the Skyscraper

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

In This Issue:

Phases of the Moon

Full Buck Moon
July 5 19:12

Last Quarter Moon
July 13 06:24

New Moon
July 21 06:41

First Quarter Moon
July 28 08:16

You Can Almost Touch the Stars

An online presentation by Tom Field, Contributing Editor at *Sky & Telescope* and author R-Spec software.
Saturday, July 11 @ 7:00 PM via Zoom
Contact Steve Hubbard (cstahhs@gmail.com) for Zoom Meeting link and information.

Even if you wanted to touch a star, they're all impossibly distant. Despite these great distances, astronomers have learned an enormous amount about stars. How? The most common method to study the stars is called spectroscopy, which is the science of analyzing the colorful rainbow spectrum produced by a prism-like device.

Until recently, spectroscopy was too expensive and too complicated for all but a handful of amateurs. Today, though, new tools make spectroscopy accessible to almost all of us. You no longer need a PhD, dark skies, long exposures, enormous aperture ... or a big budget! With your current telescope and FITS camera (or a simple web cam or even a DSLR without a telescope) you can now easily study the stars yourself. Wouldn't you like to detect the atmosphere on Neptune or the red shift of a quasar right from your own backyard?!

This talk, with lots of interesting examples, will show you what it's all about and help you understand how spectroscopy is used in research. Even if you are an armchair astronomer, understanding this field will enhance your understanding of the things your read and the night sky. We'll do a live Q&A after Tom's 45-minute presentation.

Tom Field is has been a Contributing Editor at *Sky & Telescope* Magazine for the past 7 years. He is the author of the RSpec software (www.rspec-astro.com) which received the S&T "Hot Product" award in 2011. Tom is a popular speaker who has spoken to hundreds of clubs via the web at many conferences, including NEAF, the NEAF Imaging Conference, PATS, the Winter Star Party, the Advanced Imaging Conference, SCAE, and others. His enthusiastic style is lively and engaging. He promises to open the door for you to this fascinating field!

Upcoming Presentations

Saturday, August 1
Ana Bonaca from Harvard-Smithsonian Center for Astrophysics: Dark Matter in the Milky Way

Saturday, September 5
David Eicher, Editor of Astronomy Magazine: Galaxies

Saturday, October 3
AstroAssembly Online

Saturday, November 7
Dr. Jonathan Grindley from Center for Astrophysics: The DASCH Project – Ten Years Later

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.

President's Message

by Steve Siok

Hello, fellow Skyscrapers.

I hope many of you are taking advantage of our new features. First, the virtual Skyscraper monthly meetings seem to be well received. Both Stella and Kelly gave great talks. And we have a great lineup for Summer and Fall. Big thank you to Steve Hubbard. Also I hope you have delved into Night Sky Network and its events calendar. I have been listening to talks from Lowell Observatory and Fred Whipple Observatory. Check them out, especially Cosmic Coffee!

Happy Summer Solstice to everyone. And with it we have some bad and some good. First, the bad. Twilight does not end until after 9:00PM limiting our observing time. And don't forget; do not set your scope up when it can get sunlight before dusk. And do not leave it in a hot car. Do not want to have to wait to have the mirror stabilize around midnight! And we have to contend with biting mosquitoes and smelly bug spray. But there are a lot more positives. No gloves, no ski caps, no heavy parkas. So observing is a lot more comfortable. And the observing is great. There is the Summer Triangle to help us find our way. And the entire Summer Milky Way to show us its delights. Open clusters and globular clusters galore. Pretty double and multiple stars to delight. Lie on the ground and watch meteors as they streak across the sky. It's that time of year to go to a dark site and just take in the Sagittarius, Scorpius and Scutum star clouds. Jupiter and Saturn are well placed for observing. So get out there with your scopes or binoculars. And just enjoy the summer sky. And remember, you do not need sunscreen at night, even in the summer.

Stay safe and keep looking up.

New Members

Welcome to Skyscrapers

Rick Lynch
Scituate, RI

Althea Doodson
Warwick, RI

Edward & Nancy Walsh
Danielson, CT

Join the Astronomical League

By Jeff Padell, ALCor

To the members of the Skyscrapers,

I would like to remind you during this time of social distancing that the Astronomical League (AL) offers lots of programs in astronomy from identifying constellations to lunar observations (naked eye, binocular, and telescope) to radio astronomy. Each program offers recognition's including certificates and pins for completing the programs. You also will learn a lot about the program you are working on. Some programs are very simple and aimed at beginners, although anyone can participate, to programs that are way above my level.

You need to be a member of the AL but it is only $7.50 a year through the Skyscrapers club membership. We currently have 12 members who are in the AL and some are working on programs others just like getting the AL magazine *The Reflector*. AL membership begins July 1st for the 2020-21 year and are paid by sending a check to me made out to "The Skyscrapers". Current AL members will need to send me a check as above the beginning of June.

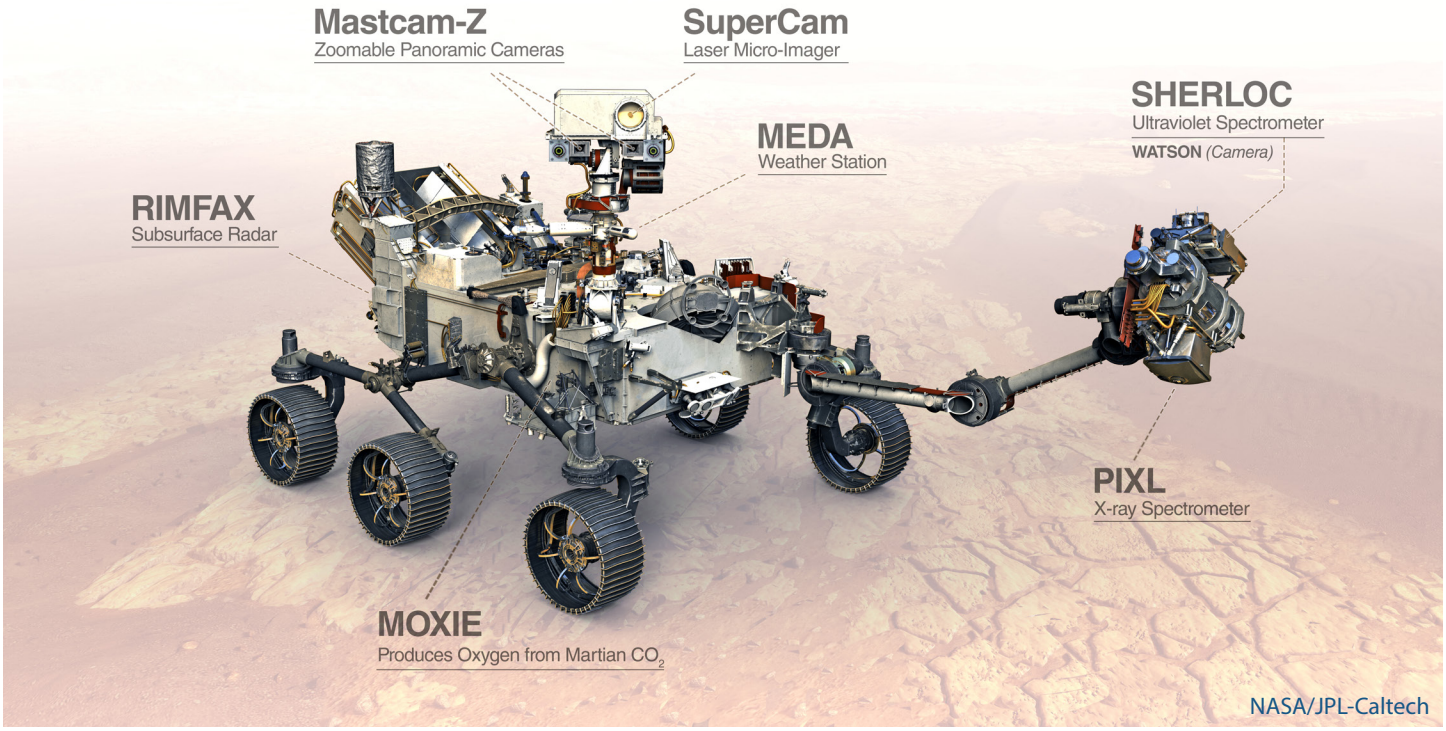
If you are interested in joining, getting more info, or starting a program even before you join feel free to contact me and we can chat via email or Zoom.

