



the Skyscraper

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

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Latest Lucky Imaging Results Using the 13" Schupmann Telescope at Stellafane and the 6" Warney & Swasey Refractor at Mt. Wilson

A presentation by Thomas Spirock
Friday, September 10, 7:00pm EDT at Seagrave Observatory

Our September meeting will take place in-person at Seagrave Memorial Observatory in North Scituate and will also be shared via Zoom (and recorded) for those unable to attend in-person. Our speaker will join us remotely. [Contact Linda Bergemann \(L.Bergemann@aol.com\)](mailto:L.Bergemann@aol.com) for [Zoom Meeting link and information](#).

Those attending in-person are advised of the following:

- Please wear a face mask indoors, regardless of your vaccination status. You may shed your mask when outdoors.
- Special parking rules are in effect. Please park with your car and its headlights facing east, toward our driveway. Someone will be there to direct you.

In this presentation Thomas Spirock will present the latest results using the "lucky imaging" technique with the 13" f-10 Schupmann telescope at Stellafane, in Springfield, VT, and the 6" f-15 Warney and Swasey refractor, with a Brashear lens, at Mt. Wilson, in southern California. First, the unique and advantageous characteristics of the Schumann telescope will be discussed along with a brief history and description of the 6" W&S refractor at Mt. Wilson. Next, the "lucky imaging" technique will be described. Finally, a comprehensive list of resulting images will be presented; including Mars, Jupiter, Saturn and both "full disk" and high resolution images of the Moon.

Thomas Spirock has been a member of

the Springfield Telescope Makers, at Stellafane, since 1989. He was instrumental in building both the 13" Schupmann telescope and the McGregor Observatory, at Stellafane, both of which were completed in 1995. He earned a Ph.D. from the New Jersey Institute of Technology working to develop the latest iteration of the solar vector-magnetograph at the Big Bear Solar Observatory in southern California in 2005. During the past several years, he has been applying the "lucky imaging" technique to data collected with both the 13" f-10 Schupmann telescope at Stellafane and the 6" f-15 W&S refractor, the 16" f-10 Mead Catadioptric and the 60" Cassegrain telescopes at Mt. Wilson.

Seagrave Memorial Observatory Member Night

Saturday, September 25

Learn the constellations; observing with binoculars, viewing through observatory telescopes. Bring your binoculars or telescope.

International Observe the Moon Night

Saturday, October 17

President's Thoughts

by Steve Siok

Hello again everyone,

Are you familiar with Citizen Science? Very simply it is a way for non-professionals to participate in advancing scientific knowledge. Are you a bird watcher? You can partake in the Audubon Christmas Day bird count. If you are adept at using a computer you can find many projects that ask you to look at images and report your conclusions. If you Google "Citizen Science" you will learn about many interdisciplinary topics. There was a project that asked people to read ship's logs and help analyze meteorological information.

But we are Amateur Astronomers. What is our Citizen Science? For 110 years it has been the American Association of Variable Star Observers (AAVSO). In this day of big scopes and imaging many of us are driven to take

wonderful deep sky pictures. But to what end?

AAVSO provides us a place to add our observing efforts to true scientific knowledge. Regardless of the nature of your equipment you can contribute star magnitude estimates to the AAVSO database. What if you were the first person that noticed Betelgeuse was getting just a little dimmer? That's naked eye variable observing. What if you were taking images of the Milky Way in Lyra at just the time a nova was exploding (like Ben Mayer did)? That is photographic variable observing. And so on.

The point of my discussion is to point all of you to a wonderful article in the September issue of Astronomy magazine by Stella Kafka, the AAVSO director. Some of you may remember that she spoke at Astroassembly sev-

eral years ago. In her article Stella reviews all the ways observers have added to the knowledge of variables. She discusses how observers can use different techniques and equipment in their pursuit of magnitude estimates. She encourages observers to even contribute to the astronomical literature by writing papers in the Journal of the AAVSO. Stella's article is not bogged down in details. She does not discuss Algol variables or Mira variables or SS Cygni. That is for you to discover when you are bitten by the variable star bug. Pursue it!

In closing I hope to see many of you at AstroAssembly soon. If you can, please come in person. If you prefer, you can join us on Zoom.

Wishing you all clear skies.



Skyscrapers conducted its first in-person meeting since March 2020 on August 14, when Joseph Farah presented about Event Horizon Telescope. Following the presentation, clear skies permitted observing, with Jupiter and Saturn being the highlights.



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 **September 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.

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Skylights: September 2021

by Jim Hendrickson

September is a month of transition. With the equinox approaching on the 22nd, the sky is getting darker earlier, and the summer haze and smoke from western wildfires are finally abating. Cooler nights mean fewer mosquitoes, the crickets and katydids start to quiet, and you may hear a distant owl or coyote during your sky-watching sessions.

One of the most notable Full Moons of the year, the Harvest Moon, occurs on the 20th. This Harvest Moon lies near the incline of the ecliptic when it rises, opposite the Sun, which is on the decline, and therefore the interval between moonrises on successive nights is at a minimum, about 22 minutes between the 20th and the 21st. This extra light at dusk has aided farmers during the annual harvest season, hence the name Harvest Moon.

Watch the Moon throughout September as it pairs up with some familiar objects: The waning crescent is just one half degree from the star cluster M35 in Gemini on the morning of the 1st, passes 2.7° from the Beehive cluster (M44) in Cancer on the morning of the 4th, and is new on the 6th. Early on the 7th, an opportunity to spot a one-day-young crescent occurs just after sunset, when it is 3.2° above Mars. After first quarter occurs on the 13th, the waxing gibbous passes below Jupiter and Saturn on the 16th and 17th, respectively. Finally, the waning gibbous passes 4.5° from Uranus on the morning of the 24th..

Mercury is in the evening sky all month, but due to the shallow angle of elongation, this remains an unfavorable apparition. Maximum elongation occurs on the 13th, with Mercury being 27° east of the Sun, and the elusive inner planet sets less than 50 minutes after sunset. During the latter part of September, Mercury approaches Spica, coming within 1.5° of the star on the 21st.

Venus begins the month near Spica, and moves nearly parallel to the southwestern horizon on successive nights. While Venus has appeared as a small gibbous for the past several months, you'll notice its changing phase throughout September, as it morphs from a 72% gibbous at 15 arcseconds to a 62% gibbous at 19 arcseconds throughout the month. Venus sets about 90 minutes after the Sun.

After lingering around in the western twilight for the past few months, Mars

has finally become hidden from view, as it reaches conjunction early next month.

