



the Skyscraper

vol. 48 no. 06
June 2021

AMATEUR ASTRONOMICAL SOCIETY OF RHODE ISLAND * 47 PEEPTOAD ROAD * NORTH SCITUATE, RHODE ISLAND 02857 * WWW.THESKYSCRAPERS.ORG

In This Issue:

- 2 President's Message
- 3 Sunrise Partial Solar Eclipse
- 4 John Nevil Maskelyne & the Earliest Eclipse Movie
- 5 Starry, Starry Night at Chase Farm Park
- 6 Spectral Analysis of Class Be Star Nu Gem
- 7 NASA Night Sky Notes: Astrophotography With Your Smartphone
- 8 Edge-on Barred Spiral Galaxy in Virgo: NGC 5746
- 9 The Sun, Moon & Planets in June
- 10 May Reports
- 12 Starry Scoop

Seagrave Observatory is closed until further notice.

Due to the outbreak of coronavirus, Seagrave Memorial Observatory will remain closed to the public until further notice.

Phases of the Moon

Last Quarter Moon
June 2 19:50

New Moon - Partial Eclipse
June 10 09:32

First Quarter Moon
June 17 19:13

Full Strawberry Moon
June 24 11:14

25 Years of Amateur Astronomy Magazine

An Online Presentation by Charlie Warren
Saturday, June 5, 6:30pm EDT via Zoom

Contact Linda Bergemann (L.Bergemann@aol.com)
for Zoom Meeting link and information.

25 Years of Amateur Astronomy: Beautiful Questions is semi biographical as well as an informative and humorous look at the hobby of amateur astronomy with insights into the obsessive mind of the “naturalist of the night sky”. This talk also addresses the importance of amateur astronomy as it relates to our current “amusement” culture; in particular as a means of stimulating a mindset of inquiry and personal discovery in a cycle of “Beautiful Questions” that transforms our understanding of the natural world that surrounds us and our place in it.

Charlie Warren is the managing editor of Amateur Astronomy Magazine. He is an active amateur who enjoys visual astronomy with a variety of instruments, particularly large aperture telescopes. He is an avid astrophotographer who has imaged more than 400 deep sky objects and nightscapes, representing over two thousand hours of imaging time. He also enjoys solar astronomy and spectroscopy.

Charlie's interest in astronomy was initiated when 10 years old. While cruising in the Bahamas and Virgin islands with his family, his father taught him celestial navigation with the use of a sextant, charts and ship's chronometer. Later while studying at Colgate University he had opportunity to observe through the nearby Cornell University observatory telescope and tag along and interview an astronomer working on refining “redshift” for galaxies in our local group.

A decade later, he invested in his first

“real” telescope; a 10” Newtonian on an equatorial mount. His interest ignited to “obsession” following his first star party at a truly remote dark sky site. Astronomical imaging in the late 90's furthered his obsession. Shortly after moving back to Orlando Florida in 2003, he began frequenting the Chiefland Astronomy Village every new moon weekend. There he befriended resident Tom Clark, the founding editor of Amateur Astronomy Magazine. Charlie began writing articles for the publication, and in the summer of 2007 purchased the magazine when Tom Clark retired. Amateur Astronomy Magazine just published its 108th quarterly issue, which is Charlie's 51st issue as editor.

Solar Star Party

Saturday, June 19
(rain date June 26)

12-3pm

at Seagrave Observatory

Skyscrapers is having a Members Solar Day on Saturday, June 19th (rain date June 26th). Come to Seagrave Observatory and view the Sun at the start of Solar Cycle 25.

Volunteers with solar scopes needed.

Masks required for unvaccinated people.

President's Message

by Steve Siok

Hello everyone. This month, there will be a partial solar eclipse visible from Rhode Island on June 10. And it is not too shabby. While it is going to be partial, a maximum of almost 80% of the solar disc will be covered. But there are a few caveats I must share with you. This is not a total solar eclipse. It is annular, so a ring of the sun's surface is visible. This is because the moon is not close enough to earth (perigee) to cover the entire solar disc. And this entire ring of annularity will not be visible from Rhode Island, just the 80% partial. Also, it cannot be observed without proper eye protection. This eclipse will occur at sunrise. This means getting up in the dark and driving to your eclipse site before sunrise at 5 o'clock. You will need to carefully choose your viewing location. You will need a low horizon to your northeast. I recommend driving to a site on the Bay. Beavertail on Jamestown is a good site. The URI bay campus on South Ferry Road in Narragansett should have a good horizon.

Maybe the road near the Coast Guard House or Narragansett town beach, Scarborough beach or the Point Judith lighthouse would work. I recommend that you take a trip a few days before June 10 and confirm your location's suitability.

You need to be prepared to view this eclipse with proper eye protection or filters for your telescope! Do NOT look at the sun with your naked eye no matter how little light there seems to be, because you will permanently damage your sight.

Solar eclipses are special events. I am sure you will remember it for the rest of your life. I can picture where I was standing (or sitting) during five total and two partial eclipses spanning from 1970 to 2017. So I urge all of you to make the special effort to observe this eclipse safely.

Soon after eclipse day Skyscrapers will be hosting a special solar observing day for our members on Saturday, June 19. Our rain date is June 26. This event will be at the

New Member
Welcome to Skyscrapers

Bruce Dyer of Bristol

observatory. You are encouraged to bring a solar telescope if you have one but please come and observe with one of the fine instruments some of our members will bring along. Images of the sun will be projected into the meeting hall and will be discussed in detail. There is no formal program, so you can come any time after 11AM. We are hosting this event as a "get reacquainted day" because it has been so long since we have gotten together at Seagrave. So pack a lunch and come observe with us.

Also, we will be hosting a cookout on Saturday July 3. Bring along some burgers and dogs and throw them on the grills in the gazebo. This will not be an observing event but a really good social get together, especially for new members.

So take care, everyone. I hope that are ready to enjoy your summer. Wishing you clear skies.



Monthly Presentation Videos on YouTube

With our monthly meetings going virtual this year, we have begun to record and publish, with permission, our monthly Zoom presentations on the Skyscrapers YouTube channel. Go to the URL below to view recent presentations.

<https://www.youtube.com/channel/UCEZ5UnO-Sly0DXsSrUAXONg>



The Skyscraper is published monthly by Skyscrapers, Inc. Meetings are held monthly, usually on the first or second Friday or Saturday of the month. Seagrave Memorial Observatory is open every Saturday night, weather permitting.

Directions

Directions to Seagrave Memorial Observatory are located on the back page of this newsletter.

Submissions

Submissions to *The Skyscraper* are always welcome. Please submit items for the newsletter no later than **June 15** to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to jim@distantgalaxy.com.

E-mail subscriptions

To receive *The Skyscraper* by e-mail, send e-mail with your name and address to jim@distantgalaxy.com. Note that you will no longer receive the newsletter by postal mail.

President

Steve Siok

1st Vice President

Steve Hubbard

2nd Vice President

Jim Hendrickson

Secretary

Sue Hubbard

Treasurer

Kathy Siok

Members at Large

Francine Jackson

Laura Landen

Matt Ouellette

Trustees

Bob Janus

Jeff Padell

Outreach Chairperson

Linda Bergemann

Observatory Committee Chairperson

Jim Crawford

New Member Steward

Tracy Prell

Librarian

Dave Huestis

Assistant Librarian

Weston Ambrose

Historian

Dave Huestis

Editor

Jim Hendrickson

Astronomical League Correspondent (ALCor)

Jeff Padell

Sunrise Partial Solar Eclipse

by Dave Huestis

Who can forget the amazing partial solar eclipse spectacle seen locally on August 21, 2017, as part of the Great American Total Solar Eclipse experience across the United States? Here in Rhode Island 65% of the solar disk was covered by the Moon during maximum. My wife Tina and I had travelled to Adams, Tennessee, and witnessed totality for two minutes and thirty-six seconds. You can read about our entire experience by clicking on this website: The Journey to Totality (<http://www.theskyscrapers.org/huestis-2017-eclipse>).

