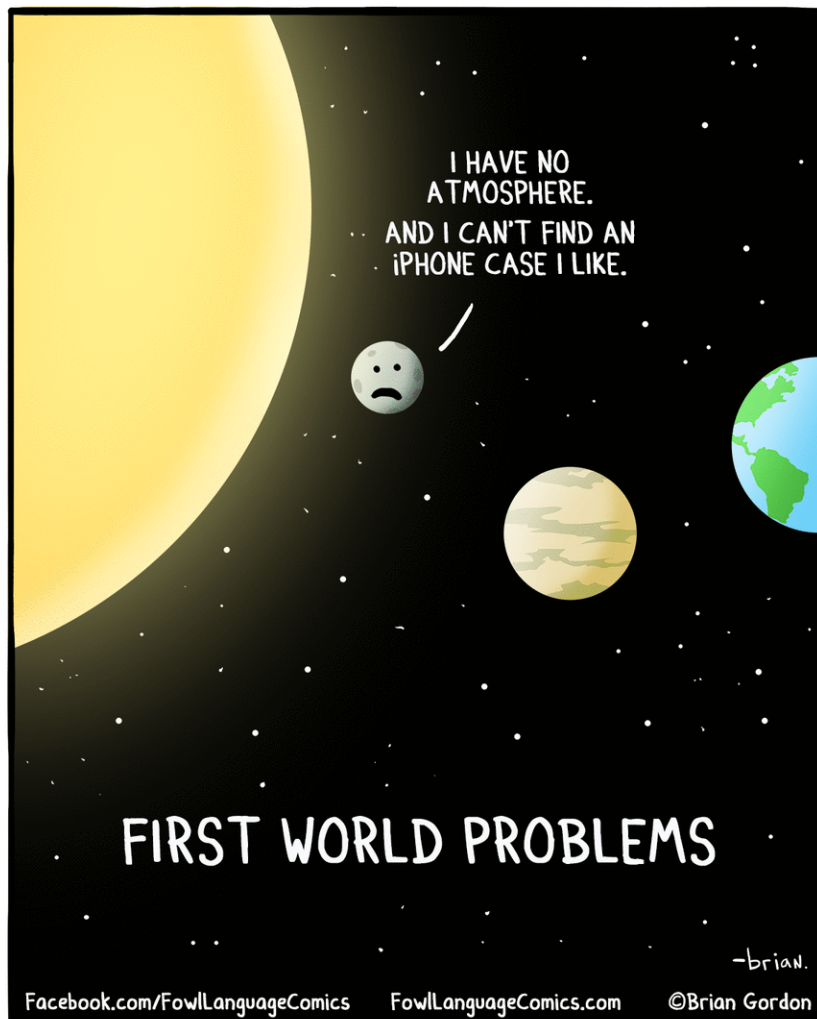
There are also nine active polls. The Forum has reached 5400 posts.

Take Precautions Against [West Nile Virus](#)

More [Moons Discovered Around Jupiter](#)

[Parker Solar Probe](#) Launching in August

[G1 Activity](#) as July Ends





BRAS Members' Corner

Here's where BRAS members can submit articles and photos about their astronomy-related accomplishments and adventures outside of BRAS activities (as if there were any spare time for such things!)

Send your contributions to Michele at newsletter@brastro.org

ALCON 2018, July 11-14, Minneapolis, Minnesota. ~Article by Coy Wagoner

Steven Tilley and I attended ALCON 2018, which was held at the Hilton Minneapolis/St. Paul Airport Mall of America. Over 350 people attended from 25 different states. The Astronomical League's stated theme of the conference focused on

“outreach and the promotion of knowledge of the universe through the lenses of our telescopes.”

Attendees were treated to a varied group of speakers, sponsor expo, historical telescope exhibit, and star parties at the **Eagle Lake Observatory**. While attendees had the option of hearing speakers at the hotel ballroom, there



were also paid tours of local points of interest, including observatories and museums. ALCON 2018 culminated in a banquet where the Astronomical League transfer of power took place, several awards were given, and the keynote address was delivered by none other than Pamela Gay of Cosmoquest and Astronomycast podcast fame.

After earning the Master Observer certificate and pin from AL this May, I learned that while attending ALCON, I would also receive a Master Observer plaque along with 16 other fellow amateur astronomers. I was also fortunate enough to attend presentations by people in our hobby who I follow on social media, including Phil Plait and Pamela Gay. Other speakers of note included astronomer and author Bob Berman, Bob King of Bob's Knobs, Pranvera Hyseni from Kosovo, Traveling Astronomer Brandon Hamil, Dave Tosteson, Lou Mayo, Ron Schmit, Thomas Jones, Jay McLaren, Richard Schmude Jr., Cristin Finnigan, Terry Jones, Clement Pryke, Evan Skillman, and Lawrence Rudnick. The Night Sky Network also featured a workshop hosted by David Prosper, which highlighted the various outreach toolkits available to astronomy clubs.