Jupiter and Saturn rule the night in September. Remember how close they were just a year ago as they were approaching their historic conjunction? Now their spacing gives a good indication of Jupiter's orbital velocity compared to Saturn, as the king of the planets leads Saturn by about 16 degrees, though due to Earth's rotation, Jupiter appears to trail Saturn. The two gas giants also indicate the angle of the ecliptic in Capricornus, where both planets currently reside, as Jupiter is a bit higher in elevation than Saturn. At their present locations, together they are about halfway between the December solstice and vernal equinox points on the ecliptic.

Uranus rises around 10pm in mid-September in the constellation Aries. Its 6th magnitude teal glow can just be detected with the unaided eye from a clear and dark site, but it is more easily found with binoculars. It will be at opposition in early November.

While not typically thought of as an exciting destination during our planetary observation, Neptune shines at its brightest in September. At opposition on September 14th, our outermost planet is still a whopping 28.9 AU from Earth, and its blue-hued reflected sunlight takes four hours to reach us.

Although Neptune's 2.4 arcsecond disk is barely discernible through a telescope on nights of average seeing, it is bright enough to be spotted through binoculars as a 7.9 magnitude point. Find Neptune by starting at the bottom edge of the Great Square of Pegasus, then move south to the Circler, an asterism in Pisces consisting of 4th and 5th magnitude stars in a roughly circular pattern about 6°x5° in size. From here, travel south a bit more, about the same height as the Circler, and look for a flattened diamond of 6th and 7th magnitude stars about 1.5° long. Neptune will be just a bit west of center in this diamond, and it progresses westward along its apparent retrograde path as the month progresses. On the 24th, it is located just 96 arcseconds below HD 221148, the westernmost and brightest star in the diamond.

Neptune doesn't offer much visual interest in binoculars or small telescopes, but it's fun and easy to visit our eighth planet at

Events in September

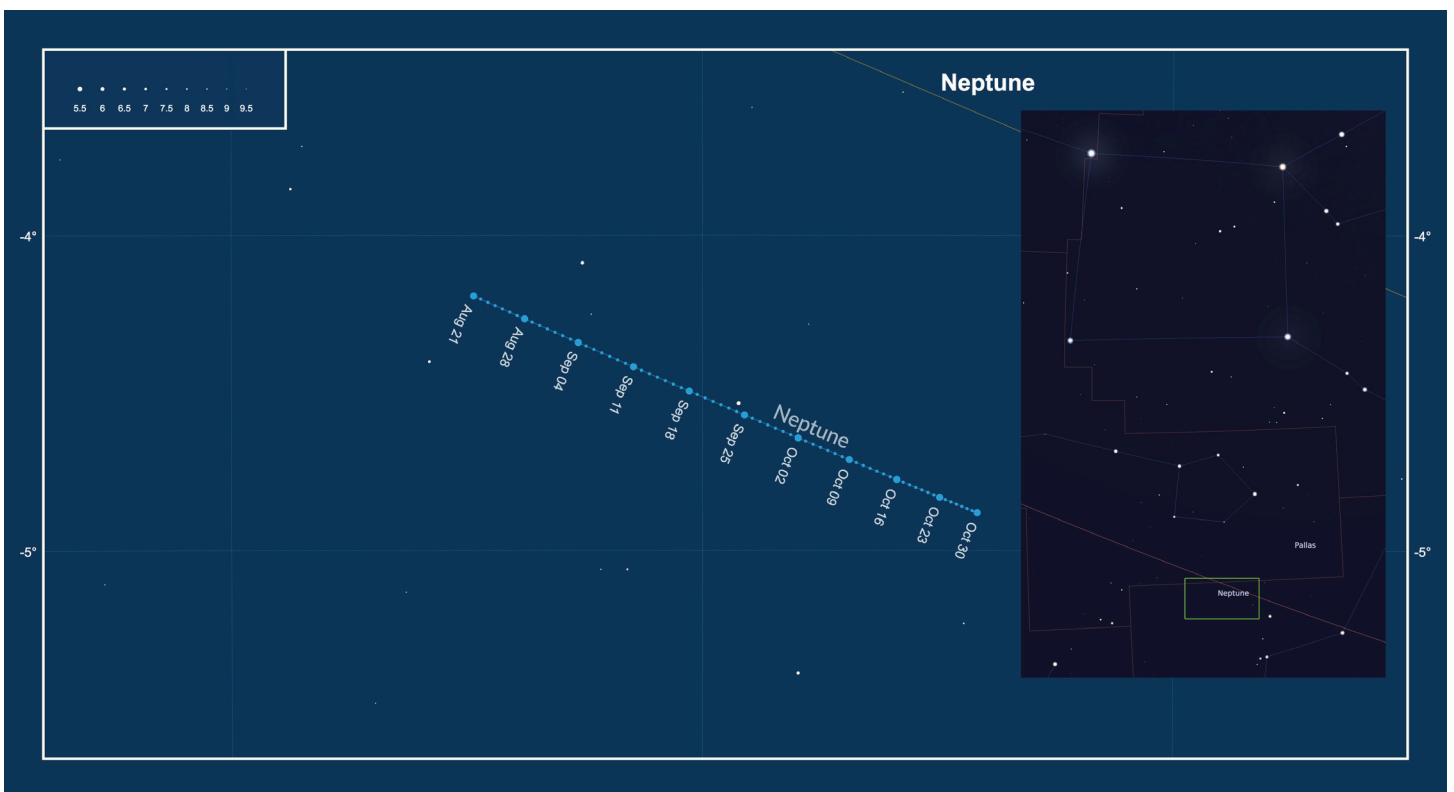
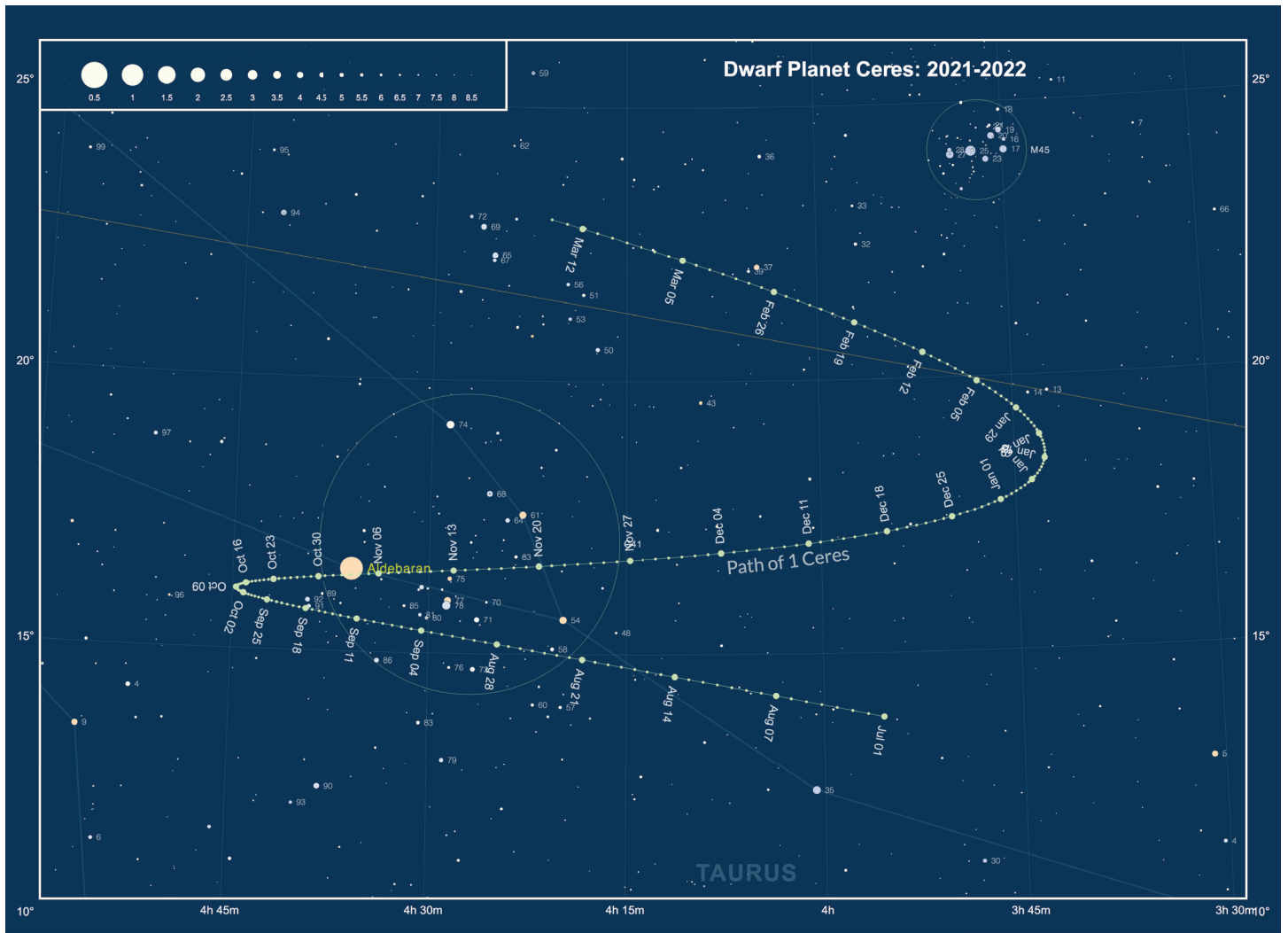
- 1 Moon & M35 (0.5°)
- 4 Moon & M44 (2.7°)
- 5 Venus & Spica (1.6°)
- 6 **New Moon**
- 7 Moon & Mars (3.2°)
- 9 Moon & Venus (4.1°)
- 11 2 Pallas Opposition (mag. 8.5)
- 13 **First Quarter Moon**
- 13 Mercury Greatest Elongation (E 27°)
- 13 1 Ceres & Aldebaran (0.9°)
- 14 Neptune Opposition (mag. 7.9)
- 16 Moon & Saturn (4.3°)
- 17 Moon & Jupiter (5.3°)
- 20 **Full Harvest Moon**
- 21 Mercury & Spica (1.5°)
- 22 Equinox (14:21)
- 23 Venus & Zubenelgenubi (2.1°)
- 24 Moon & Uranus (4.5°)
- 28 **Last Quarter Moon**