This year on June 10 there will be an annual solar eclipse that will be seen along a path in Canada, Greenland and Siberia (<https://skyandtelescope.org/wp-content/uploads/Annular-solar-eclipse-path-June-10-2021.jpg>). Briefly described, an annular eclipse occurs when the Earth, Moon and Sun are in alignment, but the Moon's elliptical orbit has caused it to be a little farther from the Earth so that it doesn't completely obscure the Sun. We then see a ring (annulus) of the Sun's photosphere and chromosphere surrounding the Moon. As with a total eclipse, observers outside the path will only see a partial eclipse.

Though we are far from the path of annularity, we will still experience a partial solar eclipse. The circumstances are unique for us. The Sun will rise above the eastern horizon

already in eclipse. All of the times provided (a.m./morning) below are calculated for Providence and reflect EDT (Eastern Daylight Time).

For this event you will only see the Moon where it obscures the solar disk. If you could see the Moon's limb (edge), it breaks the horizon at 5:13:05. The first cusp of the bright solar disk rises (the left hand portion) around 5:14:16. Then the bright cusp of sunlight on the right hand side will rise above the horizon at 5:15:54. The Sun will rise from left to right as it ascends the sky. An observer will only see the portion of the Moon that encroaches upon the Sun and sweeps across it. The solar disk will completely clear the horizon at 5:17:23. At that time 53% of the solar surface will already be covered by the Moon. As the Sun and Moon continue to rise, more and more of the solar disk will be covered by the Moon. Mid or maximum eclipse occurs at 5:32:48 when 72% of the solar surface will be obscured. The maximum obscuration occurs with the Sun and Moon just over three degrees above the horizon. After that time the Moon will begin to uncover the Sun and the eclipse will end at 6:31:49. At that time the pair will be 13 degrees high. From start to finish for us in Rhode Island the duration of this eclipse will be approximately one hour and 17 minutes.

See the accompanying diagram for how

the eclipse will appear at specific times. Also, check out the following website for an animation of how this partial solar eclipse will look from start to finish in the Providence area: <https://www.timeanddate.com/eclipse/in/usa/providence?iso=20210610>.

For the 2017 partial solar eclipse, as long as you had solar eclipse glasses or specially filtered telescopes, the eclipse was easy to observe because it was high in the sky. However, there will be a few challenges for observing this event locally. First, you'll require an unobstructed view of the east-northeast horizon. Second, and most importantly, please be very cautious. I know we all watch sunrises and sunsets through the Earth's dense atmosphere just above our local horizon, but do not be tempted to stare at the partial eclipse for any length of time. Despite a large portion of the Sun being covered by the Moon, harmful visible and invisible radiation will cause irreparable eye damage. Refrain from monitoring this event without proper filters or alternative observing methods.

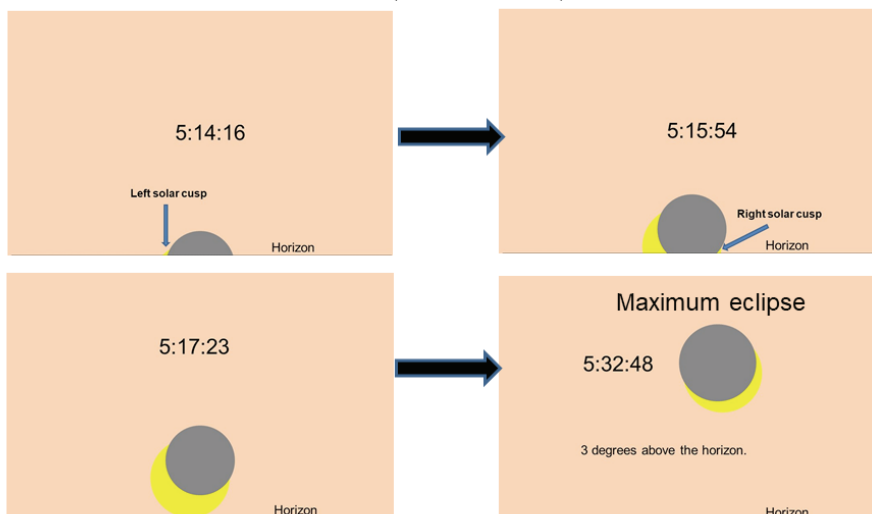
Sunglasses will not provide adequate protection from the Sun's harmful rays. Number 14 welder's glass is safe to use. DO NOT use exposed film, if you are old enough to know what it is, of any kind. This method is not safe. In past columns on observing solar eclipses I have instructed folks on how to build a solar eclipse viewer using a shoe box. I'm not sure this observing method will efficiently work for this eclipse. With the Sun so low, the resulting image may not be bright enough to project a reasonable image.

Only if you are an experienced solar observer should you attempt to observe this partial eclipse with a properly filtered telescope or by using the solar projection method. If you have never observed the Sun before this event, don't start now! Don't risk your eyesight due to an oversight or an outright mistake. Even if you have one of those department store refractors that often come with small glass or plastic filters, do not be tempted to use them. They have been known to shatter when exposed to the Sun's concentrated image.

By far the simplest observing method will be to use those solar eclipse glasses. So if you haven't heeded my earlier advice in prior columns to locate yours from August 2017, you still have some time to do so.

Keep your eyes to the skies, but please

Sunrise Partial Solar Eclipse
June 10, 2021
(All times are EDT.)



Looking ENE. Unobstructed horizon imperative. The partial eclipse ends at 6:31:49 am. **Do not observe unfiltered Sun. Blindness can result. Sunglasses do not provide safe views.** Eclipse glasses made specifically for observing solar eclipses are safe.

Diagrams by David A. Huestis

remember to keep them protected if you intend on viewing the partial solar eclipse of June 10.

And lastly, after four plus decades of enlightening southern New Englanders about astronomical events, this is my final column. There have been many news editors and meteorologists who have facilitated my mission to encourage folks to look to the skies. I would like to publicly thank them all, but I fear I would inadvertently forget to include an important name or two. By including my entire column or elements thereof as part of their news outlet duties, they have all contributed to the education of many of our fellow citizens.

However, there are two individuals who

deserve recognition for helping to improve my columns. First up is Jim Hendrickson. Jim is Skyscrapers' newsletter editor and web master. Over several decades Jim has provided countless star maps and other graphics to accompany my columns. The old adage, "a picture is worth a thousand words," should be doubled when referring to Jim's contributions. Thanks Jim.

And last, but certainly not least, a big thank you to my wife Tina. She has been my editor for 30 plus years. Her corrections and suggestions have earned her the nickname "Red Pen" Tina. Tina's recommendations have always improved the finished product. Only a couple of times did some grammatical error get by both of us. And seldom have

I seen an editor make any significant changes to my columns prior to going to print.

Thank you readers. I trust that over the years you found the time to watch a meteor shower, observe a lunar eclipse, or simply just gaze at the heavens and contemplate our place in our vast universe.

Please consider visiting the local observatories once their Covid-19 protocols have been lifted.

Be well.