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 **July 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.



Perseverance Mars Rover Launching in July

by Francine Jackson

The Earth is really fortunate that it and Mars come together about every two years, close enough to be able to send space craft up to our neighbor in a fairly quick time frame. The Earth is really unfortunate that it and Mars only come together about every two years, as, if the window of opportunity isn't met, it's another whole cycle to wait.

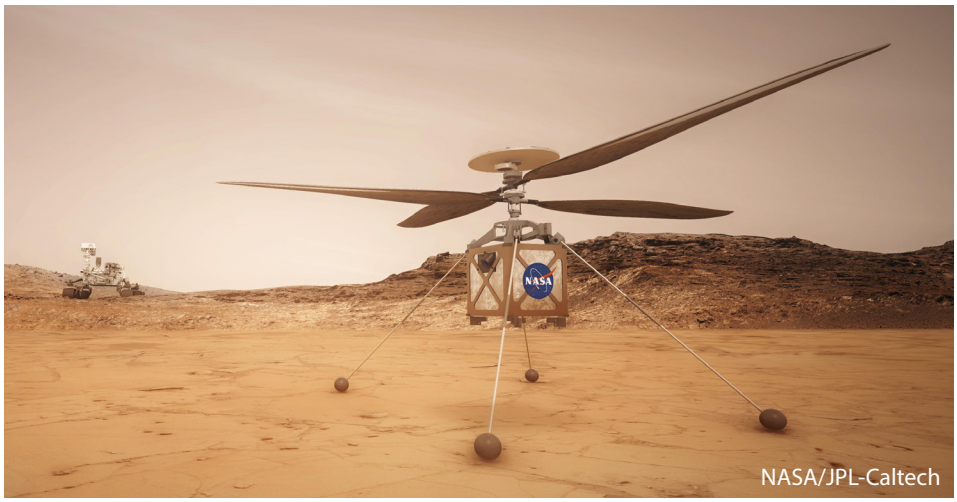
Right now, the latest Martian lander, Perseverance, is waiting for its opportunity to join Curiosity in doing its best to help us understand as much about Mars as possible. If all works perfectly, it will be setting down at an ancient lake, in the crater Jezero, home to rocks that apparently date back four billion years. It is planned to study the area, drill for samples, and hopefully come up with the possibility of determining whether life, at least microscopic, could have existed in this region.

Many of us can remember the "seven minutes of terror," waiting for the totally original landing attempt of the Curiosity; this time, with Curiosity in the back of everyone's minds, Perseverance's landing will be much less breath holding. Also, its landing will be recorded, for all to see just several minutes after the fact.

One of the major features on the craft is its ability to drill into the surface of Mars, creating samples of the various layering, then "saving" them for a future mission, scheduled for 2026, which will retrieve them, and eventually have them come to Earth. Other than the various Martian meteorites discovered on Earth, this will be an actual, pristine set of samples, something never attempted before. In addition, Perseverance will have a hitchhiker on it, Ingenuity, a miniature helicopter, capable of scouting the surface around the lander.

All the craft needs is the ability to be launched within the window of opportunity. This time frame begins in just a few weeks, beginning July 20th, and lasting until early August. If this time doesn't allow for Perseverance to leave Earth, we will have to wait another two years for this opportunity to come again.

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



A Minimal Penumbral Lunar Eclipse & Two "Meteorocre" Shooting Star Displays

by Dave Huestis

"What's in a name? That which we call a July Full Moon

By many other names would shine as bright."

My apologies to William Shakespeare, but I simply couldn't resist mangling the above famous quote from Romeo and Juliet.

Full Moons have a myriad of names. Here in the United States the colonists adopted many of them from Native Americans, predominantly the eastern Algonquin nation. While these descriptive names have become the primary ones by which we identify each Full Moon, many other names have been ascribed to them.

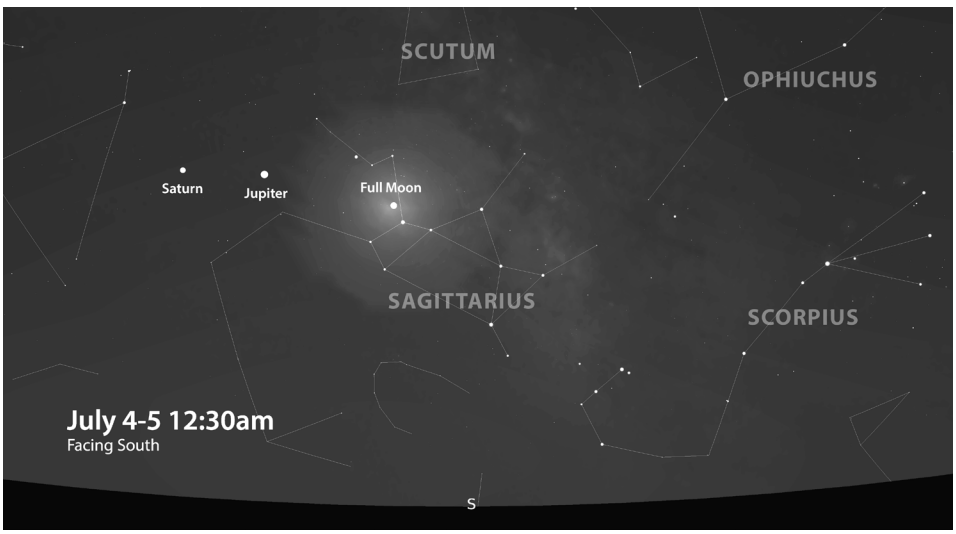
For example, the July Full Moon is usually called the Full Buck Moon. This name was one brought over by the colonists from Europe. Male deer in both Europe and North and South America shed their antlers yearly, and by July a new set has emerged. Another old-world name for this Full Moon is Hay Moon, signaling when the hay field had been reaped. And finally Thunder Moon has been used for obvious reasons during northern hemisphere summer months.