Times in Eastern Daylight Time (UTC-4). Ephemeris times are for Seagrave Observatory (41.845N, 71.590W)

least once every year.

For those with a larger telescope, Neptune's largest moon Triton can be observed, or even imaged with smaller scopes. Slightly larger than Pluto, Triton is about 13th magnitude, and is separated from Neptune by as much as 14 arcseconds, the same separation of Mizar and its companion in Ursa Major.

While it won't be at opposition until late November, now is a great time to start watching dwarf planet Ceres, as it is traversing the Hyades cluster in Taurus over the next few months, and, through most of September, is within 2° of Aldebaran. The Hyades rises before midnight, and Ceres shines a bit brighter than 9th magnitude, so this will be a rewarding late-night binocular adventure. Located 2.6 AU from Earth at the beginning of the month, and 2.2 AU at the end, the 950-kilometer dwarf planet's motion should be easily discernible from night to night as the Hyades provides an abundance of nearby stars to map its position against. As an additional challenge, turn your telescope towards it and see how small a time interval elapses before you detect its apparent movement. Can you see it move in an hour? How about a half hour? A well-calibrated tracking mount and reticle eyepiece will aid in this challenge.



The Sun, Moon & Planets in September

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

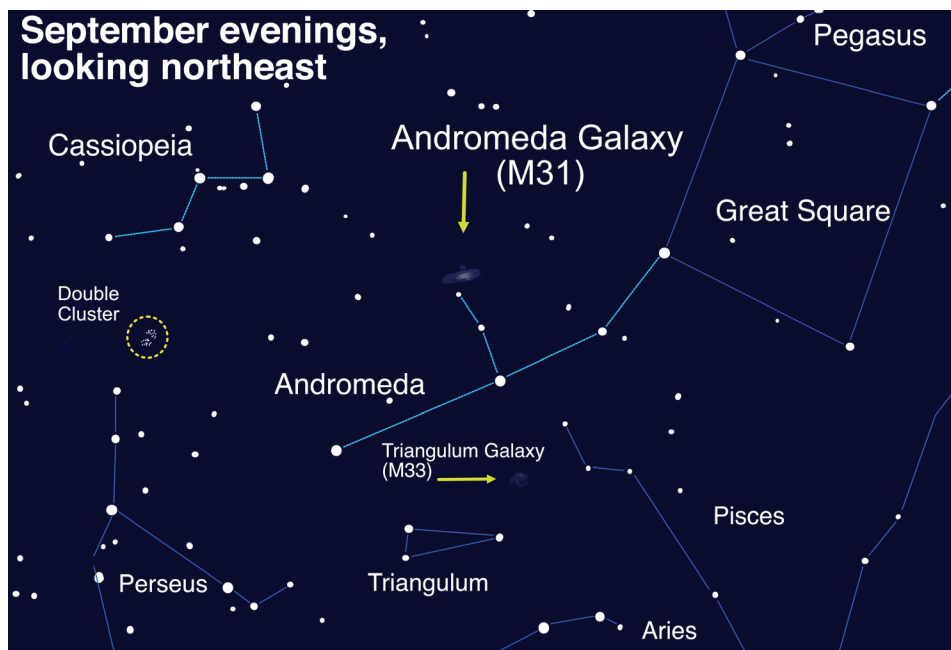
Object	Date	RA	Dec	Const	Mag	Size	Elong	Phase(%)	Dist(S)	Dist(E)	Rise	Transit	Set
Sun	4	10 52.4	7 10.6	Leo	-26.8	1902.9	-	-	-	1.01	06:15	12:45	19:14
	11	11 17.7	4 33.1	Leo	-26.8	1906.3	-	-	-	1.01	06:22	12:42	19:02
	18	11 42.8	1 51.8	Vir	-26.8	1909.9	-	-	-	1	06:29	12:40	18:50
	25	12 07.9	-0 51.3	Vir	-26.8	1913.6	-	-	-	1	06:36	12:37	18:38
Moon	4	8 29.0	22 33.4	Cnc	-10.2	1828.4	38° W	10	-	-	03:12	10:55	18:28
	11	14 33.0	-13 47.1	Lib	-10.9	1954.8	52° E	19	-	-	11:36	16:45	21:46
	18	21 32.2	-20 40.1	Cap	-12.6	1900.3	143° E	90	-	-	18:13	23:24	04:43
	25	3 05.6	15 10.0	Ari	-12.4	1779.7	134° W	85	-	-	20:35	03:47	11:09
Mercury	4	12 22.1	-3 40.7	Vir	0.1	6.1	25° E	71	0.47	1.11	08:26	14:15	20:03
	11	12 51.7	-7 54.5	Vir	0.2	6.7	27° E	62	0.46	1.01	08:43	14:16	19:49
	18	13 14.9	-11 16.0	Vir	0.3	7.5	26° E	50	0.45	0.90	08:50	14:11	19:32
	25	13 27.9	-13 11.5	Vir	0.7	8.5	23° E	34	0.42	0.79	08:41	13:55	19:09
Venus	4	13 21.0	-8 55.8	Vir	-4.0	15.6	40° E	72	0.73	1.09	09:44	15:14	20:43
	11	13 51.1	-12 18.2	Vir	-4.0	16.3	42° E	70	0.73	1.04	09:59	15:16	20:33
	18	14 21.5	-15 28.4	Vir	-4.0	17.2	43° E	67	0.73	0.98	10:14	15:19	20:23
	25	14 52.5	-18 22.6	Lib	-4.0	18.1	44° E	65	0.73	0.93	10:29	15:23	20:15
Mars	4	11 35.4	3 37.8	Leo	1.8	3.6	11° E	100	1.65	2.63	07:12	13:27	19:41
	11	11 51.8	1 48.2	Vir	1.7	3.6	9° E	100	1.65	2.64	07:07	13:16	19:24
	18	12 08.4	-0 02.3	Vir	1.7	3.5	7° E	100	1.64	2.64	07:03	13:05	19:06
	25	12 25.0	-1 53.1	Vir	1.7	3.5	4° E	100	1.64	2.64	06:58	12:54	18:49
1 Ceres	4	4 33.5	15 35.5	Tau	8.7	0.5	93° W	97	2.81	2.58	23:24	06:25	13:25
	11	4 38.5	15 47.2	Tau	8.6	0.5	98° W	97	2.80	2.48	23:01	06:02	13:03
	18	4 42.6	15 57.1	Tau	8.5	0.5	104° W	97	2.80	2.38	22:37	05:39	12:40
	25	4 45.7	16 05.4	Tau	8.4	0.5	110° W	97	2.79	2.29	22:12	05:14	12:16
Jupiter	4	21 52.0	-14 12.7	Cap	-2.7	48.6	164° E	100	5.02	4.05	18:30	23:39	04:49
	11	21 48.9	-14 28.9	Cap	-2.7	48.2	156° E	100	5.02	4.08	18:00	23:09	04:17
	18	21 46.1	-14 42.9	Cap	-2.6	47.6	148° E	100	5.02	4.13	17:31	22:39	03:46
	25	21 43.8	-14 54.1	Cap	-2.6	46.9	141° E	100	5.02	4.20	17:02	22:09	03:16
Saturn	4	20 42.4	-19 03.6	Cap	0.3	18.2	146° E	100	9.94	9.09	17:40	22:30	03:21
	11	20 40.9	-19 09.3	Cap	0.4	18.1	139° E	100	9.94	9.16	17:11	22:01	02:51
	18	20 39.8	-19 13.9	Cap	0.4	17.9	132° E	100	9.94	9.24	16:43	21:33	02:22
	25	20 38.8	-19 17.4	Cap	0.4	17.7	125° E	100	9.94	9.33	16:15	21:04	01:54
Uranus	4	2 49.5	15 50.8	Ari	5.7	3.7	117° W	100	19.74	19.26	21:40	04:41	11:42
	11	2 49.1	15 48.8	Ari	5.7	3.7	124° W	100	19.74	19.16	21:12	04:13	11:13
	18	2 48.5	15 46.3	Ari	5.7	3.7	131° W	100	19.74	19.07	20:44	03:45	10:45
	25	2 47.8	15 43.1	Ari	5.7	3.7	138° W	100	19.74	18.98	20:16	03:16	10:17
Neptune	4	23 32.7	-4 13.1	Aqr	7.8	2.4	170° W	100	29.92	28.93	19:33	01:20	07:07
	11	23 32.0	-4 17.8	Aqr	7.8	2.4	176° W	100	29.92	28.92	19:06	00:52	06:39
	18	23 31.3	-4 22.4	Aqr	7.8	2.4	176° E	100	29.92	28.92	18:38	00:24	06:10
	25	23 30.6	-4 26.9	Aqr	7.8	2.4	169° E	100	29.92	28.94	18:10	23:56	05:42
Pluto	4	19 47.2	-22 48.8	Sgr	14.4	0.2	133° E	100	34.36	33.66	17:01	21:35	02:10
	11	19 46.8	-22 50.2	Sgr	14.4	0.2	126° E	100	34.36	33.76	16:33	21:08	01:42
	18	19 46.5	-22 51.3	Sgr	14.4	0.2	119° E	100	34.36	33.87	16:06	20:40	01:14
	25	19 46.3	-22 52.1	Sgr	14.4	0.2	112° E	100	34.37	33.98	15:38	20:12	00:46

Catch Andromeda Rising

By David Prosper

If you're thinking of a galaxy, the image in your head is probably the Andromeda Galaxy! Studies of this massive neighboring galaxy, also called M31, have played an incredibly important role in shaping modern astronomy. As a bonus for stargazers, the Andromeda Galaxy is also a beautiful sight.