Dave Huestis is Skyscrapers Historian and has been contributing monthly columns to local newspapers for nearly 40 years. See more at <http://theskyscrapers.org/dave-huestis>

John Nevil Maskelyne & the Earliest Eclipse Movie

by Francine Jackson

Most astronomy lovers are probably beginning to count the years (or days) until the next U.S. solar eclipse; we're fortunate, though, that there are two coming up within the next few years: The 2023 annular eclipse that will travel from Oregon to Texas, and continue downward. And, then, of course, the one that we're all waiting for – 2024, that will create another path through the U.S. from Texas on up, actually passing through (at approximately 90% partiality) northern New England. Even now, those who will be photographing the beautiful events are going through their equipment, wondering what will suffice, or needs to be replaced.

Although we don't hear as many filming an eclipse, apparently the concept has been around for awhile, over a century, in fact. The first to do so was John Nevil Maskelyne. I'm sure many of you have never heard of him, as he wasn't an astronomer; or a scientist, by any means. Maskelyne was a magician, an illusionist, who, as a young man, while watching the Davenport brothers' spirit cabinet stage performance, showed the audience how it was done. From there, he spent the rest of his life as a professional magician, becoming a member of the Magic Circle, an organization dedicated to the art and entertainment of magic and illusion. His book, *Sharps and Flats*, was the definitive gambling book, showing all the ins and outs of cheating at cards.

From his interests in magic and illusion,

Maskelyne did become very interested in science, especially astronomy, and the early art of videography. He joined the Royal Astronomical Society, and convinced the members of the possibility of filming a solar eclipse. He succeeded, traveling to North Carolina for the 1900 total solar eclipse. It is said he also filmed the eclipse of 1898, in India, but that film can was stolen, and never retrieved. It is believed this 1900 work is his only surviving film.

Because of its historic nature, the British

Film Institute has taken great pains to restore Maskelyne's work. Its [one minute and nine second images](#) may not seem much to photographers today, but for the 19th century, this is a classic.



Francine Jackson is a NASA Solar System Ambassador, writes the weekly newsletter for Ladd Observatory See more at <http://theskyscrapers.org/francine-jackson>



A frame from the restored film of the May 28, 1900 eclipse.

Starry, Starry Night at Chase Farm Park

by Jim Hendrickson

Saturday, May 15 was our first scheduled star party event of 2021 at Chase Farm Park in Lincoln. We were asked to pick some dates for late summer/early autumn as we have done in past years. We selected some dates in August and September, but Kathy, president of Friends of Hearthside, soon got back to us with a request to have one during spring. These events have been great when the Moon is visible, and with later sunsets limiting what can be seen with a requested 8pm start time, May 15 was suggested, which is also our first time running this event on a Saturday.

Four members brought and set up their telescopes. Ron Zincon brought a Tele Vue 60, Bill Carpenter brought a Meade 152mm equatorial reflector, Jim Hendrickson used an 80mm refractor, and Francine Jackson a 102mm refractor.

Francine gave a presentation introducing the night sky and solar system to 18 guests using an outdoor projection screen at the visitor center. The sky was mostly clear, with scattered low clouds, making just enough to make for another spectacular sunset at the farm. Temperatures remained in the mid 60s with no wind.

Mercury was at its best, and with the farm's clear view to the west we had a good look at it well into the evening, almost until the end of twilight. Unfortunately Venus was a bit lower, and it set before the presentation was over.

What little cloud cover present had cleared away by the time the sky darkened. Somehow we missed a 8:39pm pass of the International Space Station, and a scheduled rocket launch out of Wallops Island was scrubbed, but the highlight of the evening was the waxing crescent Moon near Mars, which was in the same lower power field of view in some of our smaller telescopes.

The views were enjoyed by all, and the guests enjoyed talking about all sorts of topics from space travel to comets and meteors to light pollution.

The next event at Chase Farm is scheduled for August 19.

<https://flic.kr/s/aHsmVFGGrq>



Spectral Analysis of Class Be Star Nu Gem

by Conrad Cardano

Stars have different characteristics. Consequently, these differences end up classifying stars into many different classes. (i.e., OBAFGKMS) Lately, I have been spending my time on one class. (B class)

B class stars:

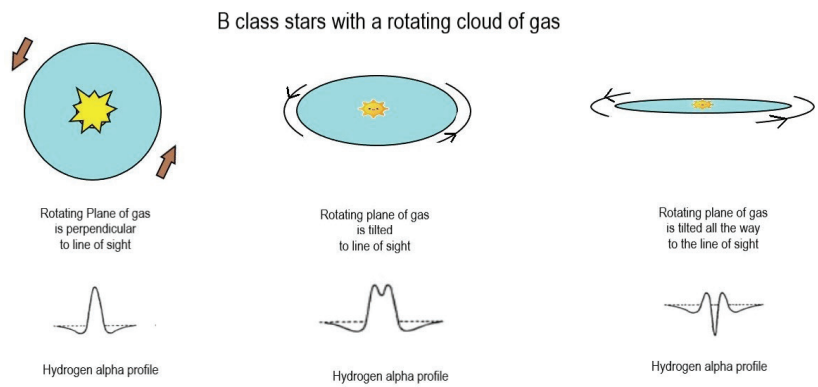
1. have a mass from 3 to 20 times the mass of the sun;
2. have a surface temperature of 10,000 to 30,000 degrees;
3. are blue and luminous.

A great example of B-class stars is the Pleiades (M45): Alcyone, Atlas, Electra, Maia, Merope, Taygeta, Pleione, Celaeno, Sterope

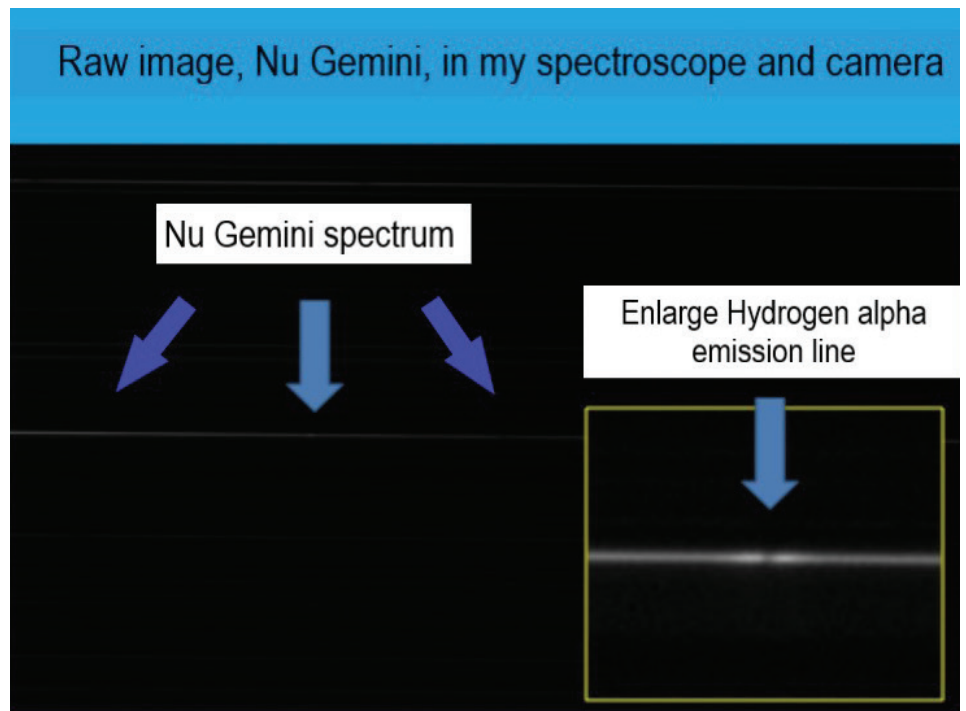
The outer layers of a star absorb specific wavelengths of light. These absorption “dark lines” are an indication of the elements in the outer layers; however, some stars have bright lines in their spectra rather than the usual dark line. I have concentrated my time studying B-class stars with bright lines. The stars are called “Be” stars.