This year the Full Buck Moon occurs on the night of July 4-5, with the precise moment being 12:44 a.m. Eastern Daylight Time. Furthermore, a special astronomical event will also occur this night. A very shallow penumbral lunar eclipse will occur when the Moon passes between the Sun and the Earth and slides into the Earth's light shadow called the penumbra. This event will be most difficult to detect as only about one-third of the top portion of the lunar surface will be within the penumbral shadow. The following table provides the timetable of events. All times are EDT (Eastern Daylight Time).

Penumbral Eclipse begins	July 4, 11:07:23 pm
Maximum Eclipse	July 5, 12:29:51 am
Penumbral Eclipse ends	July 5, 1:52:21 am

When the maximum eclipse occurs at 12:29:51 a.m. EDT, the Moon will be high in the sky almost due south and about 23 degrees above the horizon. It will be located within the easily recognizable constellation of Sagittarius, which looks like a teapot. The Moon will be just to the left of the handle of the teapot asterism. The top third of the Moon's surface may look somewhat subdued. But humid summer atmospheric conditions may dim the moonlight anyway. It will be interesting to see if the event will be noticeable at all. Total duration of this eclipse is two hours and forty-five minutes.

While watching the lunar eclipse you will certainly notice two bright objects in the Moon's vicinity. The brightest one, Jupiter, will be ten degrees to the Moon's left. And five degrees from Jupiter in the same direction will be Saturn. Both of these worlds reach opposition (opposite the Sun in the sky) this month. And on their dates of closest approach to the Earth, July 15 and July 20 respectively, Jupiter will be approximately 384.7 million miles from the Earth, while Saturn will be a more distant 836 million miles away from us. From July through the end of the year will present a great opportunity to view these distant worlds with a telescope. It still may be some time before the local observatories open for public viewing due to COVID-19, so if you have a small telescope, I would recommend you focus in on these planets. I'll write some observing guides for them in a future column.



And finally, at July's end, the sky will shower the Earth with two meteor showers. They are the Delta Aquarids and the Alpha Capricornids. While these shooting star displays are best seen in the southern hemisphere, we can observe a few of their members here in southern New England. Both have broad peaks (July 28-30), so if the weather does not cooperate you can expect to observe some meteors over this date range. It is convenient that these showers overlap, because their combined hourly peak total is about 15-20 meteors per hour at best.

Also, the constellations Aquarius and Capricornus, from which these shooting stars appear to emanate, will be just less than halfway between the southern horizon and zenith (straight up) around 2:00 a.m. The Moon will be at first quarter on the 27th, but it and its waxing gibbous phase over the next couple of nights will set between midnight and 2:30a.m. So, moonlight will somewhat overshadow some of the fainter shooting stars.

Both showers display fairly bright yellow meteors, while the Alpha Capricornids are noted for producing brilliant fireballs as they enter our atmosphere at around 15 miles per second. However, you might see more fireflies than meteors, depending upon sky conditions. That scenario could be a good thing if the meteor activity is low. At least the quick flickering of a firefly will help to keep you awake! The Delta Aquarids plunge into the Earth's atmosphere at a moderate speed of 25.5 miles per second.

Keep your eyes to the skies.

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

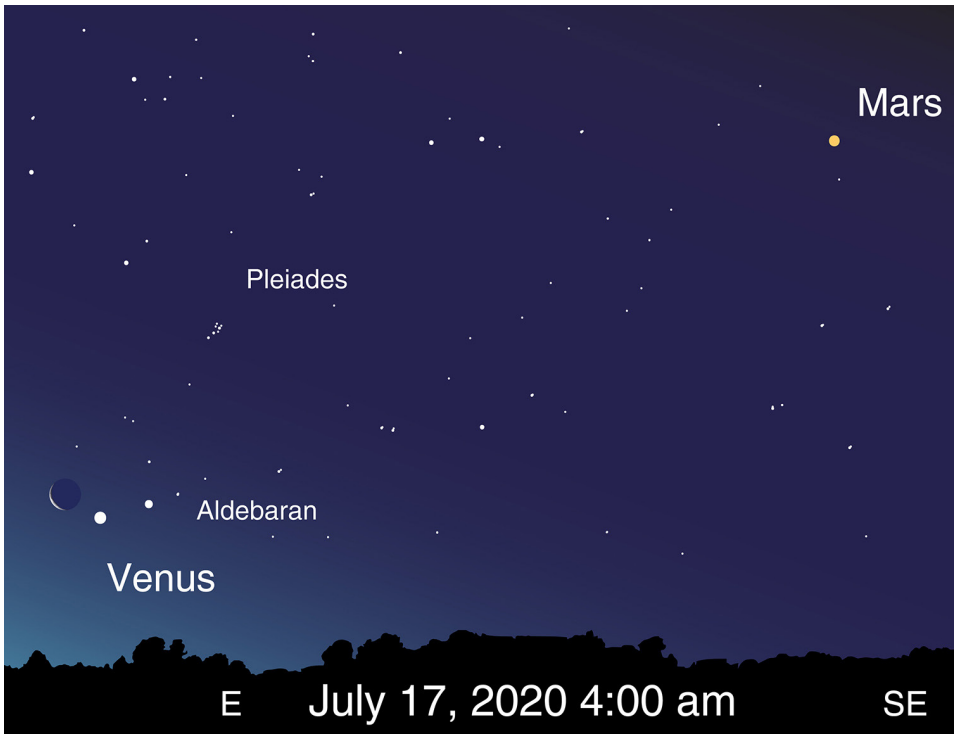
NASA Night Sky Notes:

Mars's Latest Visitor: NASA's Perseverance Rover

By David Prosper

NASA's latest Mars rover, Perseverance, is launching later this month! This amazing robot explorer will scout the surface of Mars for possible signs of ancient life and collect soil samples for return to Earth by future missions. It will even carry the first off-planet helicopter: Integrity. Not coincidentally, Perseverance will be on its way to the red planet just as Mars dramatically increases in brightness and visibility to eager stargazers as our planets race towards their closest approach in October of this year.