Coy with his AL Plaque

My fiancée and I also toured the Bakken Museum, which featured exhibits related to electricity and magnetism. In addition to astronomy, attendees could visit the Mall of America, and the hotel was adjacent to a Minnesota Valley National Wildlife Refuge. Bag lunches were made available for a price, but my fiancée and I enjoyed lunch and dinner inside the hotel at the Blue Water Grill, including an artisan cheese tray filled with cheeses from Minnesota and Wisconsin. From our room, we could see the Minneapolis/St. Paul skyline, Fort Snelling National Cemetery, and a portion of the airport.

At least one night of star party observing was canceled due to weather. Friday night stargazing was preceded by a Star BQ with a live band performance. The Minnesota Astronomical Society and its members made everyone feel welcome. Their facility featured a great selection of telescopes of varying apertures, designs, and purposes, including a live video broadcast of Jupiter from a 14 inch Celestron imaging rig, a 20 inch Obsession Dobsonian, a

16 inch LX200, a dual mount 14 inch Celestron SCT and 6 inch refractor, and solar viewing through a 6 inch Lunt Ha and 12 inch Takahashi. MAS members also set up their own telescopes around the property. A star party meant for the public is one thing. Hosting a star party for fellow amateur astronomers is entirely another. I spent the majority of my night discussing the night sky with an MAS member named Suresh Sreenivasan. He owns 21 telescopes, some of which were included in the historical exhibit, and operated a 16 inch Dobsonian at the star party. With Polaris at an almost unsettling 44 degrees off the horizon, I was faced with quite a different view of the night sky than what I am accustomed to seeing. It felt invigorating sharing observations and stories with a fellow amateur astronomer who can also point a telescope at deep sky objects from memory without the aid of go-to just like I often do. The MAS was well prepared for the event and had a facility most of us would be quite jealous of.

I left ALCON with new perspectives on outreach, a newfound sense of involvement in our hobby at a national level, and a feeling of prestige and accomplishment as a member of the Astronomical League. The now former president of the Astro League, John Goss, personally made a point to approach me and discuss matters related to outreach and social media, going so far as to request that I write something for the Reflector on the topic. I felt as though I was hobnobbing with celebrity status astronomers as I stood in line next to Phil Plait and Pamela Gay at the Eagle Lake Observatory, discussed outreach with John Goss, and traded stories with Astro League's National Office Manager, Mitch Glaze. These are all names we see in passing in this wonderful hobby of ours and I was given the opportunity to meet them face to face while treated as an equal. Ultimately, I discovered that I'm not alone in my struggles related to outreach and reaching a younger audience. Amateur astronomers from around the country discussed dealing with many of the same obstacles. There was no one-size-fits-all solution to the problems we face in sharing astronomy with the general public and younger audiences, but it is good to know that my proactive efforts fall in line with the vision presented at ALCON 2018.



Coy and Lindsey at the entrance



ONAN Observatory (R) & Hot Spot Classroom(L), on Eagle Lake Observatory campus
photo by Steven Tilley, July 2018

Editor's Note: A little history on the development of the ONAN Observatory project at the Eagle Lake Observatory, the main public outreach facility for MAS (Minnesota Astronomical Society), which took several years to build and shows what the patient perseverance of a group of amateur astronomers can do in getting things accomplished.

READ THIS:

<http://oldsite.mnastro.org/onan/history.htm>





Messages from HRPO

Highland Road Park Observatory

FRIDAY NIGHT LECTURE SERIES

all start at 7:30pm

3 August: “Ten Years of [Fermi](#)” On this last night of the mission’s Science Playoff, we’ll revisit the original concept, the man who had his name attached to the project and the awesome information reveals by the machine.

10 August: “Meteor Showers” These beautiful displays of nature enhance our night sky periodically throughout the year! Our we losing our connection to meteors due to light pollution? Is there anything we can do to ensure kids and families can see them?

24 August: “Fifteen Years of [Spitzer](#)” Infrared...it’s just beyond the detection of our eyes. The final four of the Great Observatories yields stunning insight of the Universe around us. It has to be both warm and cold to function! We’ll look at Spitzer’s functions and it accomplishments.

31 August: “[Uranus](#) and [Neptune](#)” So far away and so evocative. With the new theory explaining Uranus’ severe tilt and upcoming opposition of [Neptune](#), an overview of the two ice giants is due.

SCIENCE ACADEMY

Saturdays from 10am to 12pm

For ages eight to twelve. \$5/\$6 per child.

4 August: “Venus”

11 August: “Volcanoes—The Types”

18 August: “Volcanoes—The Risks”

25 August: “Volcanoes—Other Worlds”



ONE-TIME CALLS FOR VOLUNTEERS

Saturday 4 August, 7pm to 10pm. *Three or four volunteers.* [Evening Sky Viewing Plus.](#)

Front desk greeting; physical science demonstrations; marshmallow roast; telescope operation. Low to moderate difficulty.

Friday 10 August, 8am to 5pm. *Two volunteers.* [Stargazers Camp.](#) Front desk duty.

Friday 17 August, 8pm to 9:30pm. *Two or three volunteers.* [Venusian Elongation.](#)

Devices for Venus viewing; information about Magellan. Low to moderate difficulty.

Saturday 25 August, 12pm to 2pm. *Two or three volunteers.* [Solar Viewing.](#) Telescope operation for Sun viewing; front desk staffing. Moderate difficulty.