Be stars have the following characteristic:

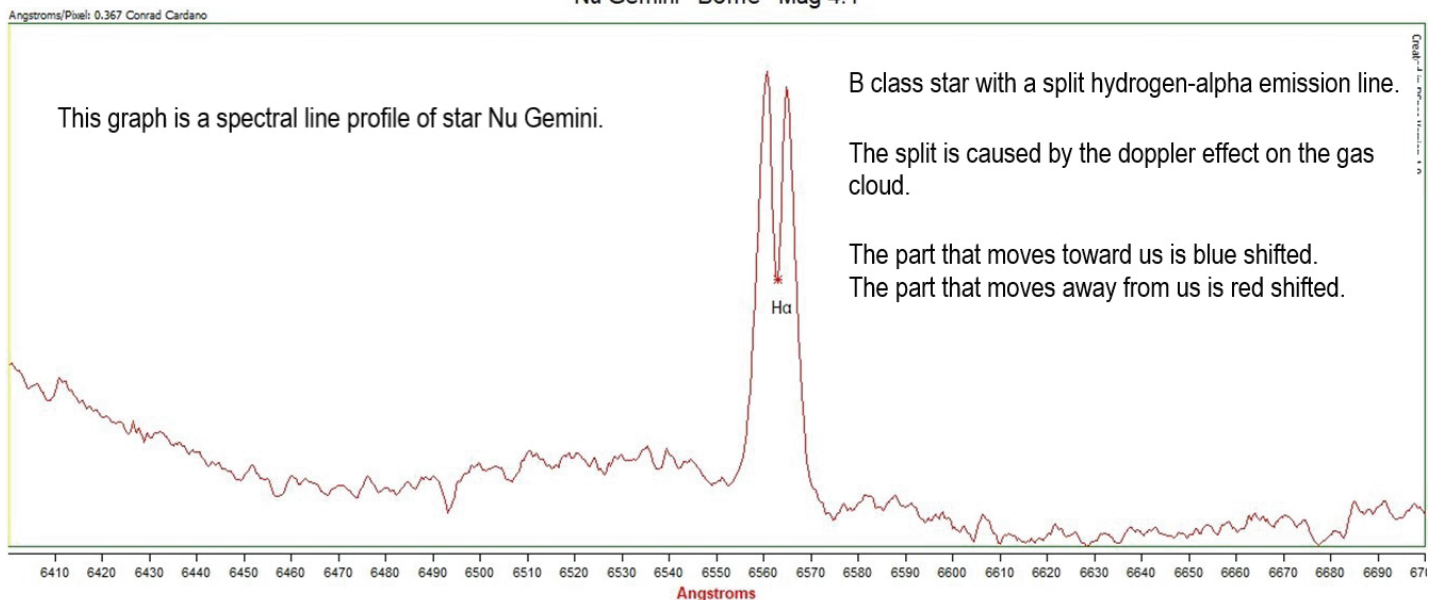
1. Material that has been ejected from the star and surrounds the star
2. Rapid rotation
3. Spectral line emission by the re-processing of stellar ultraviolet light in the gaseous disc



Changes in the Hydrogen alpha profile are caused by the doppler shift in the rotating gas cloud around the star.



Nu Gemini B6IIIe Mag 4.1



Astrophotography With Your Smartphone

By David Prosper

Have you ever wanted to take night time photos like you've seen online, with the Milky Way stretched across the sky, a blood-red Moon during a total eclipse, or a colorful nebula? Many astrophotos take hours of time, expensive equipment, and travel, which can intimidate beginners to astrophotography. However, anyone with a camera can take astrophotos; even if you have a just smartphone, you can do astrophotography. Seriously!

Don't expect Hubble-level images starting out! However, you can take surprisingly impressive shots by practicing several basic techniques: steadiness, locked focus, long exposure, and processing. First, steady your smartphone to keep your subjects sharp. This is especially important in low light conditions. A small tripod is ideal, but an improvised stand, like a rock or block of wood, works in a pinch. Most camera apps offer timer options to delay taking a photo by a few seconds, which reduces the vibration of your fingers when taking a shot. Next, lock your focus. Smartphones use autofocus, which is not ideal for low-light photos, especially if the camera readjusts focus mid-session. Tap the phone's screen to focus on a distant bright star or streetlight, then check for options to fine-tune and lock it. Adjusting your camera's exposure time is also essential. The longer your camera is open, the more light it gathers - essential for low-light astrophotography. Start by setting your exposure time to a few seconds. With those options set, take a test photo of your target! If your phone's camera app doesn't offer these options, you can download apps that do. While some phones offer an "astrophotography" setting, this is still rare as of 2021. Finally, process your photos using an app on your phone or computer to bring out additional detail! Post-processing is the secret of all astrophotography.

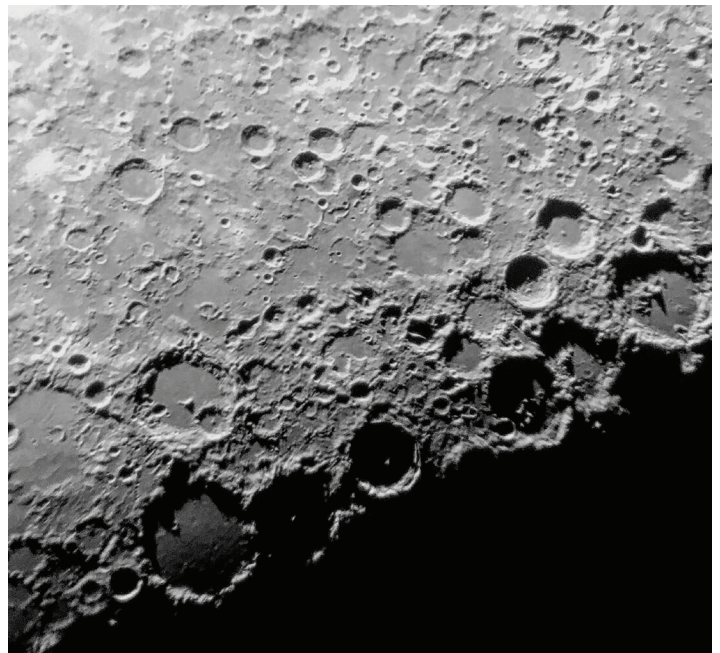


A small tripod for a smartphone. They are relatively inexpensive – the author found this at a local dollar store!

You now have your own first astrophotos! Wondering what you can do next? Practice: take lots of photos using different settings, especially before deciding on any equipment upgrades. Luckily, there are many amazing resources for budding astrophotographers. NASA has a free eBook with extensive tips for smartphone astrophotography at bit.ly/smartastrophoto, and you can also join the Smartphone Astrophotography project at bit.ly/smartphoneastroproject. Members of astronomy clubs often offer tips or even lessons on astrophotography; you can find a club near you by searching the "Clubs and Events" map on the Night Sky Network's website at nightsky.jpl.nasa.gov. May you have clear skies!



This article is distributed by NASA Night Sky Network. The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!



The Moon is large and bright, making it a great target for beginners. The author took both of these photos using an iPhone 6s. The crescent moon at sunset (left) was taken with a phone propped on the roof rack of a car; the closeup shot of lunar craters (right) was taken through the eyepiece of a friend's Celestron C8 telescope.