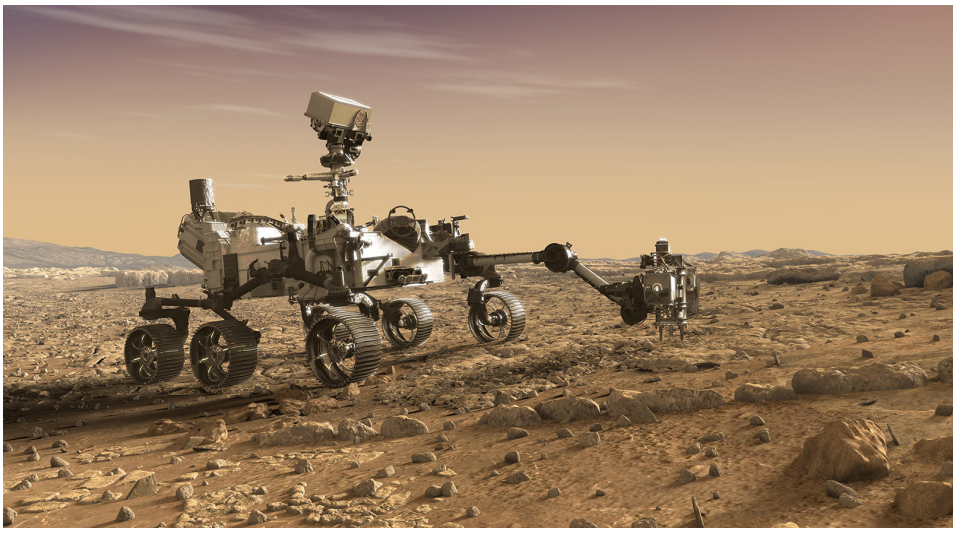
Perseverance's engineers built upon the success of its engineering cousin, Curiosity, and its design features many unique upgrades for a new science mission! In February of 2021, Perseverance will land at the site of an ancient river delta inside of Jezero Crater and ready its suite of seven primary scientific instruments. The rover will search for traces of past life, including possible Martian fossils, with WATSON and SHERLOC, two advanced cameras capable of seeing tiny details. The rover also carries an amazing instrument, SuperCam, to blast rocks and soil outside of the rover's reach with lasers to determine their chemical makeup with its onboard suite of cameras and spectrometers. Perseverance will also take core samples of some of the most promising rocks and soil, storing them for later study with its unique caching system. Future missions will retrieve these samples from the rover and return them for detailed study by scientists on Earth. Perseverance also carries two microphones so we can hear the sounds of Mars and the noises of its instruments at work. It will even launch a small helicopter - Ingenuity - into the Martian atmosphere as a trial for future aerial exploration!



Observe Mars yourself over the next few months! Mars can be found in early morning skies throughout July, and by the end of the month will rise before midnight. Mars gradually brightens every night until the close approach of Mars in October. The pre-dawn skies of July 17 present an especially nice view, as the waning crescent Moon will appear near Venus and Aldebaran.

Would you like to contribute to Mars mission science? You can help NASA's rover drivers safely navigate the Martian surface by contributing to the AI4Mars project! Use this tool to label terrain features on photos taken of the Martian surface by NASA missions to help train an artificial intelligence algorithm to better read their surrounding landscape: bit.ly/AI4Mars

The launch of Mars Perseverance is, as of this writing, scheduled for July 20, 2020 at 9:15am EDT. More details, updates, and livestreams of the event are available on NASA's official launch page: bit.ly/Mars2020Launch . Dig deep into the science of the Mars 2020 mission and the Perseverance rover at: mars.nasa.gov/mars2020/ . Find out even more about past, present, and future Mars missions at nasa.gov.



Perseverance inspects a cluster of interesting Martian rocks with its instruments in this artist rendering by NASA JPL/Caltech

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!

Nebula/Cluster in Sagittarius: Messier 8

by Glenn Chaple for LVAS

Mag: 3.0, Size: 90′ X 40′

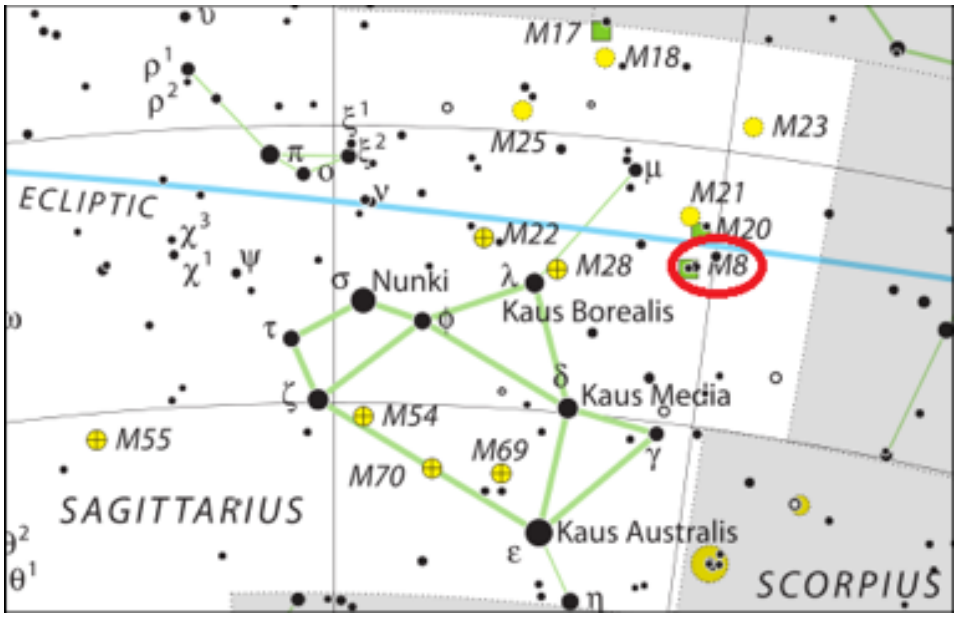
Our July and August Observers' Challenges might be themed the "Summer of Sagittarius," as both inhabit the celestial Archer. This month, we set our sights on Messier 8 (the "Lagoon Nebula"); in August, we'll turn our attention to Messier 20 (the Trifid Nebula).

Along with the Orion Nebula (M42), the Lagoon is the only diffuse nebula readily visible to the unaided eye from mid-northern latitudes. Like M42, it's an emission nebula and an H II region of active star formation. Credit for the discovery of the Lagoon Nebula goes to the Italian astronomer Giovanni Hodierma who spotted it with a crude 20X refractor on or before 1654. Because the nebula is visible to the unaided eye, we can rightly assume that a number of astute observers spotted it long before Hodierma. Messier added it to his catalog in 1764. It bears the New General Catalogue designation NGC 6523.

I first saw M8 on the evening of July 20, 1974 – coincidentally, the 5th anniversary of the Apollo 11 moon landing. This was definitely a NASA-themed night, as the session began with a fly-over of the Skylab space station. M8 was visible to the unaided eye a half-dozen degrees north of gamma (γ) Sagittarii, the star that marks the spout of the "Teapot." It was easily seen in my 3-inch f/10 reflector at 30X as two separated nebulous patches oriented in a north/south direction. I made another small-scope observation of the Lagoon in the summer of 2012 – this time with a 4.5-inch f/8 reflector and a magnification of 75X. I described it as "two elongated clumps of nebulosity separated by a dark rift. Beautiful cluster (NGC 6530) to the east." Since NGC 6530 is embedded in the nebulosity, it's obvious that a larger instrument will be necessary to fully appreciate the grandeur of the Lagoon.