ONGOING CALL FOR VOLUNTEERS

HRPO periodically needs BRAS volunteers for crafting (gluing, cutting, painting, etc.); training is offered for these easy to moderate tasks. We also have plenty of “grunt work”. We are asking any members with the time to do so to assist. Thank you.

SPECIAL ALERT: DAYLIGHT TIME DISCUSSION

There is a conversation right now in the Louisiana State Legislature to eradicate the back-and-forth of Daylight to Standard. There are two options if the twice-yearly switch is ended: to remain on Standard time year-round, or to remain on Daylight time year-round.



Perseid Meteor Shower
Sunday 12 August from 10pm to 2am
No admission fee. For all ages.

ABOUT THE PERSEIDS: The Perseids are one of the major meteor showers of the year, caused by debris left from the passings of [Comet Swift-Tuttle](#). Come learn about meteors and let's see if we can spot some "earthgrazers." Although telescopes aren't needed for the Perseids, we'll have a telescope available from 10pm to midnight for leisurely gazing at other celestial objects. But look fast for the meteors; Perseid meteoroids hit our atmosphere traveling about sixty kilometers a second! If you're lucky, you may see a fireball...

POSITION OF THE MOON: The Moon, happily, will not interfere with viewing the Perseids during this event. The waxing crescent Moon will be in the constellation Leo and will set at 9:05pm CDT.

OTHER OBJECTS FOR VIEWING

10pm to 10:30pm = [Jupiter](#)

10pm to 12am = [Vesta](#) / [Saturn](#) / [Mars](#)

11:15pm to 12am = [Neptune](#)



GLOBE at Night: 4 to 11 August [Cygnus]

Instructions to participate in this project are at...

<http://www.brastro.org/phpBB3/viewtopic.php?f=29&t=2760>



Venusian Elongation
Friday 17 August from 8pm to 9:30pm
at Burbank Soccer Complex
No admission fee; for all ages.

Periodically Mercury reaches its greatest angular separation in the sky (elongation) from the Sun. This is the safest way to view Mercury by amateurs. The planet will appear as a "half-Mercury". Venus, Jupiter and Saturn will also be seen.

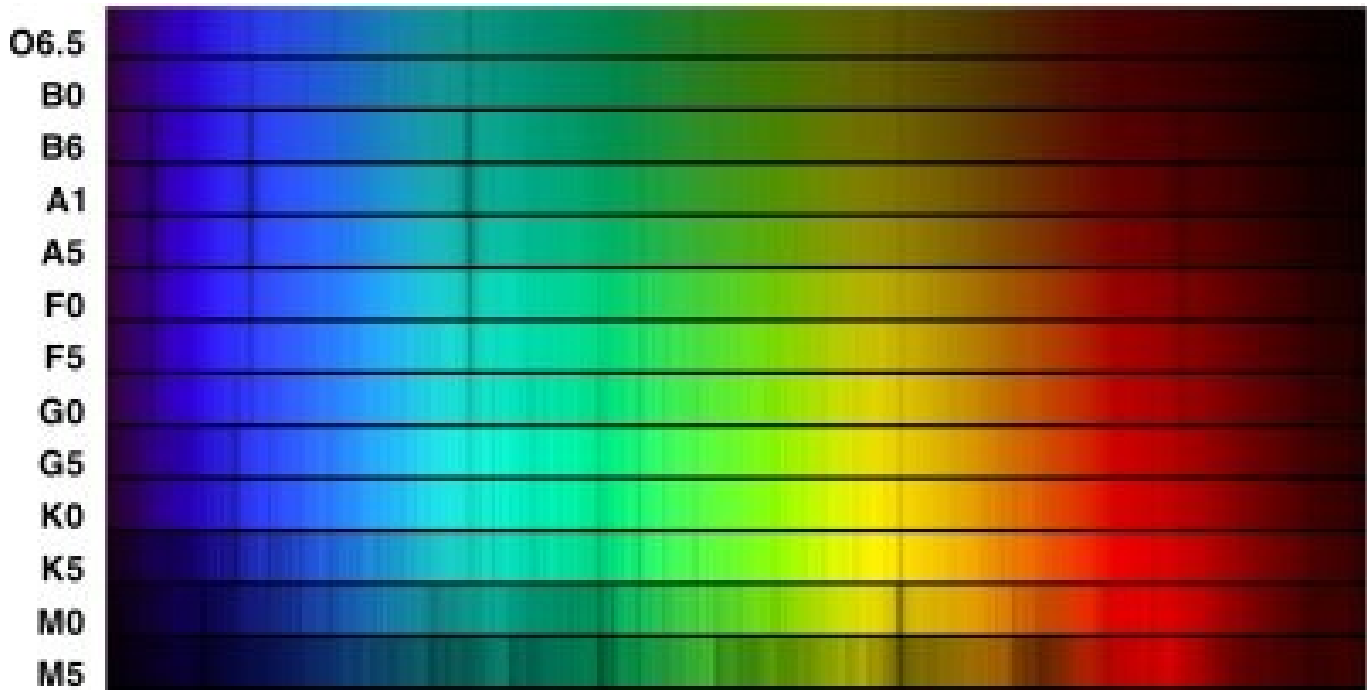
Oh, Be A Fine Girl! - Kiss Me!: A Short Article About Annie Jump Cannon and the OBAFGKM Stellar Classification System

Many of us have probably heard that mnemonic for the OBAFGKM stellar classification system, but maybe you don't know how it came to be. It was largely developed by Annie Jump Cannon while she worked at the Harvard College Observatory.