Edge-on Barred Spiral Galaxy in Virgo: NGC 5746

by Glenn Chaple for LVAS
(Mag: 10.3, Size: 7.4' X 1.4')

Telescope aperture is a major factor in determining how difficult each monthly Observer's Challenge is. Under dark-sky conditions, our June Challenge - the 10th magnitude edge-on barred spiral NGC 5746 in Virgo - would be an ultimate test for a common 2.4-inch (60mm) refractor and a piece of cake in a 10-inch (254mm) reflector.

When considering the difficulty of any Observer's Challenge, you also need to factor in the ease with which it's located - particularly if you find your way by star-hopping. In this case, NGC 5746 is quite accommodating. It's just 20 arc-minutes (1/3 degree) west and slightly north of the 4th magnitude star 109 Virginis.

NGC 5746 is a classic example of an edge-on spiral or barred spiral galaxy. It's comparable in visual splendor to the better-known Messier 104 (the Sombrero Galaxy), NGC 4565 (the Needle Galaxy), and NGC 891 (the Silver Sliver Galaxy). In Stoyan and Schurig's *Interstellarum Deep Sky Atlas*, NGC 5746 is labeled as the "Mini Sombrero Galaxy." All of these edge-ons are bisected by a distinctive dust lane, which appears particularly stunning in deep sky images.

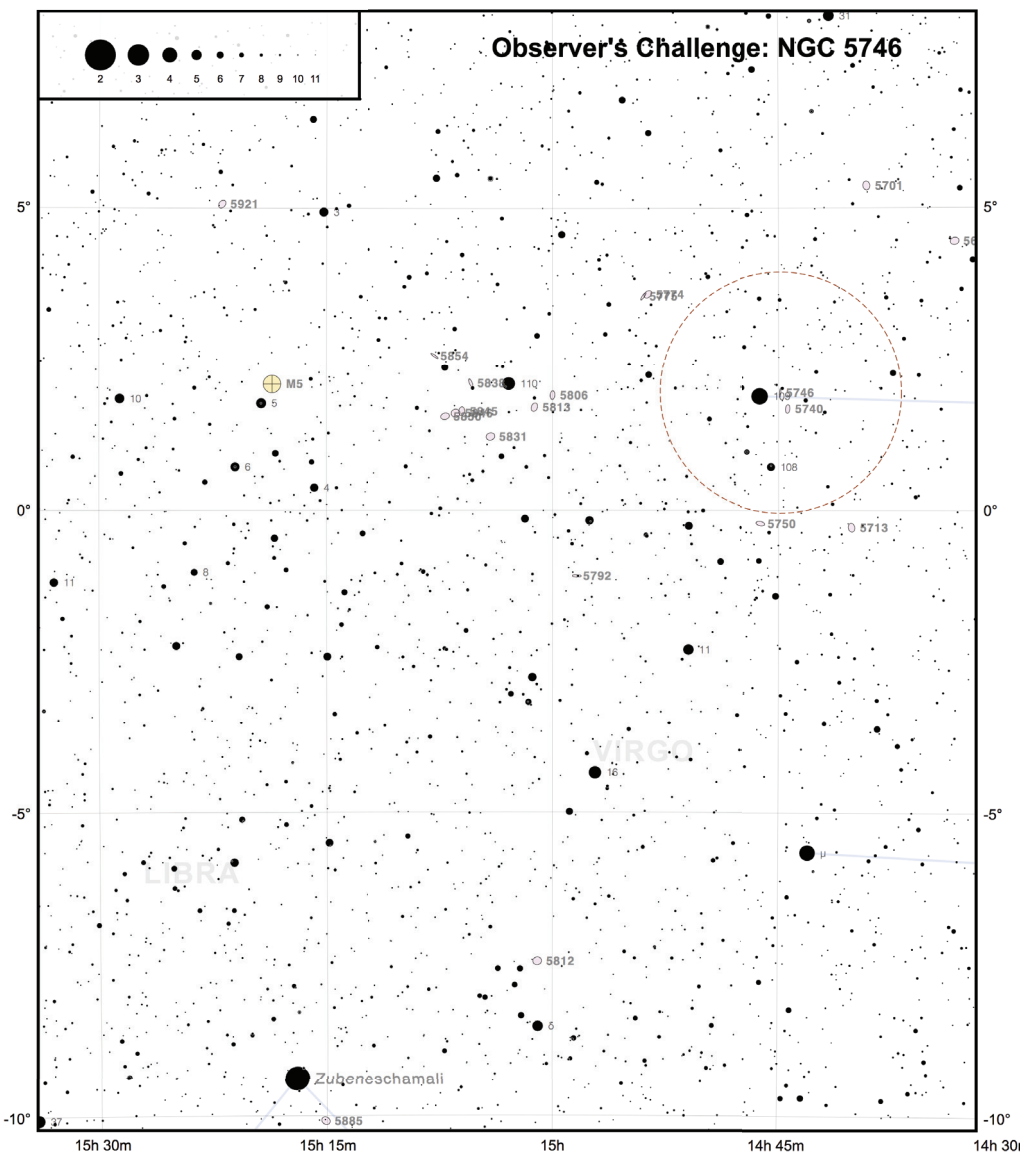
When I viewed NGC 5746 with a 10-inch f/5 reflector at 139X under magnitude 5 suburban skies, it appeared as an elongated 2- to 3-arc-minute-long streak oriented roughly north-northwest to east-southeast. There was no sign of the galaxy's dust lane. Knowing exactly where to look and resorting to averted vision, I was able to glimpse NGC 5746 with a 4.5-inch f/8 reflector.

NGC 5746 was discovered by William Herschel February 24, 1786. Some 95 million light years away, this huge galaxy spans 160,000 light years.

The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested. If you'd like to contribute notes, drawings, or photographs, we'll be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to Roger Ivester (rogerivester@me.com). To find out more about the Observer's Challenge or access past reports, log on to rogerivester.com/category/observers-challenge-reports-complete.



Image by Mario Motta, MD (ATMoB) 32-inch f/6.5 telescope with ZWO ASI6200 camera, 3 hours - 1 hour each Red, Blue, Green. Processed CCD stack, pixinsight, and touch up photoshop. North is up.



The Sun, Moon & Planets in June

This table contains the ephemeris of the objects in the Solar System for each Saturday night in June 2021. Times in Eastern Daylight Time (UTC-4). Ephemeris times are for Seagrave Observatory (41.845N, 71.590W).