Have you heard that all the stars you see at night are part of our Milky Way galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, its trillion stars appearing to our eyes as a 3.4 magnitude patch of haze. Why so dim? Distance! It's outside our galaxy, around 2.5 million light years distant - so far away that the light you see left M31's stars when our earliest ancestors figured out stone tools. Binoculars show more detail: M31's bright core stands out, along with a bit of its wispy, saucer-shaped disc. Telescopes bring out greater detail but often can't view the entire galaxy at once. Depending on the quality of your skies and your magnification, you may be able to make out individual globular clusters, structure, and at least two of its orbiting dwarf galaxies: M110 and M32. Light pollution and thin clouds, smoke, or haze will



Spot the Andromeda Galaxy! M31's more common name comes from its parent constellation, which becomes prominent as autumn arrives in the Northern Hemisphere. Surprising amounts of detail can be observed with unaided eyes from dark sky sites. Hints of it can even be made out from light polluted areas. Image created with assistance from Stellarium

severely hamper observing fainter detail, as they will for any "faint fuzzy." Surprisingly, persistent stargazers can still spot M31's core from areas of moderate light pollution as long as skies are otherwise clear.

Modern astronomy was greatly shaped

by studies of the Andromeda Galaxy. A hundred years ago, the idea that there were other galaxies beside our own was not widely accepted, and so M31 was called the "Andromeda Nebula." Increasingly detailed observations of M31 caused astronomers to question its place in our universe – was M31 its own "island universe," and not part of our Milky Way? Harlow Shapley and Heber Curtis engaged in the "Great Debate" of 1920 over its nature. Curtis argued forcefully from his observations of dimmer than expected nova, dust lanes, and other oddities that the "nebula" was in fact an entirely



While M31's disc appears larger than you might expect (about 3 Moon widths wide), its "galactic halo" is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already mingle with our Milky Way's own halo, which makes sense since our galaxies are expected to merge sometime in the next few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant galaxies powered by black holes at their center. The Hubble team studied the composition of M31's halo by measuring how the quasars' light was absorbed by the halo's material. Credits: NASA, ESA, and E. Wheatley (STScI) Source: <https://bit.ly/m31halo>

different galaxy from our own. A few years later, Edwin Hubble, building on Henrietta Leavitt's work on Cepheid variable stars as a "standard candle" for distance measurement, concluded that M31 was indeed another galaxy after he observed Cepheids in photos of Andromeda, and estimated M31's distance as far outside our galaxy's boundaries. And so, the Andromeda Nebula became known as the Andromeda Galaxy.

These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope's longest-running observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT): bit.ly/m31phat. Dig into NASA's latest discoveries about the Andromeda

Galaxy, and the cosmos at large, at nasa.gov.



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!

Telescope Live Session

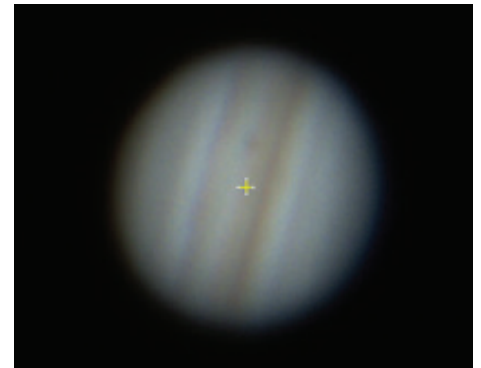
by Bob Janus

The accompanying attachment shows images of Jupiter and Saturn that Jim Hendrickson, Fran Jackson and I obtained last night on the Meade 12 inch with the ZWO 120 color camera that Conrad Cardano donated. We were able to screen share this image via a brief Zoom meeting with Jim Crawford and Steve & Kathy Siok. Alberio was also displayed. We concluded by imaging M13 but the background contained a lot of RGB speckles in the real time display. Deep sky objects may be better displayed with more practice and also with the Meade

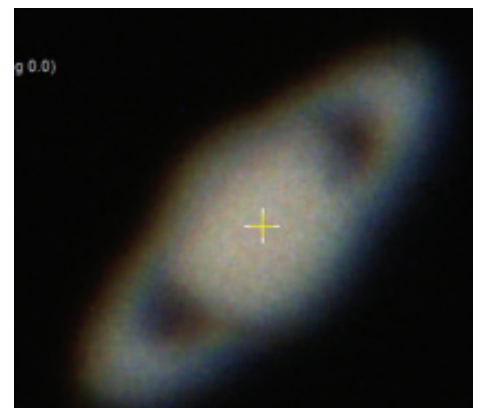
16 as Jeff Padell has previously demonstrated on his laptop computer during public nights.

The purpose of this test was to determine if appealing real time images from the Meade 12 could be remotely shared with viewers using Zoom.

Earlier on Saturday Jim Crawford and Tom Thibault installed new 2x6 beams that support the roof rails on the outrigger portion of the Meade 12 shed. The roof rolled off very easily last night on this refurbished section.



4 SEP 2021 (2130 hrs. local approx.)
Jupiter as Displayed on Laptop Screen (note Io transit shadow above center)
Seagrave 12 Inch Meade SCT with donated ZWO ASI 120 MC color camera
ASICAP software, 34 msec exposure, gain 21



4 SEP 2021 (2100 hrs. local approx..)
Saturn as Displayed on Laptop Screen
Seagrave 12 Inch Meade SCT with donated ZWO ASI 120 MC color camera
ASICAP software, 34 msec exposure, gain 10



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>

Star Party Update

by Jim Hendrickson



Wednesday, August 11, 2021 Plum Beach Club Saunderstown, RI

Francine and I were invited by the Plum Beach Club in Saunderstown to conduct a night sky program to coincide with the Perseids on August 11. Advising that the Perseids are best seen later in the evening, we agreed that this date would be good as Jupiter and Saturn would be coming into good viewing position from the east-facing beach. On Wednesday afternoon, the 5pm TV weather report on WJAR showed the weather cams at Galilee where thick fog had completely engulfed the southern coast. Hoping we could get a couple hours of clear sky in, we left our 95 degree weather in Providence County bound for the cooler seabreezes in Saunderstown at about 6pm.