Annie was born in Delaware on December 11th, 1863. She developed an interest in astronomy at an early age when her mother taught her the constellations. After her undergraduate education at Radcliffe College, she began working on an M.A. at Wellesley College where she started to learn about spectroscopy. In 1896, she got a job at the Harvard College Observatory cataloging stars. By all accounts, she was a natural.



Over the course of several years she attained the position of curator of observational photographs and continued to catalog hundreds of thousands of stars. The speed with which she worked was amazing and approached as many as 5000 stars cataloged each month. According to an article in Wellesley Magazine written by Barbara Welther, "Years later if queried about the classification of any star, she could duplicate her original estimate to within a tenth of a category's subdivision!" (Each major class in the OBAFGKM system also has 10 subdivisions.)



The classification system she used is still widely taught to astronomy students. Our own Sun is a G2 star. Based on her work, Cannon received recognition and several awards throughout her career including: Honorary Doctorates from University of Delaware, Groningen University, Oxford, Wellesley College, Oglethorpe University and Mount Holyoke College; the Draper Award from the National Academy of Sciences; and she was voted *one of the 12 greatest living women in America in 1923*.

Today, the **Annie Jump Cannon Award** is given by the American Astronomical Society in conjunction with the American Association of University Women.

~Article submitted by Ben Toman



Observing Notes:

by John Nagle

Microscopium - The Microscope

Position: RRA 21, Dec. -36°

Named Stars

There are no named stars in this constellation.

Deep Sky:

Note: Due to no deep sky items above magnitude 10, I will depart from the normal and go to magnitude 12.1

NGC 6925, mag. 11.3, 20 34.3 -31 59, 4.4'x1.2' in size, is a barred spiral galaxy that is quite bright, large, and very elongated; bright, diffuse nucleus; filamentary arms. Located 3.7° west-northwest of **Alpha Microscopii**. A supernova, **SN2011ei**, was observed in **NGC 6925** in July of 2011.

NGC 6958, mag. 11.3, 20 48.7 -38 00, 2.2'x1.7' in size, is a galaxy that is bright, quite small, and round; bright nucleus.

IC 5105, mag. 11.4, 21 24.4 -40 32, 2.8'x1.7' in size, is a galaxy that is very faint, very small, and round. Stars are located at opposite ends of the galaxy.

NGC 6923, mag. 12.0, 20 31.6 -30 50, 2.9'x1.4' in size, is a spiral galaxy that is pretty faint, quite small, and round. Located between two stars.

IC 5020, mag. 12.1, 20 30.6 -33 29, 2.9'x2.0' in size, is a galaxy that is pretty faint, pretty small, and elongated.

The Microscopium Void is a roughly rectangular region of relatively empty space, bounded by incomplete sheets of galaxies from other voids.

The Microscopium Supercluster is an over-density of galactic clusters that was first noticed in the early 1990's. The component **Abell Clusters 3695** and **3696** are likely to be gravitationally bound, while the relationship of **Abell 3693** and **3705** in the same field is unclear.

There are 8 more NGC items, 18 IC; 21 ESO; 5 MCG; 4 AGC; 2 Str; and 1 PGC item – all below magnitude 12.1.

Other Stars:

Epsilon Mic, mag. 4.71, 21 17 56.25 -32 10 20.9, is a white dwarf star that has a rotational velocity of 127 km per second, compared to 1.9 km per second for our sun.

HD 203949, mag. 5.64, 21 26 22.75 -37 49 45.9, has one planet in orbit.

Lacaille 8760, (AX Mic), mag. 6.68, 21 17 15.3 -38 52 02, is a red dwarf flare star, and the brightest red dwarf star in the sky. **AX Mic** is one of the nearest stars to the **Sun**, at only 12.87 ly distant.

AU Mic, mag. 8.63, 20 45 09.53 -31 20 27.2, is a red dwarf flare star with a circumstellar dust disk about 200 au in radius and is believed to be only 12 million years old. **AU Mic** is a member of the **Beta Pictoris Moving Group** of stars.

HD 203932, mag. 8.81, 21 26 03.87 -29 55 44.1, is a rapidly oscillating star, p = 5.9 minutes.

BO Mic, mag. 9.34, 20 47 45.01 -36 35 40.8, is an orange flare star. The star is sometimes called “**Speedy Mic**” because it is a fast rotator – projected rotational velocity of 135 km per second, and completes a rotation every 0.380 days (9 hours and 7 minutes). As an active star, it has prominent stellar flares that average 100 times stronger than those of our sun, and is emitting energy mainly in the **X-ray** and **Ultraviolet** bands of the spectrum.

WASP-7, mag. 9.54, 20 44 10.21 -39 13 30.8, is a yellow-white main sequence dwarf star. A hot **Jupiter** planet, with a mass of 0.96 times that of **Jupiter**, orbits the star with a period of 4.954658 days.

WASP-94A, mag. 10.01, 20 55 07.9 -34 08 08, has a transiting planet in orbit.