| Object | Date | RA | Dec | Const | Mag | Size | Elong | Phase(%) | Dist(S) | Dist(E) | Rise | Transit | Set |
|----------------|-----------|---------|----------|-------|-------|--------|--------|----------|---------|---------|-------|---------|-------|
| Sun | 5 | 4 53.0 | 22 32.6 | Tau | -26.8 | 1891.6 | - | - | - | 1.01 | 05:11 | 12:44 | 20:18 |
| Sun | 12 | 5 22.0 | 23 08.9 | Tau | -26.8 | 1890.0 | - | - | - | 1.02 | 05:10 | 12:46 | 20:22 |
| Sun | 19 | 5 51.1 | 23 25.2 | Tau | -26.8 | 1888.9 | - | - | - | 1.02 | 05:10 | 12:47 | 20:24 |
| Sun | 26 | 6 20.2 | 23 21.3 | Gem | -26.8 | 1888.1 | - | - | - | 1.02 | 05:12 | 12:49 | 20:25 |
| Moon | 5 | 1 02.1 | 1 19.9 | Cet | -11.0 | 1766.2 | 59° W | 25 | - | - | 02:53 | 09:16 | 15:49 |
| Moon | 12 | 6 34.0 | 25 04.3 | Gem | -8.4 | 1797.7 | 17° E | 2 | - | - | 06:42 | 14:40 | 22:35 |
| Moon | 19 | 12 39.0 | 0 10.5 | Vir | -12.1 | 1949.4 | 101° E | 59 | - | - | 14:26 | 20:23 | 02:10 |
| Moon | 26 | 19 38.5 | -25 42.2 | Sgr | -12.7 | 1953.1 | 163° W | 98 | - | - | 21:48 | 02:19 | 06:55 |
| Mercury | 5 | 5 31.7 | 21 46.4 | Tau | 3.2 | 11.9 | 9° E | 3 | 0.46 | 0.57 | 05:54 | 13:19 | 20:43 |
| Mercury | 12 | 5 16.8 | 19 42.0 | Tau | 3.8 | 12.2 | 4° W | 0 | 0.47 | 0.55 | 05:20 | 12:36 | 19:51 |
| Mercury | 19 | 5 04.0 | 18 24.6 | Tau | 2.7 | 11.4 | 12° W | 6 | 0.46 | 0.59 | 04:46 | 11:57 | 19:08 |
| Mercury | 26 | 5 03.2 | 18 27.3 | Tau | 1.5 | 9.9 | 19° W | 17 | 0.43 | 0.68 | 04:18 | 11:30 | 18:42 |
| Venus | 5 | 6 13.1 | 24 25.9 | Gem | -3.8 | 10.5 | 18° E | 95 | 0.72 | 1.61 | 06:25 | 14:05 | 21:46 |
| Venus | 12 | 6 50.6 | 24 10.9 | Gem | -3.8 | 10.7 | 20° E | 94 | 0.72 | 1.58 | 06:37 | 14:15 | 21:54 |
| Venus | 19 | 7 27.7 | 23 21.3 | Gem | -3.8 | 10.9 | 22° E | 92 | 0.72 | 1.55 | 06:50 | 14:25 | 21:59 |
| Venus | 26 | 8 04.1 | 21 58.7 | Cnc | -3.8 | 11.2 | 24° E | 91 | 0.72 | 1.52 | 07:05 | 14:34 | 22:01 |
| Mars | 5 | 7 52.9 | 22 16.6 | Gem | 1.7 | 4.1 | 41° E | 96 | 1.66 | 2.28 | 08:14 | 15:43 | 23:12 |
| Mars | 12 | 8 11.0 | 21 22.9 | Cnc | 1.8 | 4.0 | 39° E | 96 | 1.66 | 2.32 | 08:09 | 15:34 | 22:58 |
| Mars | 19 | 8 29.0 | 20 22.2 | Cnc | 1.8 | 4.0 | 37° E | 97 | 1.66 | 2.36 | 08:04 | 15:24 | 22:44 |
| Mars | 26 | 8 46.8 | 19 14.9 | Cnc | 1.8 | 3.9 | 34° E | 97 | 1.66 | 2.40 | 07:59 | 15:14 | 22:29 |
| 1 Ceres | 5 | 2 42.2 | 8 55.5 | Cet | 9.2 | 0.3 | 34° W | 99 | 2.87 | 3.66 | 03:57 | 10:32 | 17:07 |
| 1 Ceres | 12 | 2 52.3 | 9 44.2 | Cet | 9.2 | 0.3 | 38° W | 99 | 2.87 | 3.60 | 03:37 | 10:14 | 16:53 |
| 1 Ceres | 19 | 3 02.2 | 10 29.9 | Ari | 9.2 | 0.4 | 42° W | 99 | 2.86 | 3.53 | 03:16 | 09:57 | 16:38 |
| 1 Ceres | 26 | 3 12.1 | 11 12.8 | Ari | 9.2 | 0.4 | 46° W | 98 | 2.86 | 3.47 | 02:56 | 09:39 | 16:23 |
| Jupiter | 5 | 22 16.5 | -11 40.0 | Aqr | -2.3 | 41.6 | 103° W | 99 | 5.05 | 4.72 | 00:47 | 06:06 | 11:26 |
| Jupiter | 12 | 22 17.6 | -11 36.0 | Aqr | -2.4 | 42.6 | 109° W | 99 | 5.04 | 4.62 | 00:20 | 05:40 | 11:00 |
| Jupiter | 19 | 22 18.1 | -11 35.3 | Aqr | -2.4 | 43.6 | 116° W | 99 | 5.04 | 4.52 | 23:53 | 05:13 | 10:33 |
| Jupiter | 26 | 22 18.0 | -11 38.1 | Aqr | -2.5 | 44.5 | 122° W | 99 | 5.04 | 4.42 | 23:25 | 04:45 | 10:05 |
| Saturn | 5 | 21 04.2 | -17 26.1 | Cap | 0.5 | 17.6 | 121° W | 100 | 9.96 | 9.40 | 23:57 | 04:54 | 09:51 |
| Saturn | 12 | 21 03.5 | -17 30.1 | Cap | 0.5 | 17.8 | 128° W | 100 | 9.96 | 9.30 | 23:29 | 04:26 | 09:23 |
| Saturn | 19 | 21 02.5 | -17 35.3 | Cap | 0.5 | 18.0 | 135° W | 100 | 9.96 | 9.21 | 23:01 | 03:57 | 08:54 |
| Saturn | 26 | 21 01.3 | -17 41.7 | Cap | 0.4 | 18.1 | 142° W | 100 | 9.96 | 9.14 | 22:32 | 03:28 | 08:24 |
| Uranus | 5 | 2 41.2 | 15 14.5 | Ari | 5.9 | 3.4 | 32° W | 100 | 19.75 | 20.61 | 03:32 | 10:30 | 17:29 |
| Uranus | 12 | 2 42.6 | 15 20.8 | Ari | 5.9 | 3.4 | 38° W | 100 | 19.75 | 20.54 | 03:05 | 10:04 | 17:03 |
| Uranus | 19 | 2 43.9 | 15 26.6 | Ari | 5.8 | 3.4 | 45° W | 100 | 19.75 | 20.46 | 02:38 | 09:38 | 16:37 |
| Uranus | 26 | 2 45.1 | 15 32.0 | Ari | 5.8 | 3.5 | 51° W | 100 | 19.75 | 20.37 | 02:12 | 09:12 | 16:11 |
| Neptune | 5 | 23 36.4 | -3 46.0 | Aqr | 7.9 | 2.3 | 81° W | 100 | 29.92 | 30.06 | 01:37 | 07:26 | 13:14 |
| Neptune | 12 | 23 36.6 | -3 44.7 | Aqr | 7.9 | 2.3 | 88° W | 100 | 29.92 | 29.94 | 01:10 | 06:59 | 12:47 |
| Neptune | 19 | 23 36.8 | -3 44.1 | Aqr | 7.9 | 2.3 | 95° W | 100 | 29.92 | 29.82 | 00:42 | 06:31 | 12:20 |
| Neptune | 26 | 23 36.8 | -3 44.1 | Aqr | 7.9 | 2.3 | 101° W | 100 | 29.92 | 29.71 | 00:15 | 06:04 | 11:52 |
| Pluto | 5 | 19 55.2 | -22 19.4 | Sgr | 14.3 | 0.2 | 138° W | 100 | 34.30 | 33.53 | 23:09 | 03:45 | 08:22 |
| Pluto | 12 | 19 54.7 | -22 21.6 | Sgr | 14.3 | 0.2 | 145° W | 100 | 34.30 | 33.46 | 22:41 | 03:17 | 07:53 |
| Pluto | 19 | 19 54.1 | -22 24.0 | Sgr | 14.3 | 0.2 | 152° W | 100 | 34.30 | 33.41 | 22:13 | 02:49 | 07:25 |
| Pluto | 26 | 19 53.5 | -22 26.5 | Sgr | 14.3 | 0.2 | 159° W | 100 | 34.31 | 33.36 | 21:45 | 02:21 | 06:57 |

May Reports

Minutes-Skyscrapers Executive Committee Meeting via Zoom Monday May 17, 2021 at 7PM.