When we arrived, sunny and clear conditions were present, but there was a distinct fog bank covering up to 5 degrees of the southeastern sky that was slowly growing closer. Following introductions, Francine set up her slide presentation and I set up one of the two small refractors we brought, hoping that we'd at least get a brief look at something, perhaps just Jupiter, as the Moon and Venus were behind the steep hill to the west of the beach.

Francine presented a presentation on the Midsummer Night Sky, highlighting things we could expect to see on a clear night, including the Moon, constellations, bright planets visible, the Perseids, and even a seasonal favorite, the Coathanger cluster.

We were initially told that a little over 50 people had signed up for the event, but later found out that it was closer to 70. The all-ages group was offered fresh-made popcorn and ice water for refreshments and was quite attentive and interested. Many questions were asked, mostly about what can be seen in the sky, and Perseids in particular.

Following the presentation, we were disappointed that the fog had completely obscured the sky and there was no telescope viewing, but a possible future visit was discussed, and a grill was set up for everyone to enjoy s'mores before heading home.

Tuesday, August 24, 2021 Chase Farm Park Lincoln, RI

After being clouded out Thursday and Friday, the Chase Farm Starry Nite was rescheduled to Tuesday, August 24. About 30 guests were in attendance and six telescope operators: Bill Carpenter brought a 6-inch reflector, Bob Janus, Ron Zincone and Heidi Morgan brought a 60mm Tele Vue and 80mm refractors, Francine Jackson and Jim Hendrickson set up 102mm and 80mm refractors, and Dave Amiel from Bristol Community College brought his 8-inch SCT.

The weather was warm and very humid, with dew point in the mid-70s, but the sky was unusually clear for these conditions, and quite possibly, the best, clearest night we've had during any of the Chase Farm nights over the past three years.

Chase Farm was in a different configuration than our normal events due to a movie set being built at the park, and some equipment and lumber had recently been left near the pavilion area where Francine gives her presentations. As a result, the east side of the building, in front of the garage doors, was prepared for the presentation, and Francine had to negotiate with Kevin, the friendly security agent at the main gate, to let our telescope operators drive up to our observing area on the hill.

Francine gave a 30 minute presentation to about 30 guests highlighting the mid-



summer sky, including the constellations and planets visible, the Moon, and information about our local observatories, even though regular visitation schedules have not yet resumed. She noted Jupiter becoming visible as the sky darkened during the presentation.

At the end of the presentation, the sky was in deep twilight and Venus was just setting behind the trees. Jupiter and Saturn attracted most of the viewing attention, but we also viewed double stars and star clusters. Just as we were leaving, the waning gibbous Moon was rising over the trees, shining rather brightly without the haze and smoke we've become accustomed to seeing the Moon through this summer.

Upon leaving, Francine asked for all that were at the telescopes to thank Kevin for his kindness in letting us enter.

Friday, August 27, 2021 River Bend Farm Uxbridge, MA

John Kocur joined Francine Jackson and Jim Hendrickson for our 2021 inaugural night at River Bend Farm in Uxbridge. This was our first night at the farm in over two years, after the EEE-infected mosquitoes cancelled the second half of the 2019 season and the COVID-19 pandemic all of the 2020 season.

Conducted in collaboration with the National Park Service, Massachusetts De-

partment of Conservation and Recreation, and the Blackstone Heritage Corridor, the River Bend Farm nights were started by Kent Cameron over 20 years ago and have been a seasonal highlight for the participants and visitors alike.

This week, about 15 guests of all ages braved the humidity and mosquitoes to view the night sky with us. It has been a rarity to have ideal weather conditions at River Bend Farm nights over the past several years, and this one was no exception, with mostly cloudy conditions prevailing for the

entire session. A band of clear, but hazy, sky opened in the southeast long enough for everyone to get a good look at Jupiter and Saturn. A bit later, a clear spot opened overhead, giving a brief view of Vega and Epsilon Lyrae, and not much else. Surprisingly, some late season fireflies were putting on a show at the eastern edge of the field towards the canal.

Despite the less than ideal weather conditions, all had a good time and are looking forward to returning for another night in September and October.



Carolyn Shoemaker

by Francine Jackson

In July, 1994, many of us were originally preparing for the 25th anniversary of Apollo 11; instead, however, we found ourselves geared up for the incredible views of the planet Jupiter being slammed by a myriad of comet pieces. Comet Shoemaker-Levy 9, first detected in 1992, apparently had been captured by Jupiter years before, and was noted as the first actual comet observed orbiting a planet. When discovered in 1993, the comet seemed to be in pieces, with its next orbit, not around Jupiter, but into Jupiter. The resultant impacts, which took the better part of a week in July, 1994, were visible enough to be seen by our 4-inch Astrocans.

Carolyn Shoemaker certainly didn't start her life as an astronomer: Her college degrees were in history, political science and English literature. It was only when she

met and married geologist Eugene (Gene) Shoemaker that she began her fascination with science, and obtained a research assistant position with her husband.

Joining with David Levy to search for comets proved very fortunate. Together, they discovered 11 comets, two considered one-shot, and 9 periodic. It was this number 9 that attracted the attention of the world, as its path would show the first ever major collision of two celestial bodies.

In 1997, she and Gene were involved in a tragic car accident, resulting in his death and her sustaining major injuries; however, upon her recovery, she continued her observational work until 2002. By then, she was credited with discovering or co-discovering 32 comets and over 500 asteroids. Her awards included an honorary doctorate from Northern Arizona University, and



several from such as NASA's exceptional scientific achievement medal, the National Academy of Sciences James Craig Watson medal (with her husband), and the Scientist of the Year award in 1995. Asteroid 4446 Carolyn was named in her honor.

Carolyn Shoemaker died August 13, 2021.

Open Cluster/Emission Nebula in Vulpecula: NGC 6823/6820

by Glenn Chaple for LVAS

(Mag: 7.1, Cluster Size: 7'; Nebula Size: 40' by 30')

A popular celestial designation for clear, moonless September evenings is M27, the “Dumbbell Nebula.” Next time you visit the Dumbbell, take a side trip three degrees west and slightly north to the open cluster NGC 6823 and its surrounding nebula NGC 6820.