The immensity of the Lagoon Nebula can be fully appreciated when we realize that, although it lies 5200 light years away, its widest dimension spans an area three full moons across. Were it as close as the Orion Nebula, the Lagoon would appear four times larger and shine at first magnitude.

For a detailed look at Messier 8 from a backyard astronomer's point of view, read Howard Banich's article "Swimmin' in the Lagoon" on pages 20-25 of the August, 2020, issue of Sky and Telescope. Banich mentions the "Hourglass," a small, bright part of the Lagoon Nebula that was first described by John Herschel. It appears in the accompanying Mario Motta narrow-field image of the Lagoon. Here's a challenge for you big-scope users. Can you make a visual sighting?



www.messier-objects.com (chart from IAU and Sky and Telescope)

M8, as seen with 4.5-inch f/8 reflector. Sketch by Glenn Chaple (ATMoB)

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.

M8 - Wide-field view, taken with 8-inch Ritchey-Chrétien telescope and Lum, R,G,B filters, also some Ha added to Lum and Red. Total imaging time about 3.5 hours. Image by Mario Motta, MD (ATMoB)

The Sun, Moon & Planets in July

This table contains the ephemeris of the objects in the Solar System for each Saturday night in July 2020. 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	**4**	6 54.3	22 50.9	Gem	-26.8	1887.8	-	-	-	1.02	05:16	12:50	20:24
	11	7 23.0	22 03.9	Gem	-26.8	1887.9	-	-	-	1.02	05:21	12:51	20:22
	18	7 51.3	20 58.4	Gem	-26.8	1888.4	-	-	-	1.02	05:27	12:52	20:17
	25	8 19.2	19 35.6	Cnc	-26.8	1889.5	-	-	-	1.02	05:33	12:52	20:11
Moon	**4**	17 50.6	-23 59.2	Sgr	-12.7	1918.4	165° E	98	-	-	20:16	00:51	05:28
	11	0 00.7	-6 21.9	Cet	-12.1	1766.6	112° W	69	-	-	23:52	05:44	11:44
	18	5 24.7	21 48.7	Tau	-9.9	1834.0	34° W	8	-	-	03:13	11:00	18:50
	25	12 01.8	4 35.5	Vir	-11.1	1966.5	56° E	22	-	-	11:03	17:20	23:27
Mercury	**4**	6 33.9	18 27.4	Gem	3.4	11.7	6° W	2	0.45	0.57	05:15	12:26	19:37
	11	6 23.5	18 45.8	Gem	2.1	10.5	14° W	10	0.42	0.64	04:36	11:49	19:02
	18	6 29.4	19 52.3	Gem	0.9	8.8	19° W	25	0.39	0.76	04:10	11:29	18:48
	25	6 54.5	21 05.5	Gem	-0.1	7.3	20° W	45	0.35	0.92	04:04	11:28	18:54
Venus	**4**	4 22.5	17 12.3	Tau	-4.5	41.6	36° W	21	0.73	0.41	03:10	10:17	17:24
	11	4 34.3	17 25.6	Tau	-4.5	37.2	40° W	28	0.73	0.45	02:54	10:02	17:10
	18	4 51.1	17 57.7	Tau	-4.4	33.4	42° W	33	0.73	0.51	02:41	09:51	17:02
	25	5 11.6	18 37.8	Tau	-4.4	30.3	44° W	38	0.73	0.56	02:31	09:44	16:58
Mars	**4**	0 18.1	-1 32.3	Psc	-0.6	11.7	99° W	85	1.39	0.80	00:16	06:13	12:11
	11	0 33.1	-0 06.2	Cet	-0.7	12.3	102° W	85	1.39	0.76	23:58	06:01	12:03
	18	0 47.4	1 14.4	Cet	-0.8	13.0	104° W	85	1.38	0.72	23:40	05:47	11:55
	25	1 00.8	2 28.5	Cet	-1.0	13.8	108° W	86	1.38	0.68	23:22	05:33	11:45
1 Ceres	**4**	23 16.5	-17 57.1	Aqr	8.5	0.5	119° W	98	2.98	2.35	00:16	05:11	10:06
	11	23 17.4	-18 27.7	Aqr	8.4	0.5	125° W	98	2.98	2.27	23:52	04:44	09:37
	18	23 17.2	-19 04.7	Aqr	8.3	0.6	132° W	98	2.98	2.20	23:26	04:17	09:07
	25	23 15.9	-19 47.1	Aqr	8.2	0.6	139° W	99	2.98	2.14	23:00	03:48	08:35
Jupiter	**4**	19 42.3	-21 39.9	Sgr	-2.6	47.3	169° W	100	5.16	4.16	20:58	01:37	06:16
	11	19 38.6	-21 49.8	Sgr	-2.6	47.5	176° W	100	5.16	4.14	20:27	01:06	05:44
	18	19 34.7	-21 59.6	Sgr	-2.6	47.5	176° E	100	5.15	4.14	19:52	00:30	05:08
	25	19 31.0	-22 08.9	Sgr	-2.6	47.4	168° E	100	5.15	4.15	19:22	23:59	04:36
Saturn	**4**	20 08.3	-20 22.7	Cap	0.2	18.3	163° W	100	10.01	9.04	21:18	02:03	06:48
	11	20 06.3	-20 29.6	Sgr	0.1	18.4	170° W	100	10.01	9.01	20:49	01:34	06:18
	18	20 04.2	-20 36.6	Sgr	0.1	18.4	177° W	100	10.01	9.00	20:20	01:04	05:48
	25	20 02.0	-20 43.5	Sgr	0.1	18.4	176° E	100	10.01	9.00	19:47	00:30	05:13
Uranus	**4**	2 30.8	14 22.4	Ari	5.8	3.5	63° W	100	19.80	20.24	01:30	08:25	15:20
	11	2 31.7	14 26.3	Ari	5.8	3.5	69° W	100	19.79	20.14	01:03	07:58	14:54
	18	2 32.4	14 29.6	Ari	5.8	3.5	75° W	100	19.79	20.02	00:36	07:31	14:27
	25	2 32.9	14 32.2	Ari	5.8	3.5	82° W	100	19.79	19.91	00:09	07:04	14:00
Neptune	**4**	23 28.4	-4 35.3	Aqr	7.9	2.3	112° W	100	29.93	29.54	23:37	05:23	11:08
	11	23 28.2	-4 36.9	Aqr	7.8	2.3	118° W	100	29.93	29.43	23:10	04:55	10:41
	18	23 27.9	-4 39.0	Aqr	7.8	2.3	125° W	100	29.93	29.33	22:42	04:27	10:13
	25	23 27.5	-4 41.6	Aqr	7.8	2.3	132° W	100	29.93	29.24	22:14	03:59	09:45
Pluto	**4**	19 44.4	-22 16.2	Sgr	14.3	0.2	168° W	100	34.07	33.08	21:03	01:39	06:16
	11	19 43.7	-22 18.6	Sgr	14.2	0.2	175° W	100	34.08	33.06	20:35	01:11	05:48
	18	19 42.9	-22 21.0	Sgr	14.2	0.2	178° E	100	34.08	33.07	20:07	00:43	05:19
	25	19 42.2	-22 23.4	Sgr	14.2	0.2	171° E	100	34.09	33.08	19:35	00:11	04:47

June Reports

Monthly Meeting via Zoom Saturday June 6, 2020 @ 7PM

The meeting was called to order at 7:02 PM by President Steve Siok.