AT Mic, mag. 10.36, 20 41 50.16 -32 26 06.8, is a binary star system, both members of which are flare red dwarf stars. The system lies close to and may form a very wide triple system with **AU Mic**.

PSR J2124-3358, 21 24 43.85 -33 58 44.67, is a millisecond pulsar.

There are 4 more stars beyond magnitude 10.4 with planets in orbit.



Sky Happenings: August 2018

(what follows pertains ONLY to the current month. Material above is good year after year.)

There are twelve double transits of Jupiter this month.

- Aug. 1st** – Asteroid **Vesta** is stationary at 6 PM CDT,
Dusk: The month opens with a glorious quartet of planets arcing low across the sky, with **Mars** in the southeast, **Venus** in the west, **Saturn** and **Jupiter** in between. This spectacle can be enjoyed all month.
- Aug. 2nd** - Double shadow transit of **Jupiter**. See **Jupiter**.
- Aug. 3rd** - The **Moon** passes 5° south of **Uranus** at 4 PM CDT.
- Aug. 4th** - **Last Quarter Moon** occurs at 1:18 PM CDT.
- Aug. 6th** - Double shadow transit of **Jupiter**. See **Jupiter**,
The **Moon** passes 1.1° north of **Aldebaran** at 2 PM CDT.
- Aug. 7th** - Asteroid **Pallas** is in conjunction with the **Sun** at 8 AM CDT,
Uranus is stationary at 4 PM CDT.
- Aug. 8th** - **Mercury** is in inferior conjunction with the **Sun** at 9 PM CDT.
- Aug. 9th** - Double shadow transit of **Jupiter**. See **Jupiter**.
- Aug. 10th** - The **Moon** is at perigee (222,500 miles, or 358,078 km, from **Earth**) at 1:07 PM CDT.
- Aug. 11th** - **New Moon** occurs at 4:58 AM CDT.
- Aug. 12/13** - The **Perseid Meteor Shower** peaks under ideal, moon free skies.
- Aug. 13th** - Double shadow transit of **Jupiter**. See **Jupiter**.
- Aug. 14th** - The **Moon** passes 6° north of **Venus** at 9 AM CDT,
Dusk: Brilliant **Venus** and the delicate waxing crescent **Moon**, about 6° apart, bracket **Gamma Virginis (Porrima)** as they set toward the west.
- Aug. 15th** - Double shadow transit of **Jupiter**. See **Jupiter**.
- Aug. 16th** - Dusk: **Jupiter** hovers a mere ½° above the magnitude 2.7 **Alpha Librae (Zubenelgenubi)**, while the **Moon** guards the pair a little more than 7° to the right or upper right,
Double shadow transit of **Jupiter**. See **Jupiter**.
- Aug. 17th** - The **Moon** passes 5° north of **Jupiter** at 6 AM CDT,
Venus is at greatest eastern elongation (46°) at 12 noon CDT.
- Aug. 18th** - **First Quarter Moon** occurs at 2:49 AM CDT,
Mercury is stationary at 7 AM CDT.
- Aug. 20th** - Evening: The waxing gibbous **Moon** is 4° to the upper right of golden **Saturn** in **Sagittarius**,
Double shadow transit of **Jupiter**. See **Jupiter**.
- Aug. 21st** - The **Moon** passes 2° north of **Saturn** at 5 AM CDT.
- Aug. 22nd** - Double shadow transit of **Jupiter**. See **Jupiter**.
- Aug. 22/23** - Evening and Night: The fattening **Moon** traces an arc of some 8°-9° above **Mars** as it glides from the upper right of the planet on the 22nd, to the upper left on the 23rd. Look for **Mars** straddling the border of **Sagittarius** and **Capricornus**.
- Aug. 23rd** - Double shadow transit of **Jupiter**. See **Jupiter**,

- Aug. 26th** - The Moon is at apogee (252,119 miles, or 405,746 km from **Earth**) at 12 noon CDT. **Full Moon** occurs at 6:56 AM CDT, Dawn: As the full **Moon** sets in the west, look to the east-northeast to see **Mercury** rising – the tiny world reaches greatest western elongation (18°) from the **Sun** at 4 PM CDT.
- Aug. 27th** - The **Moon** passes 2° south of **Neptune** at 5 AM CDT, Double shadow transit of **Jupiter**. See **Jupiter**.
- Aug. 28th** - **Mars** is stationary at 5 AM CDT.
- Aug. 29th/30th** - Double shadow transit of **Jupiter**. See **Jupiter**.
- Aug. 30th** - The Moon passes 5° south of **Uranus** at 10 PM CDT.
- Aug. 30th/31st** - Double shadow transit of **Jupiter**. See **Jupiter**.
- Aug. 31st** - Dusk: **Venus** has crept up on **Spica**, and the two are separated by little more than 1° as the set toward the west,

Planets:

Mercury – **Mercury** is in inferior conjunction with the **Sun** on August 8th. **Mercury** will become visible after August 20th. By the 26th, the planet will reach greatest western elongation (18°) from the **Sun**. The planet is bright at magnitude -0.2, and will rise to 8½ above the horizon 45 minutes before sunrise. **Mercury** will show a disk of 7” and will appear 43% lit.