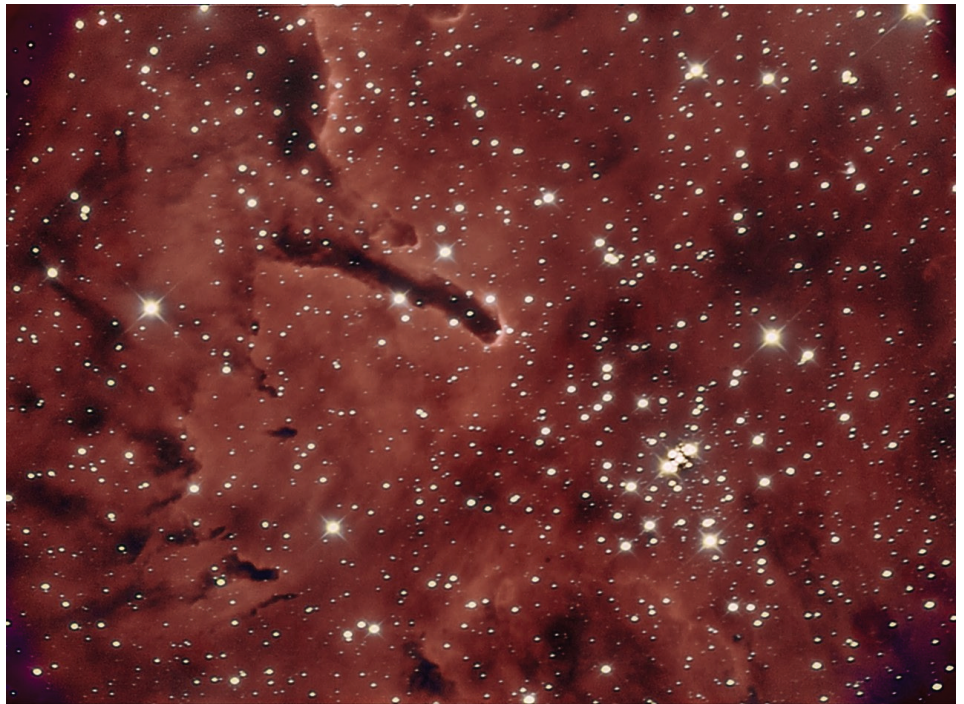
The 2000.0 coordinates for NGC 6823 are R.A. 19h43.2m, dec. +23°18'. I star-hopped there using a 10-inch *f*/5 Dobsonian-mounted reflector and a magnifying power of 80X. My starting point was alpha (α) Vulpeculae - a wide optical double situated about 3 degrees south of Albireo (beta [β] Cygni).

Before arriving at NGC 6823, I came across an eye-catching half-degree-long chain comprised of 6 magnitude 9 and 10 stars. It began about a half degree west of the cluster and ended just north of it. NGC 6823 itself proved to be a neat little group dominated by a bright double star. In all, I saw some dozen stars down to about 14th magnitude.

A scan of the online edition of the Washington Double Star Catalog uncovered a stellar pair of magnitudes 9.4 and 10.4 and 37 arc-second separation at NGC 6823's coordinates. This is most likely the double I saw. The brighter component has a spectral class of O6.5V, which makes sense as NGC 6823 is dominated by hot, young stars.

What about NGC 6820? There was no sign of the surrounding nebula, even when I used a narrowband filter. Resources note that it is extremely difficult to see visually. This is understandable when you consider that William Herschel discovered the cluster in 1785 and the nebula remained unknown until seen by Albert Marth nearly 80 years later. A noticeable feature of NGC 6820 is a dark trunk-like pillar similar to the “Pillars of Creation” seen in the Hubble image of the Eagle Nebula (M16) in Serpens.

NGC 6823 and NGC 6820 are approximately 6000 light years from the earth. The cluster is about 50 light years in diameter.



Close-up view of NGC 6823/6820. Image by Mario Motta. MD (ATMoB) Taken with 32 inch f6.5 scope, with ZWO ASI6200 camera, using 2 hours Halpha, 1 hour each O3 and S2 NB filters. Processed Pixinsight.



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.

STARRY SCOOP

Editor: Kaitlynn Goulette



WHAT'S UP

September 8th marks the 55-year anniversary of the airing of the science fiction series "Star Trek." This television show greatly impacted the public's interest in the US Space Program. Although it only aired for 3 seasons, it has affected multiple generations and provided inspiration for many astronomers, both professional and amateur alike.

The September equinox occurs this month on the 22nd. At this time, our sun is directly above Earth's equator, which makes the day and night hours approximately equal. For those of us in the northern hemisphere, this marks the start of fall. This is great news for astronomers because, with shorter daylight hours, stargazing can commence earlier in the evening.

Following twilight in our western sky, Venus remains our "evening star," blazing at magnitude -4. On September 9th, the 3-day-old crescent moon passes within 5 degrees of Venus. On the following evening, the crescent moon lines up with Venus, the bright star Spica, and Mercury, creating a celestial spectacle.

This month on the 14th, the closest planet to the sun, Mercury, reaches its greatest eastern elongation. At this time, it will be at its farthest point from the sun, offering its best viewing opportunity. Also on this day, the most distant planet, Neptune, reaches opposition. An opposition occurs when the earth is positioned directly between the sun and a planet. At this time, Neptune makes its closest approach

to Earth and therefore appears brighter than at any other time of the year. Neptune is the Solar System's only planet that can't be seen with the unaided eye, but it is visible through binoculars. You can find this planet about 5 degrees south of the Circlet of Pisces asterism.

During September, Jupiter shines at magnitude -2.7. Each night, it follows slightly dimmer Saturn across the southern sky. These two gas giants are joined by the moon on the 16th and 17th and remain great telescopic objects throughout the month.