Meeting called to order at 7:02 PM by President Steve Siok. The meeting was not recorded.

Present: Steve Siok, Kathy Siok, Sue Hubbard, Steve Hubbard, Linda Bergemann, Francine Jackson, Jim Hendrickson, Bob Janus, Bob Horton, Bob Napier, Laura Landon, Jeff Padell. Total: 12

1. Reopening Plans for Seagrave: A soft opening is planned in June based on the Governor's plans, and the guidelines in place. We will reopen to our members and then to the public. The internet has been activated and the porta john will be on site June 1.

Welcome Back: Member events are the first to be held

Saturday, June 19 (rain date Saturday, June 26) at 11 AM. The theme: Solar Observing. One or more telescopes will be set up in the courtyard and the images will be

projected in the meeting hall. Members will be able to see how the telescope works and then one of our members will talk about the features in the projected images of the sun in the meeting hall. Masks are only necessary for people without COVID vaccinations. While drinks will be provided, participants are asked to bring a lunch.

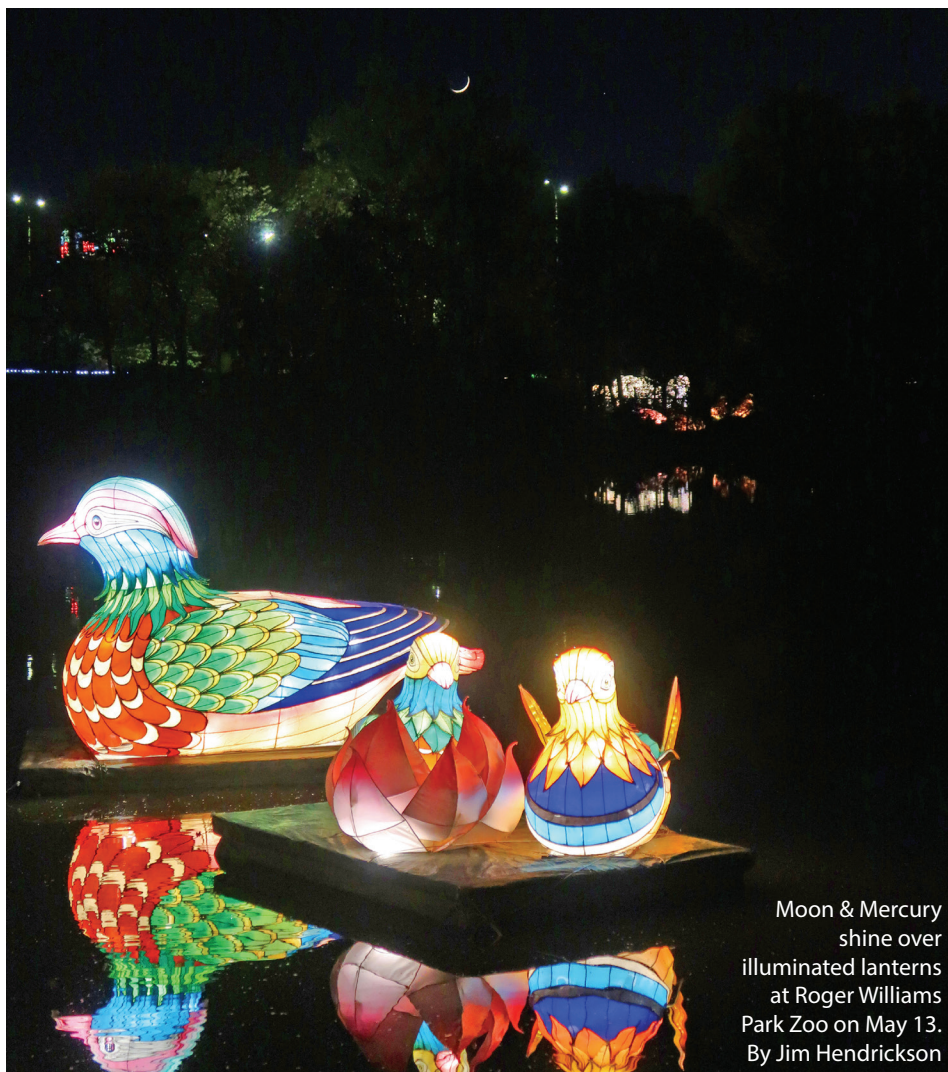
Saturday, July 3 (rain date Monday July 5) Member's Cookout, 12:30PM - 3PM.

You invited to bring your own food to grill. Grills and cold drinks will be available on site. This is primarily a social gathering to welcome new and current members.

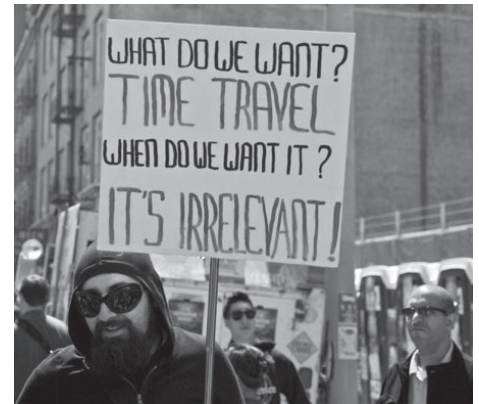
In the works: Sessions to help Skyscrapers Members learn to use their telescopes. More experienced members will be asked to assist. Appointments will be made for those requesting help.

Public nights Observing: No sessions are planned until some issues are resolved. Guidelines for Rhode Island need to be clear. Trustees are working with the adjacent neighbor to resolve regarding lighting issues.

2. AstroAssembly 2021 October 2-3



Moon & Mercury shine over illuminated lanterns at Roger Williams Park Zoo on May 13. By Jim Hendrickson



Special Lecture Series Seagrave Memorial Observatory

There will be a lecture on Time Travel last week in the Meeting Hall

Submitted by Dave Huestis

Planning

- An in-person live event is currently planned, with a virtual version for our long distance members and friends. It was suggested that we ease into 'normalcy' this year and simplify our event.

- Bob Horton suggested making Astro Assembly 2021 a day- time event without our usual evening banquet. A lunch would be available (either the usual grill or a caterer) and the cost would be paid in advance with registration (a meal ticket provided). The timing of the speakers could be different. The event would end in early evening with our raffle. Participants could return for viewing if the weather is clear.

- Raffle: It has been difficult to get prizes and need to think creatively. Perhaps we should hold a 50/50 raffle.

- AstroAssembly 2021 will be dedicated to Ed Turco. Some of his scopes will be on display at the event.

- We have an evening speaker, but need to start thinking about the program.

3. Other

- Annual Reports for 2020- Steve Siok will reach out to members to report on their committee activities.

- Member Survey- It is in process and a draft will be shared for comments.

- Grants: Bob Napier encouraged us to reaching out to local foundations to fund needed capital improvements at Seagrave. Mentioned were: Champlin Foundation, Rhode Island Foundation and Microsoft.

Next Executive Committee Meeting: Monday June 21 at 7PM via Zoom

Meeting adjourned at 8:14PM.

Respectfully submitted: Sue Hubbard-Secretary May 25, 2021

May 27 Sunspot with prominence

Taken on May 27 with a
Lunt 60mm solar scope
and a ZWO ASI 294 MM
Pro camera. By Jeff Padell



Quasar 3C 273, 2.44 billion light years away

Here is an image I took of Quasar 3C 273 in Virgo. It is the brightest quasar we can see, was the first one found and is about 2.44 billion light years away. 14" Meade SCT with ZWO 294MC cooled camera, screen shot captured with sharpcap. Taken May 17 by Steve Hubbard.