Venus – If you look west as twilight deepens, you can’t miss **Venus**. The planet brightens from magnitude -4.3 to -4.6 this month and appears prominent a half-hour after sunset. The planet moves eastward against the backdrop of **Virgo**, pulling closer to 1st magnitude **Spica**. It approaches within 3° of this star at month’s end. On the 1st, **Venus** stands about 10° above the western horizon an hour after sundown. The **Moon**, appears 10° to the right of **Venus**, 2° lower to the horizon on the 13th, and 7° above the planet on the 14th. **Venus** reaches greatest eastern elongation (46°) from the **Sun** on the 17th. The planet will only be 7° high an hour after sunset. In August, **Venus**’s diameter grows from 21” to 29”, while its phase wanes from 57% to 40% lit.

Mars – **Mars** was at opposition on July 27th, and is it’s closest to **Earth** in the last 15 years on July 31st. The red planet remains brighter and bigger than it has been since 2003 for the entire month of August. Rising just after sunset as August begins, **Mars** crosses the meridian in the south after 12:30 AM, but before 10:30 PM as the month ends. The planet starts August still at its peak magnitude of -2.8, and by the final days of the month it will glow at magnitude -2.2. Telescopes will reveal (if the dust storms will settle down) it’s globe to be more than 24” wide on August 1st, and 21” wide on August 31st. **Mars** spends the month on the border between **Sagittarius** and **Capricornus**. For observers in **North America**, **Aurorae Sinus** stands front and center on August’s first few evenings; **Sinus Meridiani** takes center stage on the 9th and 10th; **Syrtis Major** and **Hellas** follow suit from the 16th to the 18th; and **Mare Sirenum** takes over on the 30th and 31st.

Jupiter – **Jupiter** lies in **Libra** near magnitude 2.8 **Alpha Librae**. The giant world begins the month 1.4° north of the star, but the planet’s eastward motion carries it to a point 0.6° due north of it on the 14th. By month’s end, **Jupiter** will lie 1.9° east of **Alpha Librae**. **Jupiter** shines in the southwest at dusk, fading from magnitude -2.1 to -1.9 during August, and its diameter also decreases from about 38” to 35”. The stately world reaches east quadrature, 90° east of the **Sun**, on August 6th, permitting improved views of the **Galilean** satellites – there are many transits during August. See list below.

- | | |
|-------------------------|--|
| August 2 nd | Europa starts transiting at 11:05 AM CDT, egress is at 1:23 PM CDT
Europa’s shadow starts transit at 1:42 PM CDT, egress is at 3:57 PM CDT
Io starts transit at 2:03 PM CDT, egress is at 4:12 PM CDT
Io’s shadow starts transit at 3:18 PM CDT, egress is at 5:27 PM CDT |
| August 6 th | Europa ingress at 12:23 AM CDT, egress at 2:42 AM CDT
Europa’s shadow ingress at 3:01 AM CDT, egress at 5:16 AM CDT
Io ingress at 3:00 AM CDT, egress at 5:09 AM CDT
Io’s shadow ingress at 4:16 AM CDT, egress at 6:42 AM CDT |
| August 9 th | Europa ingress at 1:42 PM CDT, egress at 4:00 PM CDT
Europa’s shadow ingress at 4:19 PM CDT, egress at 6:35 PM CDT
Io ingress at 3:58 PM CDT, egress at 6:07 PM CDT
Io’s shadow ingress at 5:13 PM CDT, egress at 7:21 PM CDT |
| August 13 th | Europa ingress at 3:02 AM CDT, egress at 5:20 AM CDT
Io ingress at 4:55 AM CDT, egress at 7:04 AM CDT |