A short business meeting took place to approve the proposed 2020-2021 budget, which was emailed to the membership by Treasurer Kathy Siok. There was some discussion. No income or expenses were noted for AstroAssembly as we are unsure if the event will happen this October. There is discussion about holding a virtual AstroAssembly, but this is not confirmed. Also, the porta-john expenses were reduced as the observatory grounds have been closed.

The proposed budget was passed unanimously.

There was no further business.

The next scheduled monthly meeting will be Saturday July 11, 2020 at 7 PM.

Steve Hubbard, 1st Vice President, introduced the speaker for the evening, Kelly Beatty.

Respectfully submitted, Sue Hubbard Secretary

Executive Committee Meeting-Tuesday June 23, 2020 @7PM via Zoom

Called to Order: At 7:17PM by President Steve Siok

Present: Steve Siok, Kathy Siok, Steve Hubbard, Sue Hubbard, Linda Bergemann, Jim Hendrickson, Bob Horton, Ian Dell'Antonio, Laura Landen, Jim Crawford, Matt Ouellette, Jeff Padell, Bob Janus

• Treasurer Report Kathy Siok reported that we have 67 paid members. 23 members have not paid to date. There have been very few expenses for the club. We have $10k in our checking account. Our CD (about $20k) is due to mature shortly and there was some discussion regarding a rollover OR other options for this money. Laura Landen suggested that we put the money into an Ally account, since it would earn twice the interest being offered by PCU(our bank) and will be available anytime we need it for expenses. All agreed that this would be the best option at present.

• Monthly Meeting Speakers Steve Hubbard reported he has speakers for our meetings in July, August, September and November. Monthly speakers will be asked for their permission to record their talks so we can make them available on our website for future viewing.

• Night Sky Network Linda Bergemann reported that only 1 member has opted out of NSN. This means that person would be off our mailing list. Linda will contact that person and make sure they understand the details of the NSN privacy. Linda, Kathy Siok and Sue Hubbard will collaborate on what needs to be kept as details on the NSN list of members. Also, we will encourage members to take a look at the NSN monthly calendar for upcoming events.

• Astronomical League Jeff Padell reported that he has sent a roster to AL of those Skyscraper members who have joined. Jeff will write an article for our club newsletter concerning the wealth of opportunities available to members of the AL.

• AstroAssembly Steve Siok reported that the October Scituate Arts Festival has already been canceled. It seemed reasonable that we hold a virtual AstroAssembly 2020 using the Zoom platform, as it would be a one day meeting on Saturday, October 3, 2020. A discussion about registration brought up options of a small fee or just asking for a donation, so that more people might be willing to attend. This will be discussed further. It was decided that we should have only 3 speakers during the day and no evening speaker. Holding a raffle was mentioned, with attendees buying tickets online via paypal as they did at NEAF in New York this year. There was also a positive reaction to having some short movies showing off the Seagrave property, our scopes and our history during breaks. Laura, Jeff and Jim will work on producing these videos. We can also have refreshment breaks when people can talk with each other. Ian was asked to work on finding some speakers for this event. The details of the event need to be discussed further before we advertise it.

• Trustee Report The question of when or whether to hold open nights was introduced. Steve Siok had learned of the Rhode Island guidelines for events held during the Covid outbreak and that if we want to open we will need a plan to have on file, in case we are visited by state officials. Jim Crawford will put together a plan for our future "Open Observing Public Nights" and bring his plan back to the Executive Committee for review and consideration.

• Next Executive Committee meeting will be Monday July 13 at 7:30PM via Zoom.

The meeting was adjourned at 8:25PM.

Respectfully submitted,

Sue Hubbard-Secretary

Sergei Khrushchev: 1935-2020

by Francine Jackson

There are some of us who probably can remember the 1950s, and Nikita Khrushchev doing his shoe pounding at the United Nations; but, there are probably many more of you who have been amazed with the serenity of his son, Sergei.

It is difficult to imagine this quiet, unassuming person holding several advanced engineering degrees, including an M.A. "with distinction" from Moscow's Electric Power Institute, and a Ph.D. from Moscow Technical Power Institute. He was an occasional speaker at the Naval War College, a Senior Fellow at Brown's Watson Institute for International and Public Affairs, and became very involved with the Cold War Museum, founded by Francis Gary Powers, Jr., to preserve Cold War history and honor the veterans of that time.

I first met him at Bryant, where he was friendly with members of the science department. Imagine all of our surprise learning he was fascinated with amateur astronomy, and visited Skyscrapers, Inc., on more than one occasion. His death in Cranston in June at age 84 signals the end of a true Renaissance man, who came to America, became a naturalized citizen, and made the world a calmer, better place.

Book Review

Written in the Stars: Constellations, Facts and Folklore

by Alison Davies, illustrated by Jesus Sotes Vicente, London, Quadrille, 2018, ISBN 978- 1-78713-176-7, hardbound, $16.99 US

Reviewed by Francine Jackson

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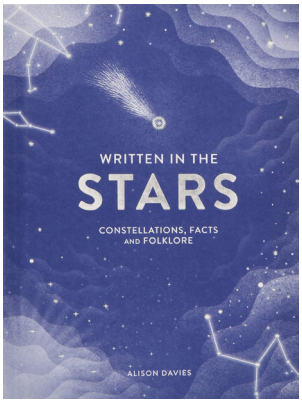


I'm sure many of you have the very tiny The Night Sky: A Guide to the Stars, by Ian Ridpath. This little softbound book, not even four inches square, gives a synopsis of all 88 constellations, listed in alphabetical order, for ease of locating. In this case, Written in the Stars is slightly larger, and hardbound, containing some of the most beautiful images ever seen in a book on stars; however, instead of listing the constellations by alphabet, they are broken into quadrants, several of which I'm not sure how they are determined, although many are placed together into their "normal" groupings.

Where you might be surprised is that some of the images are not what you normally picture with respect to the constellation. For example, Draco's image is one of the most beautiful sketches of an apple, a sign of why he was placed in the sky. Ursa Minor is Arcas. Eridanus, although a river is depicted, concentrates on the chariot driven by Phaeton, whose erratic driving eventually ended in the river.