Black Brant XII Rocket Barium Vapor

I was set up to capture another flyby pass of the Chinese Space Station Tianhe-1 and unexpectedly captured the green Barium vapor glow from the Black Brant XII Rocket launched from Wallops Flight Facility in Virginia. A halo glow was seen which then turned to a bright green and only lasted a few seconds. Canon 6D on Manfrotto tripod, remote shutter release, Rokinon 50mm f1.4 lens @ f2, ISO 400, Shutter Speed 3.1sec, 8:54 pm. By Ron Zonccone

STARRY SCOOP

Editor: Kaitlynn Goulette



WHAT'S UP

June 19th marks the 45-year anniversary of the Viking 1 probe arriving at Mars. Viking 1 consisted of both an orbiter and a lander. Its lander was the first American spacecraft to touch down safely and return images of the Martian surface. Many of the Viking 1 pictures are very well known, such as the famous "Face on Mars." This mission ended after four successful years.

For those of us in the northern hemisphere, the Summer Solstice occurs on June 21st. Therefore, this day and the surrounding days will have the longest period of daylight of the entire year. In the Southern Hemisphere, June 21st marks the Winter Solstice.

The Summer Triangle rises in the east as summer begins and will soon dominate the evening sky. Rising in the southeast are Scorpius and Sagittarius. These are two fantastic constellations to explore using a telescope or binoculars because they contain many deep-sky objects.

To the west, Leo the Lion is making its seasonal exit, but it'll return to the evening sky next spring. Following sunset, Mars and blazing Venus are low in the western sky. The crescent moon passes by these two planets on the 12th and 13th.

Throughout the month, Jupiter and Saturn rise in the east just after midnight and are visible high in the southern sky before sunrise. They appear as the brightest starlike objects in the sky, with Jupiter shining substantially brighter at about magnitude -2.5.

This month we have an **annular solar eclipse** occurring on the 10th. Unlike a total solar eclipse where the sun is completely obscured, the moon does not cover the entire sun during an annular eclipse. Instead, it creates a ring of sunlight. This occurs because the moon is farther away from us in its elliptical orbit and is therefore too small to completely cover the sun. The sun will appear as an unbroken ring from portions of Canada, Greenland, and Russia. Viewers in the eastern part of the United States will see a partial eclipse low in the east just after the sun rises. Never look directly at the sun without a filter made specifically for solar viewing. For more information go to www.eclipse.aas.org.

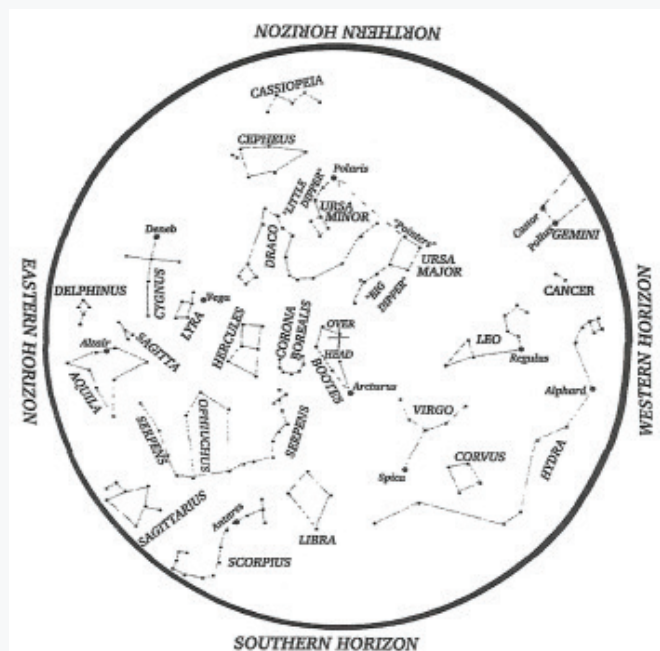
JUNE'S SKY

10: New Moon

10: **Annular Solar Eclipse *RARE EVENT***

21: June Solstice

24: Full Moon



Credit: Roger B. Culver

Hold star map above your head and align with compass points.

OBSERVATIONS

I recently fractured my leg, so my observing technique had to be drastically adjusted. Instead of standing at my telescope, I set up a comfortable reclining lawn chair and scanned the sky with my binoculars.

Two fine wide-field objects I observed are the Beehive Cluster in Cancer and the Coathanger in Vulpecula. They were truly stunning in my 7x35 binoculars.

Through my giant 15x75 binoculars, I enjoyed a few of my favorite globular clusters: M3, M5, and M13. The detail wasn't as great as what my high-power telescope would reveal, but I was amazed that I was observing something 34,000 light-years away with only hand-held binoculars.

While scanning the sky with binoculars, I came across a sparkling ruby-colored star. This prompted me to immediately check my sky atlas. It turned out to be the red supergiant Mu Cephei, better known as Herschel's Garnet Star.

Using binoculars in a reclining chair was lots of fun because, in the words of astronomy author Phil Harrington, "Two eyes are better than one." I highly recommend this method to anyone who owns a pair. Suddenly, I'm very excited about this summer's Binocular Observing Olympics at Stellafane!

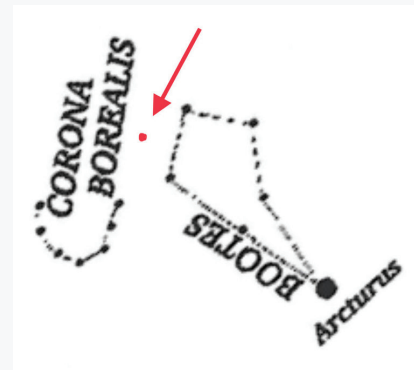


The purpose of the Starry Scoop is to communicate current astronomy and space events. If you want to share your observations or get digital copies of the Starry Scoop, contact starryscoop@gmail.com. The Starry Scoop is now on Facebook. Clear skies!

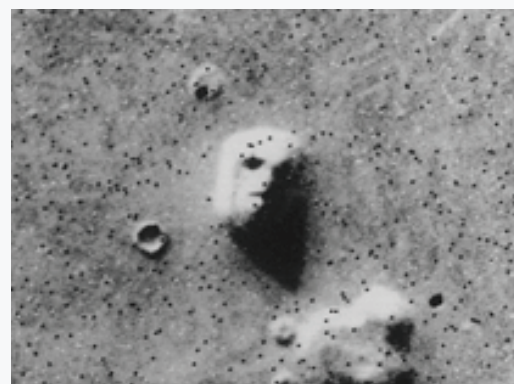
OBJECT OF THE MONTH

This month's featured object is Mu Bootis, also known as Alkalurops. At a distance of about 121 light-years, Mu Bootis is a multiple star system located northeast of the "Kite" asterism in the constellation Bootes.

With the naked eye, Mu Bootis appears as a single point of light, but through a backyard telescope, two stars are revealed. This is a wide optical double, which is simply a line-of-sight coincidence. Higher power will reveal that the dimmer star in this optical double has a companion star to which it is gravitationally locked, forming a binary star system. The brighter star in this optical double also has a companion, but it is so close, the pair cannot be resolved using a backyard telescope.



Mu Bootis



Face on Mars
Credit: NASA

Directions to Seagrave Memorial Observatory

From the Providence area:

Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

From Coventry/West Warwick area:

Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

From Southern Rhode Island:

Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

From Northern Rhode Island:

Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

From Connecticut:

- Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
- or • Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

From Massachusetts:

Take Interstate 295 South (off Interstate 95 in Attleboro). Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.



47 Peeptoad Road
North Scituate, Rhode Island 02857