	Europa's shadow ingress at 5:39 AM CDT, egress at 7:54 AM CDT Io's shadow ingress at 6:10 AM CDT, egress at 8:19 AM CDT
August 14 th /15 th	Io ingress at 11:24 PM CDT, egress on the 15 th at 1:33 AM CDT Io's shadow ingress on 15 th at 12:39 AM CDT, egress on 15 th at 2:48 AM CDT Ganymede egress at 8:38 PM CDT
August 16 th	Ganymede's shadow ingress at 11:52 PM CDT, egress on 15 th at 1:37 AM CDT Europa ingress at 4:21 PM CDT, egress at 6:40 PM CDT Europa's shadow ingress at 6:57 PM CDT, egress at 9:13 PM CDT Io ingress at 5:53 PM CDT, egress at 8:02 PM CDT
August 18 th	Io's shadow ingress at 7:08 PM CDT, egress at 9:16 PM CDT
August 20 th	Io ingress at 2:22 PM CDT, egress at 4:31 PM CDT Io's shadow ingress at 3:36 PM CDT, egress at 5:45 PM CDT
August 21 st	Europa ingress at 5:42 AM CDT, egress at 8:01 AM CDT Europa's shadow ingress at 10:16 AM CDT, egress at 12:32 PM CDT Io ingress at 6:51 AM CDT, egress at 9:01 AM CDT Io's shadow ingress at 10:05 AM CDT, egress at 12:14 PM CDT Ganymede ingress at 10:41 PM CDT, egress at 12:43 AM on 22 nd
August 22 nd	Io ingress at 1:20 AM CDT, egress at 3:30 AM CDT Io's shadow ingress at 2:34 AM CDT, egress at 4:42 AM CDT
August 23 rd	Ganymede shadow ingress at 3:50 AM CDT, egress at 5:36 AM CDT Europa ingress at 7:02 PM CDT, egress at 9:22 PM CDT Europa's shadow ingress at 9:35 PM CDT, egress at 11:50 PM CDT Io ingress at 7:49 PM CDT, egress at 9:59 PM CDT
August 25 th	Io's shadow ingress at 9:02 PM CDT, egress at 11:11 PM CDT
August 27 th	Io ingress at 2:19 PM CDT, egress at 4:28 PM CDT Io's shadow ingress at 3:31 PM CDT, egress at 5:40 PM CDT
August 29 th	Europa ingress at 10:24 AM CDT, egress at 12:43 PM CDT Europa's shadow ingress at 12:54 PM CDT Io ingress at 10:48 AM CDT, egress at 12:57 PM CDT Io's shadow ingress at 12 noon, egress at 2:08 PM CDT Ganymede ingress at 2:49 AM CDT, egress at 4:52 AM CDT
August 30 th	Io ingress at 3:17 AM CDT, egress at 5:27 AM CDT Io's shadow ingress at 4:28 AM CDT, egress at 6:37 AM CDT Ganymede shadow ingress at 7:49 AM CDT, egress at 9:35 AM CDT Europa ingress at 9:45 PM CDT, egress at 12:05 AM CDT on the 31 st Io ingress at 9:47 PM CDT, egress at 11:56 PM CDT Io's shadow ingress at 10:57 PM CDT, egress at 1:06 AM CDT on the 31 st Europa's shadow ingress at 1:06 AM CDT on the 31 st , egress at 2:28 AM CDT on the 31 st .



Saturn – Saturn shines at magnitude 0.3 in northwestern **Sagittarius**. The planet lies 2.7° east of the **Trifid Nebula (M20)** in early August and moves 1.0° closer by the end of the month. The **Lagoon Nebula (M8)** appears 1.4° south of the **Trifid Nebula**, while the open cluster **M21** stands 0.7° northeast of **M20**. The planet's disk spans 18" while the rings extend 40" and tilt 27° to our line of sight.

Uranus – Uranus rises about 1 AM local daylight time, shining at magnitude 5.8. The planet lies in **Aries**, 12° south of **Hamal (Alpha Arietis)**. Three 6th magnitude stars lie within 2° of the planet. Use a telescope to distinguish **Uranus**, which shows a 3.6" diameter disk and a distinctive blue-green hue.

Neptune – Neptune rises by 10 PM local daylight time on August 1st, and during twilight by month's end. Best views will come after midnight. The planet glows at magnitude 7.8 in eastern **Aquarius**. Neptune lies 1.4° west-southwest of 4th magnitude **Phi Aquarii** on August 1st, and drifts 0.7° farther away by month's end. A telescope reveals the planet's blue-grey disk, which measures 2.4" across.

Favorable Moon Libations:

Bunsan A crater – August 3rd; **Gerald Q** inner crater – August 5th; **Jenner** crater – August 17th; and **Lyot** crater - August 19th.

Asteroids – Asteroid **Vesta**, 7th magnitude, lies in southern **Ophiuchus**. **Vesta** will be about 2½ to 3° to the north-northwest of **Theta Oph** on August 1st; about ½° north of **44 Oph** on the 11th; and 10' south of the 5th magnitude **51 Oph** on the evenings of August 20th and 21st.



Asteroid **1461 Jean-Jacques**, at magnitude 14.7, will occult a 9th magnitude star in **Piscis Austrinus** in the early morning of August 3rd. The occulted star, **HD 207290** is a yellow-white main sequence star.

Comets – Comet **21P/Giacobini-Zinno** should reach 9th magnitude in August, if predictions hold. The comet moves from **Cassiopeia** into **Camelopardalis** this month. Your best views will be in mid-month when the **Moon** is gone from the morning sky. From August 15th through the 18th, the comet will pass through the region of the **Heart and Soul Nebula (IC 1805 and 1848, respectively)**. By my estimates, comet **21P** will be about 2° south of **Psi Cas**; on the 11th, just over 2° north of **Epsilon Cas**; on the 20th, about 1½° north-northeast of **vdB 14** in **Camelopardalis**; and on the 22nd, about 4° from the open cluster **NGC 1502 (The Jolly Roger Cluster)**.

Currently there are 5 short-period comets and three long-period comets in our skies. The only good visible comet is the above mentioned, all the rest are too far south and/or too dim (below 10th magnitude).

Meteor Showers – The **Perseid Meteor Shower** peaks on the night of August 12th/13th, less than 2 days after a **New Moon**, so there will be no moon in the sky. Best views will come before dawn on the 13th, when the radiant climbs highest. Observers under a dark sky can expect to see an average between 1 and 2 meteors per minute. Maximum rate at peak is 110 meteors per hour.