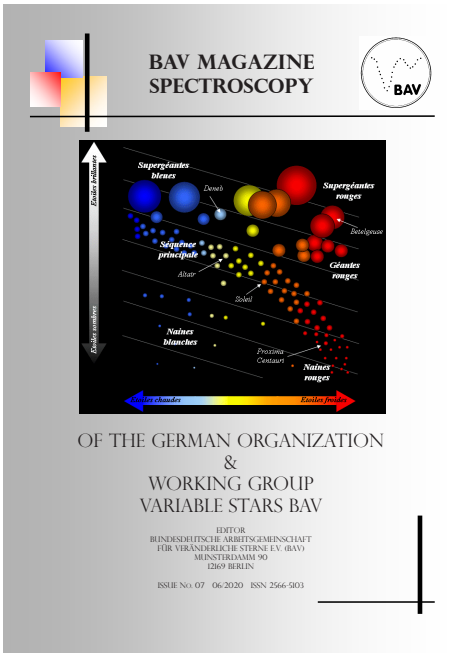
Through the book, whether the constellation's image is close to your normal depiction, or it totally changes your mind concerning the myth attached to it – some of which tend to be a variant of the traditional legend - the reader will never find a more beautiful set of illustrations. Jesus Sotes Vicente's images literally jump out of the page, possibly having you want to take some of them and frame them.

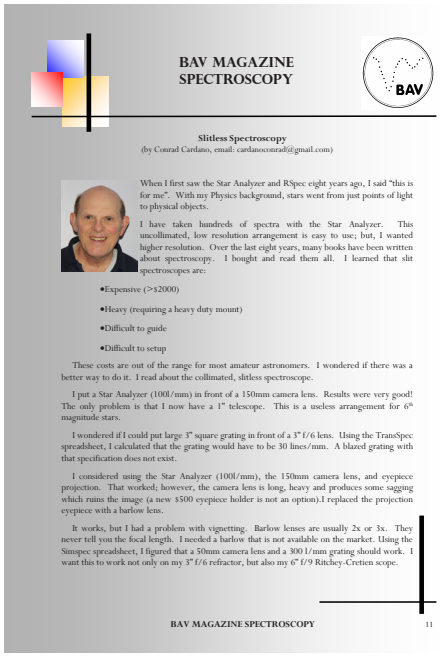
In addition, this book lists an incredible bibliography, including other books, web sites and apps; also, it does give a short description of each constellation myth, including a notation that any listed god existed on Mount Olympus.

Written in the Stars takes the sky, and wraps it into one beautiful, and durable, book. Its pages are virtually indestructible, and the cover instantly attracts the reader to see more. This will proudly fit on any stellar bookshelf.

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

Skyscrapers in the News





Conrad Cardano was published in the **BAV Magazine Spectroscopy** of the German Workgroup for Variable Stars https://www.bav-astro.eu/index.php/veroeffentlichungen/bav-magazine-spectrocopy/issues-of-magazine

eco RI news

In a June 18, 2020 online news article on ecoRI News, Tracy Prell and Kim Arcand were quoted in an article about light pollution by Gracy Kelly:

Insects Do It in the Dark: Glaring Problem of Light Pollution Has Simple Solutions
https://www.ecori.org/pollution-contamination/2020/6/17/night-lights-do-nothing-to-calm-the-beasts

Astrophoto Gallery

Venus & waning crescent Moon, post occultation on June 19. Image taken in New Hampshire by Bob Horton

M13 on June 12 by Jeff Padell.
Went out last night to try out my new STARSENSE and SKYSYNC (GPS) I did a manual alignment with the star sense since the automatic failed due to all my trees. The light pollution didn't bother it at all. I used it to find 4 areas of the sky and it takes an image and then plate solves and then it is aligned. I then put in an ASI178 which is a small chip and went to M13 and boom it was in the middle of the field. I went to 4 Messiers and 3 NGC and all nailed. 0 3-second exposures

Face-on spiral galaxy M101 in Ursa Major by Steve Hubbard.
14" f/8 SCT and ZWO294MC imager.
I used Sharpcap and the live stacking program at a gain of 75 for about 10 minutes each. I then saved some of the output files and stacked them in the Sharpcap live stacking program again.

Here is my M57 taken with my Skywatcher ED120 refractor last night I could only see stars down to mag 2.0 (at the zenith 2.4) and poor transparency

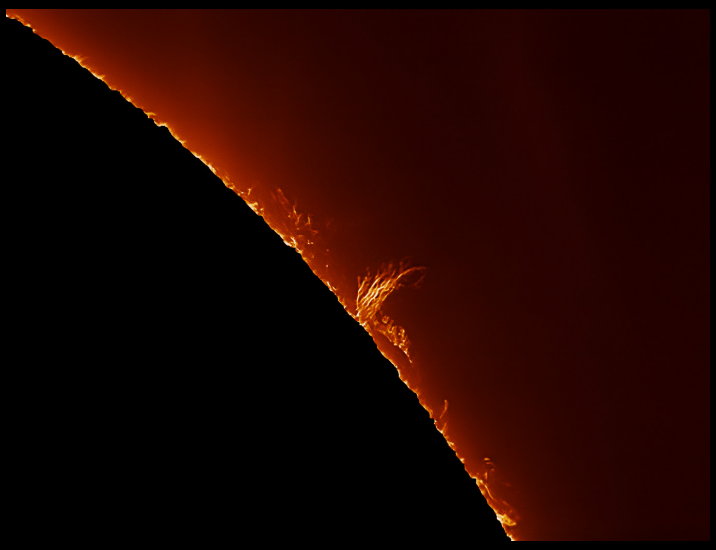
I am learning my new STARSENSE for alignment using plate solving, it works even in my light polluted and tree challenged area. It is a keeper.

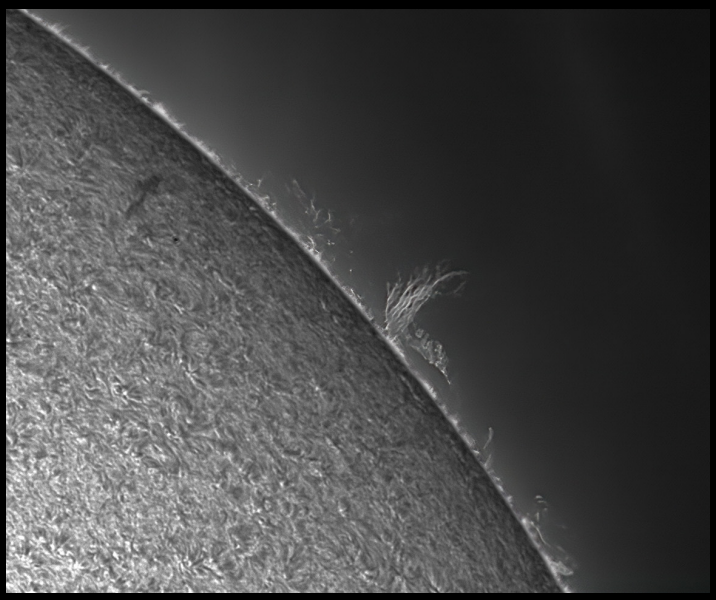
I used my ZWO ASI174mc one shot color with no filter. color space raw8 with 20 second subs for a total of 15 minutes of exposure. Processed in Nebulosity