SEPTEMBER'S SKY

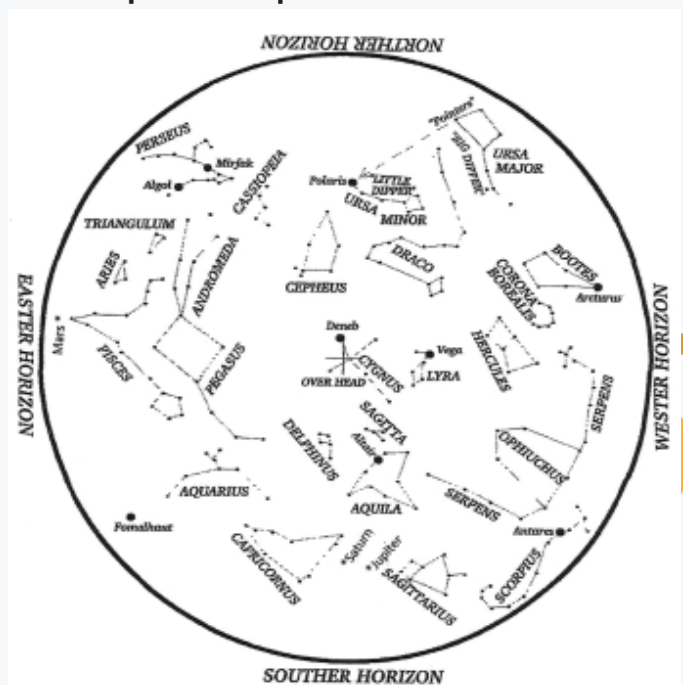
7: New Moon

14: Neptune at Opposition

14: Mercury at Greatest Eastern Elongation

20: Full Moon

22: September Equinox



Credit: Roger B. Culver

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

OBSERVATIONS

The highlight of my recent observing occurred under the dark skies of Springfield, Vermont, at the popular Stellafane astronomy convention. The first night, I mostly used my binoculars as I participated in the "Binocular Observing Olympics III" (BOO). This event featured a list of celestial objects, compiled by Phil Harrington, which included a great combination of galaxies, planetary nebulae, dark nebulae, star clusters, double stars, and some fun asterisms. I mainly used my hand-held 7x35 binoculars, but periodically utilized my tripod-mounted 15x75 binoculars to resolve the fainter objects. At the end of the night, I was ecstatic to have earned my 3rd BOO pin.

On my second night at Stellafane, I used my 12-inch Dobsonian telescope to explore the Sagittarius region of the sky. Among the stunning objects I viewed were the Lagoon Nebula, the Swan Nebula, and the Trifid Nebula. They revealed beautiful detail, especially under higher power, which I don't often get to use under my suburban skies at home. The fun part of observing these objects was that, instead of first locating them in the finder scope, I scanned the area at 50x until I "discovered" them. I also observed some globular clusters in the Ophiuchus region later that night. They consisted of M14, M10, M9, M12, M107, NGC 6366, NGC 6342, and NGC 6356. I had lots of fun observing under the pristine skies of Stellafane and already can't wait for next year!

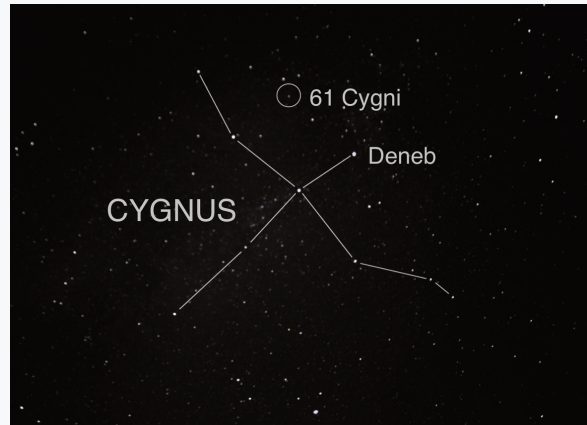


The purpose of the Starry Scoop is to communicate current astronomy and space events. If you want to share your observations or get digital copies of the Starry Scoop, contact starryscoop@gmail.com. The Starry Scoop is now on Facebook. Clear skies!

OBJECT OF THE MONTH

The featured object for September is the "Flying Star," officially known as 61 Cygni. It earned its nickname because of its high proper motion, which is its apparent motion with respect to distant background stars. 61 Cygni was also the first star to have its distance measured, a feat accomplished by astronomer Friedrich Bessel in 1838 using the parallax method.

61 Cygni is a binary star system made of two yellow-orange components with a separation of 31 arc-seconds. It can be found about 10 degrees south of Deneb, the brightest star in Cygnus. Use the map below to help find it. This star is barely visible to the unaided eye, but binoculars easily reveal it. However, to resolve the two separate stars, you will need a small telescope. Good luck!



61 Cygni
Photo by: Kaitlynn Goulette



Bridge of the Starship USS Enterprise



AstroAssembly 2021

Saturday, October 2 at Seagrave Memorial Observatory

47 Peeptoad Road North Scituate, Rhode Island

AstroAssembly returns to Seagrave Observatory in 2021 with an in-person event dedicated to the memories of Ed Turco, Tina Huestis, and other members of the Skyscrapers family who have recently passed.

All day Saturday at Seagrave Observatory

Poster Session, Swap Table (please bring your own table), Solar Viewing, Astrophotography Contest, Homemade Telescopes (bring yours!), Famous Astro Bake-off Contest.

2:30 PM James Head, Brown University

Increasing Science Capabilities in the Apollo Lunar Exploration Program: Perspectives for Artemis

3:45 PM Avi Loeb, Harvard-Smithsonian Center for Astrophysics

Extraterrestrial Life: Are We the Sharpest Cookies in the Jar? This presentation will be via Zoom.

5:30 PM Dinner Break

Dine on your own at a local restaurant. A list of suggestions will be available.

7:30 PM Observing at Seagrave Memorial Observatory

The observatory's telescopes will be available for observing, or set up your own telescope on the grounds.

10:30 AM Dedication of Memorial Garden

11:00 AM Al Hall, Skyscrapers, Inc.

Remembering Ed Turco, Telescope Maker

12:00 PM Boxed Lunch from D'Angelo Grilled Sandwiches

Five options, pre-registration required

1:00 PM Rick Lynch, Skyscrapers, Inc.

Remembering the Life of Leslie Peltier

Times of specific activities are subject to change. For up-to-date program information, visit our website: <http://www.theskyscrapers.org/astroassembly2021>. Astrophoto contest submissions must be sent prior to AstroAssembly. See <http://www.theskyscrapers.org/astroassembly-2021-photo-contest> for more information.

___ Registrations x \$25 each = \$ _____

Name(s) _____

___ Registrations (Skyscrapers member) x \$20 each = \$ _____

___ Registrations (youth under 18) _____ Free _____

___ Boxed Lunch * x \$10 each = \$ _____

___ Italian Grinder

___ Ham & Cheese Grinder

___ Turkey & Cheese Grinder

___ Garden Salad Dressing _____

___ Caesar Salad Dressing _____

Total = \$ _____

Email (required) _____

Register online:



- or -

Send completed form and check (Made payable to Skyscrapers, Inc.) to:

Linda Bergemann
41 Ross Hill Road
Charlestown, RI 02813-2605

* Lunch from D'Angelo Grilled Sandwiches. Chips, drink and cookie/brownie included. Grinders come with lettuce, tomato and cheese. Condiments and extras will be available. Salad dressings: Italian, Light Balsamic Vinaigrette, Honey Mustard, Blue Cheese, Greek, Caesar and Ranch.

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