When to View the Planets:

Evening Sky

Venus (west)
Mars (southeast)
Jupiter (southwest)
Saturn (south)
Neptune (east)

Midnight

Mars (south)
Saturn (southwest)
Uranus (east)
Neptune (southeast)

Morning Sky

Mercury (east)
Uranus (south)
Neptune (southwest)



DARK SKY VIEWING - PRIMARY ON AUGUST 11TH, SECONDARY ON AUGUST 18TH

The Blood Red Moon

If you happened to be in Australia, Asia, Africa, Europe, or South America on July 27th, you might have seen a Blood Red Moon during the total lunar eclipse.

Here is how it was described:

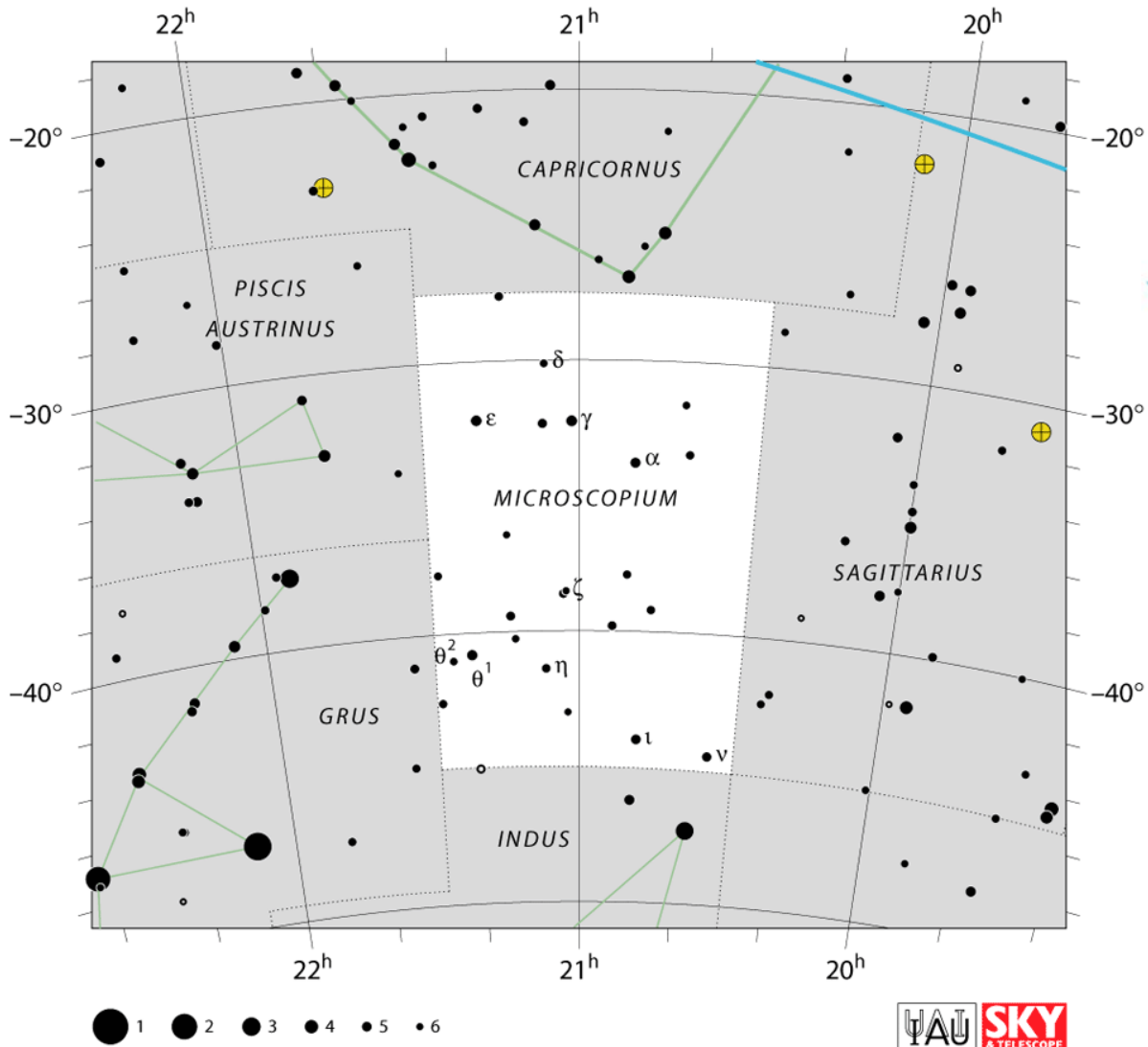
The Moon passed through the centre of the Earth's shadow in what was the first central lunar eclipse since 15 June 2011. Since it occurred near apogee, this eclipse was the longest total lunar eclipse in the 21st century. Totality lasted approximately 103 minutes, a period, according to The Guardian, "just short of the theoretical limit of a lunar eclipse." The moon remained at least partially in Earth's shadow for a total of four hours.



Mythology:

Microscopium – the Microscope

One of the southern constellations, representing scientific instruments, that were invented by the French astronomer Nicolas Louis de Lacaille. (Note: A star named **Lacaille 8760**, or **AX Mic** is in Other Stars above) **Microscopium** lies south of the zodiacal constellation **Capricornus** in an area of sky containing only 5th magnitude stars. The only remarkable thing about the constellation is that anyone could imagine a separate constellation here.



The End