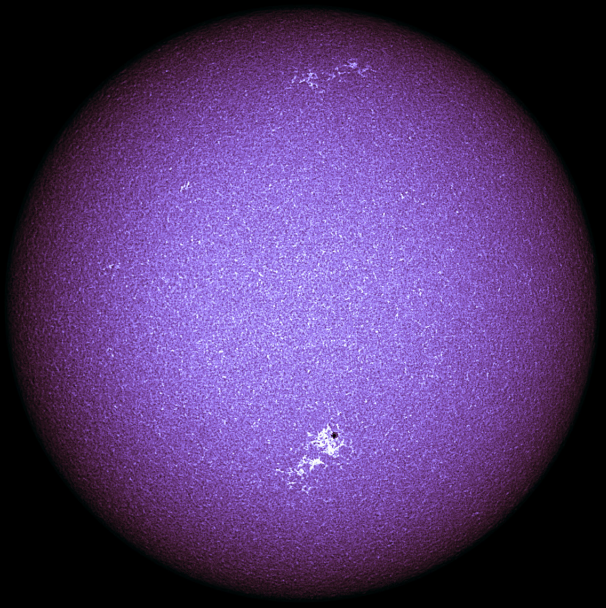
Image taken on June 18 by Jeff Padell.

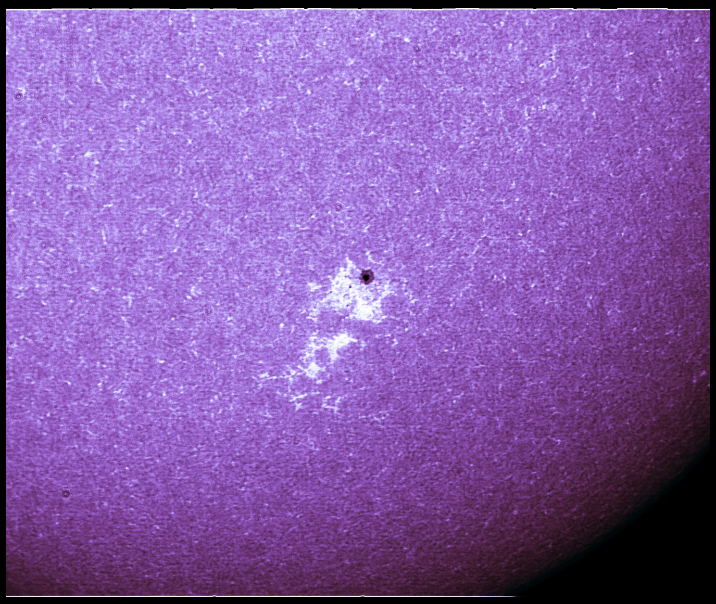
Seyfert's Sextet galaxy group 190 million light years distant in the constellation Serpens taken by Steve Hubbard on June 16. Taken with 14" f/8 SCT and ZWOASI294MC using Sharp Cap and live stacking; 10 frames @ 300s each.

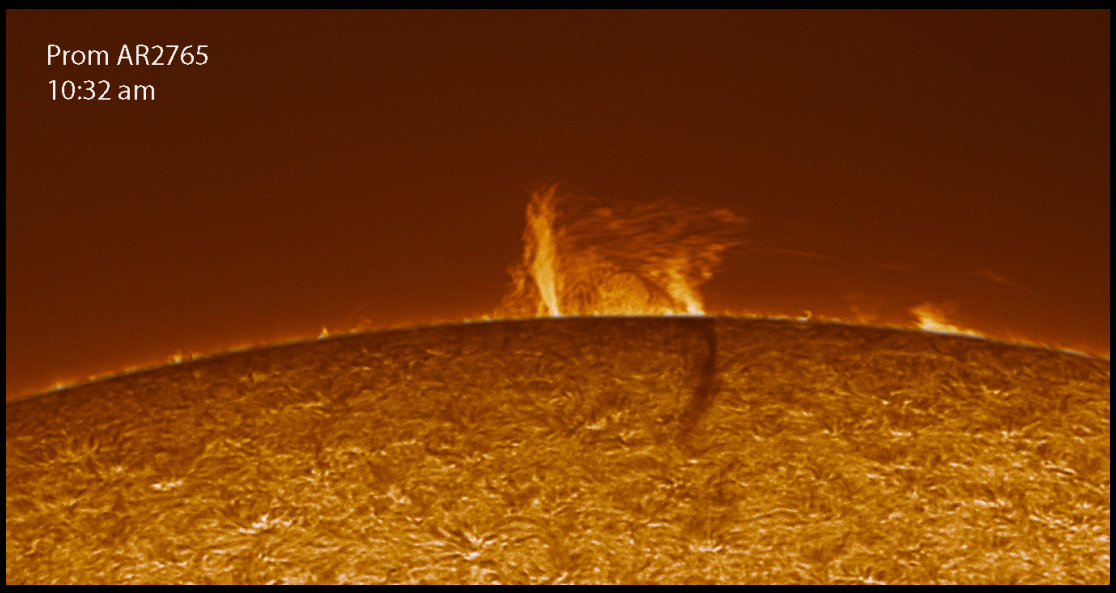
Solar activity on June 8 by Jeff Padell. A prominence, a sunspot associated with AR2765, and the solar disk and AR2765 in Calcium K (396.9nm).











As AR2765 moves off the face the proms become visible. Notice the difference in it in the space of 15 minutes on June 17. Images by Jeff Padell.

Supernova 2020nlb in M85 on June 25 by Lloyd Merrill. Here's my attempt using the 152mm f5.9 refractor. This is a tough dim object. The image consists of two uncalibrated 300-sec images stacked. You can just barely make out the supernova candidate.

Here's my image of M 85 from 2 nights ago. I still can't find any references to a supernova in M 85 so I don't know if it's in this image or not. As a bonus, I've included an image of the Corona Borealis galaxy cluster. this is a big, very far away galaxy group. Both done using my 14" F8 SCT, zwoasi294mc cooled imager and sharpcap using the live stacking feature. M85 was 240 seconds exposure, the cluster was 430 seconds total.

Open cluster NGC 6709 in Aquila by Jeff Padell.

Deep sky images by Steve Hubbard on June 16. All with my 14" F8 SCT and ZWOASI294MC. I used sharp cap and the live stacking function then touched up after with Astra Image. The M 51 I think is an improvement over prior ones.

Directions to Seagrave Memorial Observatory

www.theSkyscrapers.org

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.

SKYSCRAPERS INC.

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